

START

#1 Guide To Atari ST

ON DISK

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DISK INSIDE



Volume 5, Number 2 October 1990 USA \$14.95 • Canada \$19.95

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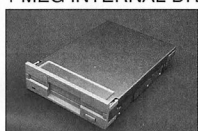
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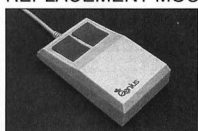
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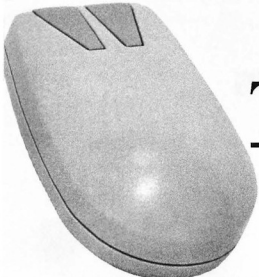
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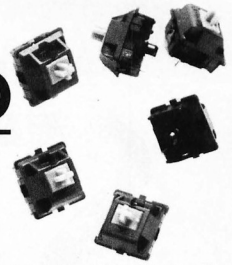
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David H. AHI, Atari Explorer, January/February 90

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Timothy Barr, Interface Magazine, June/July 90

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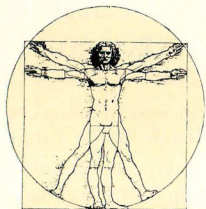
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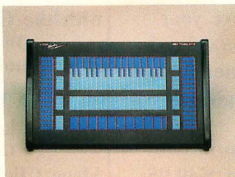
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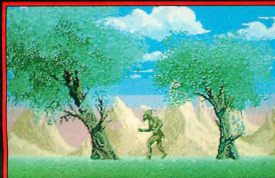
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Indicates programs included on START Disk

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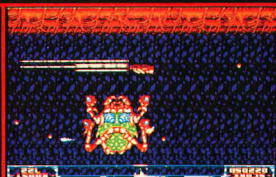


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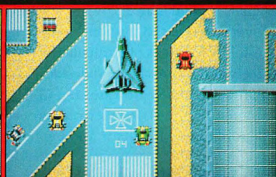


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#1 Guide To Atari ST

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Bigger Does Mean Better

Notice anything different about this issue of START? Hold it up for a second — now do you notice? That's right, START is bigger and it's going to get even bigger in the coming months. There are plenty of reasons for this added bulk, so I'll just get right to them

Making A New START

By now you know that START did not publish a September 1990 issue. This was done so that we could implement planned improvements to the magazine; some you asked for, some we needed. By the January 1991 issue, all of these changes will be in place to make for a new, improved START.

Perhaps the most significant change is that Antic, the legendary magazine for 8-bit computer users, is now a special section within START. Read Antic Editor Nat Friedland's "farewell" editorial on page 93 for more details.

We're pleased to welcome two new faces to the START staff. Jim Burton joins the magazine as technical editor; Rick Braden is the new art director. Burton is a journalist and past START contributor with a thorough knowledge of GFA BASIC. His main responsibility will be the START disk. Braden comes to us from Portland, Ore., where he designed a number of successful regional business and technical journals. In addition to his talents as a graphic designer, Braden is an ST owner and MIDI aficionado.

Several popular ST authors have been named contributing editors, with responsibility for areas of particular interest to ST users. Dan Fruchey will handle word processing and desktop publishing, John Russell and David Plotkin will handle hardware, and Christopher Roberts will take the reins on telecommunications. Jim Pierson-Perry continues to cover MIDI and music, while former START editor Andrew Reese will cover graphics.

Reader Surveys

In the May 1990 issue we asked you to tell us a little about yourselves in our Reader Survey. Over 800 of you sent in a completed survey — so far. Some of you even went to the trouble to include a letter with specific comments. This phenomenal response shows how serious you take your computing. The information you provided us will be invaluable in planning future issues. As promised, we've published the results, with excerpts from some of the letters, in this issue. Thanks again for taking the time to fill it out and fill us in.

To Double-Side Or Not To Double-Side — That Was The Question

In a way, START isn't a magazine with disk, it's a disk with magazine. Because of this, START must present you with programs you can make of real use. So, with the January 1991 issue will come the debut of the new START disk. This disk will be straight double-sided and packed with utilities, product demos and public-domain programs, as you requested. I can't

continued on page 19



Alert Box

CROSSWORD CREATOR

For those of you having difficulty printing a perfect puzzle with Crossword Creator (June 1990), check your printer configuration using the Control Panel accessory. Epson or Epson-compatible printers should be set to 960 pixels per inch; Atari printers require 1280 pixels per inch. Furthermore, the program was written for true Epson FX or compatible printers, which are capable of reverse line feeds. Since some Epson-compatible printers don't support this feature, a Crossword Creator update will be published soon that accommodates this discrepancy.

MIDI MASTER DRUMMER

MIDI Master Drummer (July 1990) does not work with TOS 1.4; the author is investigating a solution.

WHITHER CARDSTAK?

I do not believe I imagined this, but I recall several issues back that START was promising us an improved and expanded version of the database, CardSTak. Has this project been shelved? Or can we still expect to it?

Robert Hochwalt
North Canton, OH

A number of readers questioned our inclusion of CardSTak Pro in the January 1990 issue's "Coming Next Month" blurb. Unfortunately, author Alex Leavens decided to release the

program as shareware. CardSTak Pro will not be published in a future issue of START. — START Ed.

CALAMUS HELP

Scott Wasser's overview of desktop publishing programs in the April 1990 was interesting. In it he mentions a "300-page book available that offers hints and tips for Calamus." However, he fails to mention the name of the book and where to get it. Can you help?

Bill Doerrfeld
Jersey City, NJ

The Guide to Calamus Desktop Publishing is currently available from ISD only to registered Calamus owners. To purchase a copy, return your registration card, along with \$29.95 (U.S.) to ISD Marketing, Inc., 2651 John St., Unit 3, Markham, Ontario, Canada L3R 2W5, (416) 479-1880. — START Ed.

BORN AGAIN

About five months ago a friend and I were talking about computers and he told me that he owns an ST. A few days later he showed me what it could do. Incredible! I must admit, when I left him I felt jealous and worried. I owned an Apple IIGS and I thought, "Could it be that Atari has a computer that can run circles around my IIGS and costs about half the price?" So the next day I bought an issue of START magazine and combed through it for information and prices. I was shocked to find that the library of software was so large and all the prices actually lower than software for the IIGS. After a month of reading all my friend's STARTs, I was convinced. I sold my IIGS and bought an ST. I would like to thank START magazine and my friend for

introducing me to the ST. At least now I'll be spending my money on something that's worth it.

Leland Coleson
No Address

The ST is a great machine. Glad we could be of some help. — START Ed.

MORE MONO PLEASE

Even though I take my computing seriously and have a mono system because I use it for business, that doesn't mean I wouldn't enjoy at least trying out some of the games listed in the magazine but most games require a color system. Isn't there some way, or some program, to change colors into shades of gray so a monochrome system can run a color game?

Joseph A. Gaudet
Hamilton, ONT

The vast majority of our game submissions are in low resolution. Whenever START does come across a solid, playable monochrome game, we'll publish it. In the meantime, there are a number of great monochrome games in the public domain. Check for them on the major online services or mail-order houses such as BRE Software (800/347-6760).

As to color emulators, we can't be of much help. A couple of years ago there was a commercial program called Omnires from Hypertek/Silicon Springs in the Vancouver, B.C., area that did exactly what you're looking for. However, the company appears to be no longer in business and the fate of the program remains a mystery. To our knowledge no color emulators are available in the public domain. If any readers are aware of other sources, please let us know. — START Ed.

REV UP YOUR ST

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Jim Pierson-Perry
ST Inquirer, July 1989

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LeRoy Valley
ST Inquirer, June 1988

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DIGISOUND ST — Offers one input jack. Accepts input from cassette player, TV, stereo, VCR, amplifier or powered microphone. Sound can be played back through monitor speaker (color or monochrome). *Digsound* was used to create the voice commands in *Chessmaster 2000*.

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Color ComputerEyes uses any standard video input — video camera, VCR or video disk. Works in all ST resolutions. Low resolution provides 16-shade black & white or full-color pictures. Features automatic calibration of contrast, brightness and white balance.

"A major breakthrough in video digitizers for the ST."

LeRoy Valley
ST Inquirer, August 1988

Pictures can be used with *PowerPrint II*, *Degas*, *Neochrome* and others. Plugs into cartridge port for easy setup.

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You and *Beat Box* will make awesome rhythms together from waltz to rock, rap to jazz, whatever your preference. No musical knowledge required!

Polyphonic drum machine software comes with over 35 synthesizers, bass guitar and more.

Create your own drum and musical patterns in four voices. (They said it couldn't be done!) Combine and arrange up to 30 different patterns to create an entire rhythmic composition! An ideal accompaniment for musicians. *Beat Box* provides you with your own custom drummer for the price of a metronome!

Beat Box contains a public domain player program so you can share your musical masterpieces with friends.

No need for special equipment. Sound is played through monitor, amplifier or stereo. Also compatible with all ST sound digitizer cartridges, including *Digsound Professional*.

"Very impressive. Even with all four sounds at once, playback sound quality is superb."

Dave Edwards
START, December 1989

"I recommend *Beat Box* to anyone interested in exploring the area of drum or pattern sequencing of sample sounds or anyone interested in exploring their musical talents."

Tom Tjarnberg
ST World, June 1989

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Print 16 shades for incredible detail. Selective shading allows you to print multi-color pictures by printing one color at a time with color ribbons.

"*PowerPrint* works perfectly. A must for your program library."

Donna Wesolowski
ST Inquirer, May 1988

PowerPrint II lets you capture and print almost any ST screen. Works with *Star*, *NEC*, *Citoh*, *Gemini*, *EPSON*, *XM8048* and compatible printers.

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Get a feeling of creative power with the ultimate in computer video digitizing. Simply capture an image with your *Color ComputerEyes* and color video camera (or VCR, video disk, etc.). Then run *Digispec*. Watch your picture develop into a spectacular image of up to 512 different colors!

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AN EDUCATED GUESS

I noticed that every year you have an issue dealing with games, which is good. My wife and I would like to see an issue dealing with nothing but education each year. An issue with programs that can be used to help teach children different topics at home with the ST. Could this possibly be arranged? If so we would be very grateful.

W.S. Mclemore
No Address

Welcome to *START's* annual Education issue. While the content is not exclusively on education, it does include many useful, scholastic programs and articles. — *START Ed.*

VDT SCARE

I was shocked and frightened by the information contained in "The Magnetic Field Menace," an article in the July 1990 issue of MacWorld maga-

zine. The article provided surprising and much-needed information about the harmful effects of the Very Low Frequency (VLF) and Extremely Low Frequency (ELF) radiation emitted by computer video-display terminals (VDTs). *START* magazine would do a great service to the Atari community if you conducted quantitative tests of the amount of magnetic radiation emitted by monitors used with Atari computers. As far as I know, this information is not readily available to most users. Perhaps publishing the results of such tests would motivate monitor manufacturers to produce safer monitors, if necessary.

Robert Plotkin
Brooklyn, NY

Unfortunately, *START* does not have the facilities to conduct tests on the video you describe. We are, however, well aware of the danger of ELF's and VLF's. In the July and August 1990

issues we published a two-part series, "The Body Electronic" by Rebecca Rosen Lum, which covered medical issues and the possible health dangers that have been traced to computer use, including repetitive strain injuries and video-display-terminal hazards. Of course, not all of our readers thought this was a good idea. Read on to find what one in particular had to say.— *START Ed.*

A SECOND OPINION

I have been a subscriber to *START* for over three years and I have truly enjoyed your magazine. I do recommend, however, that you not write about VDT hazards. These are medically related articles and I am not interested in them. Let's have some great articles on the ST and the STE. There is plenty of material around.

Gerard Starrenburg
No Address

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—B.G., Texas

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SALE PR: Armstrong	SEARCH	ADD			
COMPANY: Magic Circuits	EDIT	DELETE			
ADDRESS 1: Wynold Hill, Berkeley 3					
ADDRESS 2: Grand Avenue					
C. I. ZIP: 94704	HOME	DETAIL	COUNTRY:		
PHONE: 415-555-1234	WORK:	FAX:			
EXTENSION: 1234	HOME #2:	DATE: 6/20/91	# OF DISKS:		
SOURCE: DISKPART 32			LINK NOTES:		

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ANDY'S MUSIC

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You're right, there are plenty of other things to write about in the ST world. However, our two-part series on the medical hazards of computing was intended to help readers prevent costly and debilitating physical problems. We thought the issue of your health was important enough to digress from our exclusively technical and product-related focus. — START Ed.

FONT CHANGES

In his overview of desktop publishing (START, April 1990), Scott Swager makes the statement that with Timeworks' DeskTop Publisher ST "it's impossible to use different font styles or sizes within the same word or headline." This is incorrect: changing the font or size of selected text is a simple selection from the Style menu.

George Fergus
Schaumburg, IL

REFLECTING ON REFLECTIONS

In his article, "Reflections" (June 1990), Jim Pierson-Perry mentioned that the program SEQUENCER would only read its resource file off of drive A. There is a fairly simple fix for that and other programs that are stubborn when it comes to reading files off a particular drive. If you use one of the many program/disk editor utilities, such as the public-domain MemFile, all you need to do is have the program search for all occurrences of A:SEQUENC.RSC in SEQUENC.R. Then change A: to whatever drive you want, such as C: for a hard drive. Just remember that when you move the file to another partition that you must also change the letter.

Michael Zucca
Harriman, NY

Thanks for the tips. We welcome readers' suggestions and responses to articles and reviews in START. In fact, we're starting a new section, "User Interface," consisting entirely

of our readers' hints, tips and power-user tricks. Send yours to START User Interface, 544 Second St., San Francisco, CA 94107. — START Ed.

MIDI BLISS

Each month I look forward to receiving my START magazine. The July 1990 issue is exceptional. As a MIDI musician with a home studio, I must congratulate you on an exciting collection of noteworthy programs on disk. I've had time to work with bits and pieces of each program, but have become a nut about AlterTune by Bill Sethares and John Bell. What fun to be able to alter the tunings within the program.

Tom McBride
Santa Barbara, CA

MIDI musicians should check out Richard Viard's and Jim Pierson-Perry's article on film and video scoring in next month's issue. You

could put your talent to work for some (relatively) big bucks. — START Ed.

SUBMISSION INFORMATION

START welcomes submissions. Please include both hard copy printouts of articles and program listings as well as disk files on ST compatible disks. Media will be returned if self-addressed, stamped mailer is supplied. START assumes no responsibility for unsolicited editorial materials.

Do you have questions about using your ST? Is there something you're not clear about? Every issue, START's editors listen to your comments and answer your questions in Dialog Box. Let us hear from you! Our address is:

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```

DIP Opera (C) DIP 1989 50171
Copyright Address Book 72
Calculator
Diary
Editor
Setup
Worksheet

```

First, figure out what you want to do.

InterOffice Memorandum

Dear Meathead:
If I don't hear from you immediately regarding the missed shipment, I'll be forced to take drastic action.

Write a memo.

```

Enter number, then ↑ to move | AltF: Min
Finance | CtrlF: M+
N Time Value of Money... # SftF: MRC
1% Cashflow # F1: Menu
PM Statistics # F2: File
PU Business... # F3: Plot
FU # F4: Amrt
#ADV | 0 # F5: Zoom

```

Get into your Finance Program.

```

C1:
A | B | C | D
1 Hotel $5,000
2 Meals $2,000
3 Cabs $500
4 Pay TV $120
5
6

```

Figure out your expenses from Chicago.

```

25: 8851
A | B | C | D
Profit & Loss Forecast 1991
Jan Feb Mar
Systems 3789 6651 7543
Royalties 5639 7636 9241
Overhead 8621 8851 6442
TOTAL 18049 23138 23226

```

Analyze the data from Dallas.

```

A:VIPS.ADR #4
Alfred Link, CEO (408) 555-8395
Carlton Taylor, CFO (408) 555-6385
Doug McCoy, CPA (408) 555-4123
Hank's Pizza, PDQ (408) 555-2873

```

Mon 16 Apr 90 08:52 SCR INS

Look up your most important phone numbers.

```

Setup 49207 3-19-90 6:19a
File transfer 7 3-05-90 12:30p
Transmit... 7 3-05-90 12:30p
Receive... 7 3-05-90 12:31p
Server 7 3-05-90 1:30p
File transfer...
bytes free

```

Transfer files to an MS-DOS* compatible, Atari ST* or Macintosh* computer.

```

Enter number, then ↑ to move | AltF: Min
Business | CtrlF: M+
N Mark up/down # SftF: MRC
1% Depreciation # F1: Menu
PM Breakeven # F2: File
PU # F3: Plot
FU # F4: Amrt
#ADV | 500.00 # F5: Zoom
0

```

Get into your Business Program.

```

A:WAKEUP.DRY 2
Mon 16 Apr 1990 06:12
16 Apr 1990 Mon
A 03:45 Get feeling back in toes
04:00 Staff Meeting (black coffee)
Mon 16 Apr 90 06:12 SCR INS
Wake you up during your three o'clock meeting.

```

```

A:PAYDAY.DRY 0
1990 Sun Mon Tue Wed Thu Fri Sat
8 9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 1 2 3 4 5
May: 6 7 8 9 10 11 12
Mon 16 Apr 90 09:40 SCR INS
Check how many days until payday.

```

InterOffice Memorandum

Dear Frank:
About that \$100,000 overage...

Write your boss about the budget.

Career Goal:

Seeking management position.
Preferably not involving budgets.

Write your resume.

Never has so little done so much.

InterOffice Memorandum

Dear Frank:
 About that "Meathead" crack...
 I didn't realize the shipment was
 already in the warehouse, so please
 ignore my previous memo.

Write a memo about the memo.

A:MEETING.DRY == 1

Tue 17 Apr 1990 05:36
 17 Apr 1990 Tue
 11:00 Budget review. Brins antacid
 Mon 16 Apr 90 05:36 == INS
Remind you of your meeting next Tuesday.

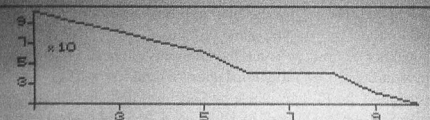


Chart your Chicago sales.

```

** report2 txt <DIR> 67 3-19-90 6:19a
report1 txt 79 -05-90 12:30P
report3 txt 48 -05-90 12:30P
sales wks 1202 3-05-90 1:30P
6 Files 24576 bytes free
  
```

a:\misc>

See what's in your MS-DOS files.

```

A10 The Book 49209 1 #1
    The Jerk 8
    (408)555-7038
    555-7038
    Edit
  
```

Automatically dial your boss.

Chapter I

Lovely Tondelaya walked toward the
 swaying palms.

Start the Great American Novel.

```

A17
A | B | C | D |
4000 Styrofoam Sofabeds
2000 Silk Sofas
1000 Satin Settees
  
```

Figure your shipment to Sbeboyan.

```

B:FAXES.ADR == #4
Bob's Beverages (408) 555-6398
Don's Drilling (408) 555-9877
Fred's Faucets (408) 555-4388
Larry's Limos (408) 555-7432
  
```

Mon 16 Apr 90 08:52 == SCR INS
File your frequent fax numbers.

```

A:SQUASH.DRY == 2
Mon 16 Apr 1990 05:40
18 Apr 1990 Wed
12:00 Jay "Killer" Carson
12:30 Hospital
Mon 16 Apr 90 05:41 == INS  

Remind you of your squash date next Wednesday.
  
```

```

Gen M:1 #2
1200.38 *
0.05
Mon 16 Apr 90 09:41 NUM == SCR INS
60.019 =
Calculate your commission.
  
```

```

A:R Editor 49116 :1 C:1 M:37
Atar Files
New Load... 37
Sa
Me Pr
Printings ...
  
```

Print it on your office printer.

So ... did you hear the one about
 the CEO and the parrot?

Review your speech for next Friday.

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BY STEPHEN MORTIMER

Inside Atari

In July Atari brought on board new, high-powered management in the person of Elie Kenan, president of Atari France. Kenan, an old friend of Jack Tramiel's, took Atari France from \$0 to \$50 million in annual sales. Kenan is now general manager of North America, with a merger of Atari U.S. and Atari Canada to follow. Rumors are flying that this new North American division will be headquartered in Boston, leaving research and development, administration, and other functions in Sunnyvale. The Tramiels will likely remain in Sunnyvale to oversee the Atari's global operations.

Developer liaison Charles Cherry left Atari in July to become a consultant. Cherry initiated the Softsource developers' database and won general acclaim for his forthright efforts to maintain and improve the often strained relationship between Atari and the developers. Atari said it plans to replace Cherry, but at press time had not found a suitable candidate. In the interim, Gail Johnson is handling Cherry's duties.

The 1040STE started shipping in the United States in June. As promised, it has expandable memory through SIMM units as well as improved sound and graphics. The initial shipments come with TOS 1.6 and a patch disk that fixes the low-resolution-only boot bug. TOS 1.62, which has the bug fix in ROM, may be added to future STE's. In an article in a recent USA Today, Sam Tramiel stated that Atari is planning to make a resurgence in the home computer market with a 1040STE and color monitor combination for \$699.

Bowing to the twin forces of user criticism and competition, Atari an-

nounced that the long-awaited TT will have a 32 MHz CPU speed. The bus channels, designed for the original 16 MHz CPU, will not be upgraded. Atari spokesperson Bob Brodie said the U.S. version of the TT is still awaiting FCC approval, while a fourth quarter Canadian release date for the TT was announced by Atari Canada at a June 4 press conference in Toronto. A TT030/2 with 2MB RAM, a 40MB hard disk and TOS 2.0 will be priced at \$3995 (Canadian).

Atari is negotiating with the U.S.S.R. to trade Soviet-made 256K DRAM chips for ST computers. The Soviets produce an excess of 2.5 million chips each month and have been seeking a market for them through Global Development Corp., a Seattle trading firm. If the deal goes through, the workers in the Soviet DRAM factory would receive 25 percent of the profits from the sale of ST computers in the Soviet Union. Atari said it is checking the chips to see if they meet the company's quality standards.

Rumors that NEC might purchase Atari proved to be false. NEC entered

into an agreement with Atari Games for the latter to produce products for NEC game systems.

Atari has announced that 20 additional titles for the Lynx will be available by Christmas 1990, including 720, Flying Ace, Paperboy, A.P.B., Rygar, Football, 3D Barrage, Road Blasters, Super Soccer, Checkered Flag, Tournament Cyberball, Zarlou Mercenary, Xenophobe, Klax, Rampage, Vindicators, Ninja Gaiden, Slime World, Turbo Sub and Junkyard Dog.

Atari endorsed Microsoft's Windows for use with its PC-compatible computers. Several hundred thousand copies of Windows 3.0 have been shipped since its release in May. The program features bring the interface up to that of the Macintosh.

Expect to see more Megs and STs on TV. Atari has joined the product placement bandwagon, providing hardware to the new "Flash" series for props and background scenery. Atari computers will star as office and laboratory equipment in this high-tech action show based on a comic-book superhero.

Outline Art Creativity Contest

Registered owners of Calamus Outline Art have the opportunity to win \$1,500.00 worth of AGFA Compugraphic fonts, an Atari Megafile 44 hard disk drive, or GEnie and CompuServe connect time by entering ISD Marketing's Outline Art Creativity Contest. Enter as many times as you like, although any individual may win only once. The winning entries will remain the property of the author, but will be available for public download on GEnie and CompuServe, and published in START Magazine. Entries may be uploaded to ISD Marketing's on-line accounts (76004.2246 on CompuServe or ISD on GEnie) or mailed to ISD Marketing Inc., 2651 John Street, Unit #3, Markham, Ontario, Canada, L3R 2W5. Mailed entries must be postmarked no later than Sept. 30, 1990 and received by Oct. 15, 1990.

For more information contact ISD Marketing at (416) 479-1880 (voice) or (416) 479-1882 (fax). ▶

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 - #960 - Wheel of Fortune V3.0 (Color)
 - #962 - Stellar Starfighter - Shoot 'em Up
 - #962 - Space War V1.0 - The Classic Space Shoot'em Up for 2 Players (Color Only)
 - #963 - Go Up V1.0: Lone Runner Clone w/Editor (Monochrome)
 - #980 - Tetris4e - Tetris type game for 1 or 2 players (Color)
 - #985 - Valgus Squared - Sequel to a Tetris clone. Now those seven familiar pieces come at you from all four sides of the 27 x 27 area. (Color)
 - #985 - Demo of the HERO II Gaming System. Fully Functional wrapped files (Color) 1 Meg RAM/DBL
 - #1012 - Pile Up V2.1 - 1 tetris Clone now works with TOS 1.4 (Color)
 - #1024 - Switar Demo - Great shoot 'em up 3 out of 10 levels are active. (Color)

- #768/938 - NeoDesk Icons
- #801 - Label Printing Programs
- #801 - Cassette Label Maker, Label and Envelope Printer and more.
- #888 - Atari ST Subjects (Book) Programs
- #929 - ST VIRUS KILLER V3.1T: Detect and eliminate 6 different Viruses. Guards against future spreading Viruses.
- #938 - NeoDesk Icons, Recoverable Trashcan V12, Quick NeoDesk INF Loader, NeoDesk Canvas 0.55 Beta
- #940/941 - LaserBeam V1.31 - Epson Emulator for Atari SLAMB4 Laser Printer. (Mono Only/DBL)
- #950 - Additional Fonts on #1001-1003
- #950 - 24 Pin Printer Emulator - Written for printers without a letter quality mode.
- Desktop Disk Labeling Program
- Menu Master - Set up menus to automatically load programs on your own disks.
- #951 - DC Show II V1.1, Head Start V1.1, Little Green Item Selector V16C
- #952 - Address Labeler V2.0 - Create, Print and Store address labels
- DCOPY V3.4 - Multifunction Utility ARC, DeARC, Copy & more. Shell program included for mouse control
- #953 - SOS Net Demo V1.21 - Inexpensive networking system for the ST
- #988 - Fast Copy II, NX-1000 Set Up H.P. Deskjet Print Utility V14
- #991 - Futal Printing w/ H.P. Deskjet and Avery 5280 Labels, Desktop Formatter, Disk Sector Editor
- #1008 - IconDesk - Set up different looking icons for different file types: 79 icons and icon editor included.
- #1009 - Diamond Back II w/Cache Demo

- #1028 - PageStream Font Editor V0.8 Now you can edit and touch up those PageStream Fonts. 20 page manual included on disk. Also included: Improved Postscript Screen Fonts: Book, Chancery, New Century Schoolbook, Palatino and Times

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- #810 - SHEET V2.5P - Very well polished Shareware Spreadsheet.
 - #811 - Documentation and sample files for Sheet V2.5
 - #907 - Wordflair V1.01 Demo (DBL)
 - #935 - Checkbook V1.09, Almanac (Color)
 - #989 - Paperless Accountant
 - #999 - ST Writer V3.8 - Simple easy to use word processor with extensive documentation on disk
 - Spell V2.8 - Stand Alone Spelling Checker. H.P. Deskjet Printer
 - #1026 - B1STAT V2.35 - Powerful graphics and statistics program. (DBL)

- Children's Programs**
All Children's Programs Require a Color Monitor
- #551 - Kid Shapes Graphics design program patterned after a magnetic set. For ages 2-8
 - #552 - Kid Shapes Plus As above, but for older children. Larger number of choices for more complex pictures. For ages 8 & up
 - #567 - Benjamin's ABC's Teaches young children the letters of the alphabet with digitized speech. (DBL)
 - #699 - Kid A-Doer - Uses pictures to teach addition.
 - Kid Color - Learning game for 3-7 year olds. Uses the mouse to point to boxes with a certain color.
 - Kid Story V1.4 - A silly version of the Little Red Riding Hood. Allows children to create a story.
 - #726 - Wolf & The 7 Kids - Adventure for children ages 5-9, based on the fairy tale's many leads with some possible endings to the story.
 - Numerical Go Round - Quizzes children on Addition, Subtraction, Multiplication and Division in a game setting.
 - #920 - Simply Math, Picture Puzzle
 - #982 - Body Shop, Human Anatomy Tutor

- Bible on Disk**
King James Version
- Single Sided Pkg (7 Disks) \$34.95
 - Double Sided Pkg (8 Disks) \$24.95
- Desktop Publishing**
- #500/600 - Publishing Partner Fonts
 - #599 - PageStream Fonts
 - Brinner, Futura Black, Hal, Lubalin, Futura Extra Bold, Condensed
 - #637 - Calamus V1.09 Demo - Fully functional except for Save (Mono/1Meg RAM/DBL)
 - #758/759/854 - Calamus Fonts
 - #870 - PageStream Fonts
 - Atari, Baby Teeth, Lucida Old English, Revue
 - #895 - PageStream V18 Demo (DBL)
 - #935 - Desktop Publishing Utilities
 - Convert to IMG V1.20 - Converts Dots, Neochrome, Spectrum, Art Director, Mac Paint and TNY pics to IMG format
 - Demos for Win Wizards
 - Fontverter Demo - Convert fonts between PageStream and Calamus

- For Dungeon Master**
- #511 - Maps for Levels 1-7
 - #512 - Explicit Hits and Character Set on the level above Chaos with the best equipment selection.
 - #590 - Game Disk Organizer Saved game file of characters with all four friends weapon.
 - #720 - Maps for Levels 8-14
- For Chaos Strikes Back**
- #898 - Maps for Levels 1-10
 - #899 - Walk thru of opening level. Dragon Lair portraits. 5 Fantasy and 3 Sci Fi character portraits. Prison List.
 - #843 - Intersect RAM Baby, Amortization
 - #414 - Monochrome Emulator V3.0 - Run Mono programs on Color monitors
 - #868/866 - H.P. Deskjet/Laserjet Utilities

- Children's Programs**
All Children's Programs Require a Color Monitor
- #551 - Kid Shapes Graphics design program patterned after a magnetic set. For ages 2-8
 - #552 - Kid Shapes Plus As above, but for older children. Larger number of choices for more complex pictures. For ages 8 & up
 - #567 - Benjamin's ABC's Teaches young children the letters of the alphabet with digitized speech. (DBL)
 - #699 - Kid A-Doer - Uses pictures to teach addition.
 - Kid Color - Learning game for 3-7 year olds. Uses the mouse to point to boxes with a certain color.
 - Kid Story V1.4 - A silly version of the Little Red Riding Hood. Allows children to create a story.
 - #726 - Wolf & The 7 Kids - Adventure for children ages 5-9, based on the fairy tale's many leads with some possible endings to the story.
 - Numerical Go Round - Quizzes children on Addition, Subtraction, Multiplication and Division in a game setting.
 - #920 - Simply Math, Picture Puzzle
 - #982 - Body Shop, Human Anatomy Tutor

- MIDI**
- #966 - MIDI Music Maker: Plays numeric music formats (EZ Track, Music Studio, etc.) Also converts to MIDI File Format 0 files.
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European Report

BY DONALD MAPLE, REPORTING FROM WEST GERMANY

Atari Germany's financial figures for 1989 show a 25 percent increase in total income to 277 million deutsche marks (\$165 million). Sales of the Mega ST doubled over the previous

year and the number of peripherals sold tripled, the increase mainly due to hard disks. The new TT and Stacy are expected to be big-money winners this year and Atari Germany

invested 19 million deutsche marks (\$11 million) in new, larger premises.

British Satellite Broadcasting is scheduled to launch the United Kingdom's first computer dedicated pay-TV channel on June 28. With programs such as Analysis, a weekly news show and DOSSier, which provides interactive training, The Computer Channel is aimed squarely at the professional user who can afford the steep subscription rate of over \$900 (U.S.).

Forget all about the Japanese "threat" to the computer industry. A European group is poised to create a 64-bit RISC chip, probably based on the British Transputer and ARM processors. Backing the project are SGS-Thompson (France), Siemens (Germany) and Phillips (Holland). Furthermore, British Aerospace is experimenting with optical computers and holographic connections.

Atari Donates to Kids' Hospital

Atari Corp. recently donated a Hotz Box and various ST hardware to the music therapy program at Children's Hospital at Stanford University in Palo Alto, Calif. Presenting the machines on Atari's behalf was Mick Fleetwood and Billy Burnett of the pop group Fleetwood Mac, in the area for a series of concerts. The Palo Alto function benefited the Children's Hospital and the local Ronald McDonald house. According to Martha Kitter, a spokesperson for the hospital, Atari's donation will be used to help alleviate the stress and fear that often accompanies children who are hospitalized for any amount of time.



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Fat Bits

• ISD displayed its desktop publishing program, Calamus, at the Postal Instant Press convention this past July. PIP is a national copy/typesetting chain. Franchise owners had a chance to look over the Atari DTP package and place orders with Transcoast Systems Inc., a Calamus/Atari VAR located in San Francisco, Calif.

• Gordon Monnier said that MichTron is easing out of the ST marketplace. MichTron is still selling software, but Monnier said he is willing to entertain offers to buy the company.

If you have a hot tip let us know at News, Notes & Quotes, START Magazine, 544 Second Street, San Francisco, CA 94107

COMING NEXT MONTH

The Cyber Arts Issue!

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and

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Advanced Blitter

Tracker/ST Review

Plus Debut Columns from
Two Contributing Editors:

Andrew Reese
on Cyber Arts

Dan Fruchey
on Desktop Publishing

Editorial, continued from page 8

disk. This disk will be straight double-sided and packed with utilities, product demos and public-domain programs, as you requested. I can't imagine a more hassle-free disk — just put it in your (double-sided) drive and click on the program you want to run.

Great Minds Think Alike?

The changes at START coincide with major changes at Atari Corp. Elie Kenan has been named General Manager of Atari North America. This new continental subsidiary will encompass the United States and Canada (and, in a bizarre twist, may include France, Kenan's home country).

As reported in this month's "New, Notes & Quotes," Kenan took Atari France from \$0 to \$50 million dollars in annual sales. The details of his deal are cloudy, but Kenan has apparently insisted on total autonomy from the home offices in Sunnyvale, Calif. To this end, his arm of Atari may wind up in Boston, a move of which industry observers approve.

START wishes Kenan and Atari well in their latest co-venture. In the months to come, we'll find out the extent to which these changes affect us all.

STE And TT News

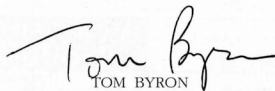
A review unit of Atari's new STE arrived in the START offices and the computer is reportedly available at your local dealer. On the surface, the STE looks exactly like earlier STs. However, boot the included system disk and you'll find that the STE is very different. A redesign of the ST motherboard reveals TOS 1.6, a blitter chip, an 8-bit stereo sound chip and a 4,096-color palette (accessed through the new Control Panel), among other things. The STE retails for around \$600 and if Atari can get a healthy production run for the Christmas season, their new computer will no doubt be a big winner. A review is scheduled for the November 1990 issue.

The TT, Atari's new computer based on Motorola's 68030 microchip, appears close to a U.S. release. Some developer units have already shipped and they're running at a clock speed of 32 MHz. This news adds credence to an earlier report, confirmed by Atari, that the TT will be available at your dealer before this fall's Comdex in November. We'll keep you up to date on the latest TT news as it develops.

We're Here To Help

Each and every month, over 70,000 Atari-computer users read START, making it the absolute best way for hardware and software developers to share their products and ideas with people who are genuinely interested in hearing about them. Anyone involved in the Atari community — from CEO Sam Tramiel to you, the end user — should know that START is here to help. We more than welcome any suggestions for ways to better service our readers and the Atari world as a whole.

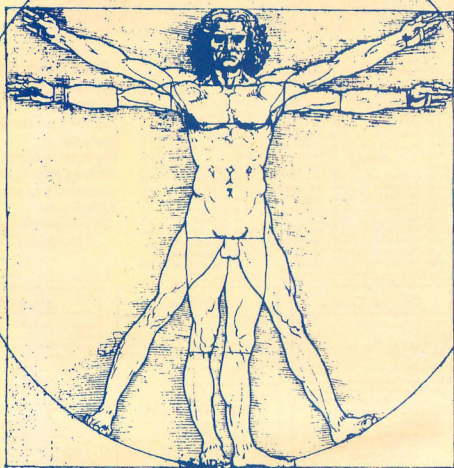
Well, it looks as if 1991 will be a big year for Atari and START.


TOM BYRON
START Editor

AT A GLANCE

Program: Anatomy (etc.)
Type: Picture quiz tool
Requirements: 512K, low rez
Arcfile: ANAT_ETC.PRG
Files: ANATOMY.PRG HUMANEYE.P11
FOURCYCL.P11 HUMANEYE.TXT
FOURCYCL.TXT PAGE_IDX.P11
FRAMING.P11 PAGE_IDX.TXT
FRAMING.TXT TEMPLATE.P11
HANDSKEL.P11 TITLESKR.P11
HANDSKEL.TXT
Language: GFA BASIC 2.0

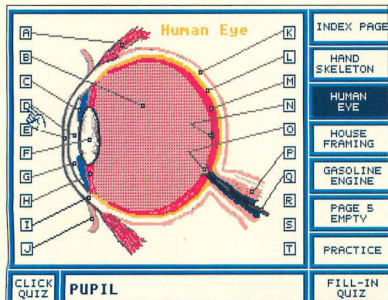
BY ROBERT GRUNBOK



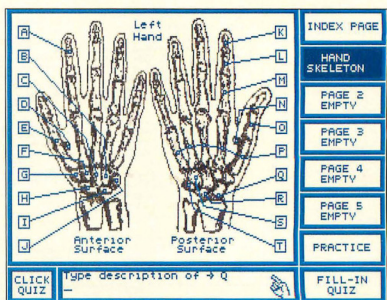
Anatomy (etc.) is an editable quiz program. It displays the picture of an object, with arrows pointing to its different parts, and asks you to name the parts. I wrote the program to help my boys in their science class, but you

ANATOMY

DISCOVERING PARTS OF THE WHOLE



Practice mode lets you preview the definitions of all parts.



The Fill-In Quiz mode asks you to describe a part.

can use it to memorize the parts of anything.

Getting Started

If you're ready for a pop quiz, double-click on the archive file ANAT_ETC.PRG and choose Extract when the dialog box appears. Select a destination disk and the files will be un-ARCEd directly onto that disk. The only files Anatomy (etc.) requires to run are ANATOMY.PRG, PAGE_IDX.P11, PAGE_IDX.TXT, TEMPLATE.P11 and TITLESKR.P11. Make sure they are all in the same folder.

To start the program, double-click on ANATOMY.PRG. After a few moments, the title screen will appear. Press any key to go to the Index page.

To view the four examples published on your START disk, make sure FOURCYCL.P11, FOURCYCL.TXT, FRAMING.P11, FRAMING.TXT, HANDSKEL.P11, HANDSKEL.TXT, HUMANEYE.P11 and HUMANEYE.TXT are in the folder with the other files.

The Index Page

The Index page includes a large window with a list of files. Anatomy (etc.) checks your computer's available memory and gives you the number of picture files that will fit. A 520ST with 512K and no active desk accessories can load up to three pages; STs with 1MB of memory or more can load five.

Along the left side of the window are instruction buttons, and beneath them is the message box. Anatomy (etc.) communicates with the user through the message box.

To load a picture, first click on LOAD PAGE and then on one of the page buttons. If a picture has already been assigned to that page, it will be replaced. Next, click on the letter in the window that corresponds to your desired picture. Ready for a quiz? Click on the button that lists the title of your picture, and viola! You now have three quiz options.

Practice

The PRACTICE option lets you point

at a letter corresponding to a picture's part and read its description. The description appears in the message box. You can leave a practice session at any time by clicking on INDEX PAGE, another loaded page or either of the other two quiz buttons.

Fill-In Quiz

The FILL-IN QUIZ is one of the quiz options. A letter is displayed in the message box and you must name its corresponding part. Remember, spelling counts! Use [Backspace] to correct errors before you press [Return].

Click Quiz

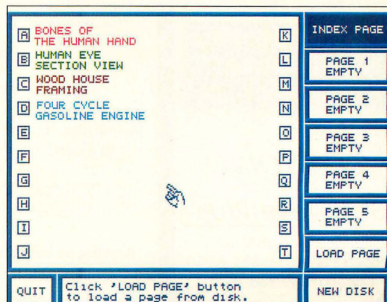
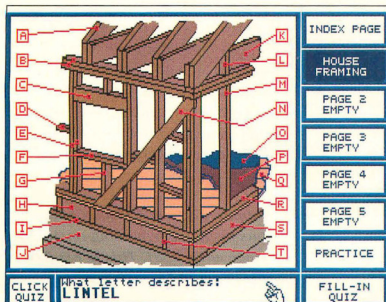
The CLICK QUIZ is an easier test than the fill-in. The name of an object's part is displayed in the message box; you must click on (or press the key of) the letter corresponding to that part.

Quitting

You can quit in the middle of either



*anat•o•my (LL anatomia dissection):
the art of separating the parts of an
organism in order to ascertain their
position, relations, structure, and function.*



In Click Quiz mode, choose the letter that fits the description.

Anatomy's index page with four example files.

quiz by pressing [Escape]. At that time, your score is revealed in the message box. Each new score overwrites the previous one for that page. Clicking on the INDEX PAGE button takes you back to the main screen. To leave the program, choose QUIT from the Index page. When you quit the program, you'll see your total score for all quizzes.

Picture Pages

To create your own quizzes you need to make a Picture page with accompanying text and update the Index page. You'll need a paint program like DEGAS Elite or SEURAT (from the March 1989 issue of START), and a word processor that can save files in ASCII format. You can scan your pictures and save them in DEGAS uncompressed format (which is what I did), or draw them from scratch. I've provided a blank picture template, TEMPLATE.P11, to

get you started.

Load TEMPLATE.P11 into your paint program and create your object. You should not use the first color (white) or the last three (shades of blue), since they are reserved for the program fills and text. Draw lines from the letter boxes on the template to the parts of your object. When you're satisfied with your art work, save the picture as an uncompressed file, under a filename different than TEMPLATE.P11.

We're not done yet. Now you must create a text file that contains the descriptions of all the parts of your object that were pointed to in the picture. Use one of my text files (.TXT) as a template. Load it into your word processor and type over my descriptions.

Lines one through 20 are descriptions of the parts. Each line corresponds to one of the letter boxes, beginning with line one representing "A" and ending with line 20 representing "T."

You can use up to 23 characters in your description and they must be only uppercase. The letters following the description indicate that the letter box is active ("X") or unused ("E"). Change my descriptions and mark which lines are active.

Lines 21 and 22 are used to title your picture. Simply type over mine. You can use up to 10 characters (upper and lowercase) on each line. These titles will appear in the page buttons on the Index page when you load the picture.

When you're finished editing, save the file in ASCII format, using the same filename as its picture and a .TXT extender. You might want to save all your new files on a fresh disk. You'll be able to load it with the NEW DISK button on the Index page.

Creating an Index Page

The Index page is easier to construct

than the Picture page. Load my file PAGE_IDX.P11 into your drawing program and, using the text mode, add the descriptions of your pictures. Using the smallest text lets you enter up to two lines of 16 characters each. You can use different colors to group similar pictures, or even make small icons for a special effect.

When you're finished, save the new Index page under the same filename, PAGE_IDX.P11. Each data disk must have its own PAGE_IDX.P11 in order for the program to recognize the pictures. Since you are using the same filename, make sure you save the correct Index page on the correct disk.

Now load PAGE_IDX.TXT into your word processor. Typing over the filler (i.e., PICTURE04.P11 and PICTURE04.TXT), add the filenames of your picture (in the first column) and text (in the second). Again, change the E to an X, to indicate the line is active. There are 20 lines available for files. Save PAGE_IDX.TXT with its companion PAGE_IDX.P11 on the appropriate disk.

Wrap Up

One thing I never considered is that when you use pictures in an educational program, you have to be conscious of content. My wife pointed out that the original sketch of Da Vinci's man on my title page was too graphic in a certain area, and that I should blur it somewhat. Censoring Da Vinci's masterpiece is not my favorite activity, but I had to agree with my wife. It's something to keep in mind when you're writing for children. ■

Admitted ST addict Bob Grunbok has been programming on Atari since early 1981. This is his first program for START.

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LASERBRAIN

Epson Emulation for the Atari Laser Printer

BY GREGG ANDERSON

AT A GLANCE

Product:	Laserbrain version 1.31
Type:	Epson emulator
Requirements	SLM804 laser printer
Archive:	LAZBRAIN.PRG
Files:	AUTOLF.PRG MINI.PRT COPIES.PRG NEWEPSON.PRT ELITE.DRF NOINTLC.PRT INTLC.PRT OLDEPSON.PRT LASBRAIN.BAT README.1ST LASER_E.ACC RESET.PRT LASER_E.TXT TABSET.PRG

Like it or not, Epson is the standard for every printer on the market today. In fact, printer manufacturers go out of their way to offer full compatibility with the Epson command set.

Until now, the lack of Epson compatibility has been considered the major shortcoming of the Atari SLM804 laser printer. While most of the higher quality packages available for the ST include dedicated SLM drivers, the majority of the "bread and butter" applications — such as WordWriter — do not. With the release of Laserbrain version 1.31,

the SLM offers complete Epson FX compatibility.

To access Laserbrain, double-click on archive file LAZBRAIN.PRG and choose Extract when the dialog box appears. Select a destination disk and the files will be un-ARced directly onto that disk. Laserbrain itself is in the file LASER_E.ACC; the fonts are found in ELITE.DRF. The other 12 files are support files.

What It Is

Developed by Germany's Design Marketing Communications (creators of Calamus), Laserbrain is a software-based Epson FX printer emulator for the Atari SLM804 laser printer. It installs as a desk accessory for emulation of the Epson 9-pin ASCII and graphics command sets. While Laserbrain's graphics resolution is limited to that of the 9-pin Epson printer, its solid black output produces a much sharper image than is possible on a dot-matrix printer. Best of all, Laserbrain produces true 300-DPI ASCII text.

Laserbrain is free to the end user, but remains the property of Atari Corp. Since Laserbrain is not a product of Atari U.S., technical support is limited.

In actual operation Laserbrain

works much like the Diablo emulator already available for the laser. It installs between the computer and the parallel output port and redirects any system commands from that port to a special buffer. When the final print command is issued, Laserbrain translates the data from Epson command codes into something the SLM can understand.

Trouble-shooting is a cinch: When an error occurs with the printer, Laserbrain presents a dialog box that states the problem and tells you what to do about it.

Laserbrain was designed for monochrome systems. It will install in a color system, but you can't access its control panel and legible screen dumps are virtually impossible. However, if your software's printer driver bypasses the screen-dump routine there should be no problem running Laserbrain in medium resolution.

Laserbrain's memory requirements are high. While it will install in systems as small as 512K, 2MB is the practical lower limit for anything but simple ASCII printing. A hard drive is suggested.

What about printer drivers? Laserbrain was actually designed as an IBM printer emulator, which also ▶

happens to be a subset of the Epson command set. As a result, you can probably use any standard IBM or Epson FX printer driver. Look around on-line services for printer drivers. The Epson 1st Word and WordWriter ST printer drivers can be easily modified to take advantage of Laserbrain. WordPerfect released a custom Laserbrain driver in their last update.

Once installed, Laserbrain is invisible to whatever application you run. Basically, it's there to tell your system that it's talking to an Epson printer.

Open Your Manual to Page 1

Laserbrain's manual is in LASER_E.TXT on your START disk. Print this 38-page document before you do anything else; it gives specific details on how to install and use Laserbrain and should answer most

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LASER BRAIN COMPATIBILITY

Laserbrain makes the SLM804 compatible with any Epson-compatible software. Following is a partial list of that software:

1st Word	G+Plus	Thunder
1st Word Plus	Manual Maker	TOS (through 1.4)
Award Maker	MultiDesk	TurboST
Certificate Maker	PageStream	Universal Item Selector III
Data Manager ST	PHASAR	WordWriter ST
DEGAS Elite	Poster Plus	
Easy Draw	PrintMaster Plus (needs	
Fast Tech's	a 1.5MB buffer)	
Turbo-16	QuickST	
accelerator board	Sticker III	

— Gregg Anderson

of your questions. In addition to a simple tutorial, the manual provides a breakdown of the various commands available within the program. With these commands, it's possible to customize almost any printer driver. You can even create one that lets you access higher resolutions than an Epson FX normally can.

The manual tends to be misleading as to the size buffer you should set for Laserbrain. Generally speaking, ASCII printing can be done with a 520ST and a 60 to 100K buffer available after your fonts are loaded. Graphics or graphic-based fonts, on the other hand, require from 600K to 1MB. With a little experimentation you'll find the buffer size best suited to your needs. On my Mega 4 I reserve 1.5MB of buffer space. This leaves enough room for a fairly large font file and still permits unrestricted graphics printing.

As good as it is, Laserbrain isn't perfect. ST Writer presets its printed output into subscript and will require a printer driver customized for Laserbrain. WordPerfect's Epson driver also has a problem with Laserbrain, but their custom driver reportedly works just fine. With 1st Word and WordWriter you'll need to cut two lines from your document's size to use headers and footers. If you don't do this, these elements will get confused and the page breaks

will spread all over the place. You'll also have to tweak their printer drivers a little to access italics and other custom font styles. Migraph's Label Master Elite also works but interprets the label form feed as a full-page form feed and prints only a single address on each page.

Laserbrain produces true 300-DPI ASCII text.

The Bottom Line

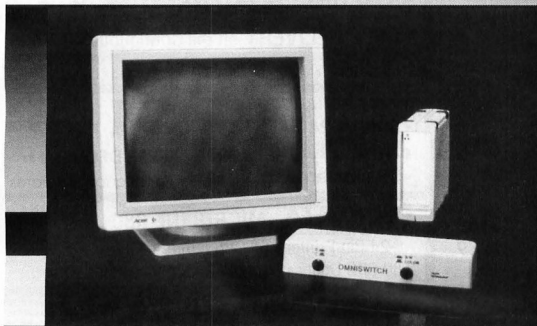
If you already have an SLM804, or are considering buying one, Laserbrain is a must have. With Diablo, Postscript and now Epson emulation modes available, the SLM804 can go one-on-one with almost any laser printer on the market today. Keep in mind that even with Laserbrain's flexibility, the SLM804's memory requirements remain a problem for systems with less than 2MB of RAM. ■

Gregg Anderson is a member of the Air Force with a background in electronics repair. He is a former contributing writer for ST-Log.

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—Milt Creighton

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The Acer multisync monitor model 7015 supports an 800x600 resolution and accepts both "TTL" and "Analog" signals. It has a 14" diagonal display with a .31mm dot pitch. The Acer comes with a tilt swivel base and a non-glare etched screen. The Acer monitor works on all Atari ST** and TT line of computers.

\$449.00

* Call for details.

** Requires a monitor interface like the Omniswitch.

Talon Technology

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Atari Team Redefines Electronic Instruments

BY CRAIG ANDERTON

THE HOTZ MIDI TRANSLATOR



Although musical electronics and its relationship to computers has changed drastically over the past few decades, one element has hardly changed at all—the ways that players interact with the electronics. The most common synthesizer interface, the keyboard, was designed centuries ago to trigger mechanical systems, not electronic ones. Although a few concessions, such as polyphonic aftertouch and mod wheels, have been made to the age of electronics, the keyboards we play today are very similar to those that Bach played.

Even “alternate controllers” are more likely to mate other devices designed centuries ago (guitars, wind

instruments, drums) to modern electronics instead of providing a true alternative to conventional interfaces. Surely there must be novel ways to relate musical gestures to computers and synthesizers?

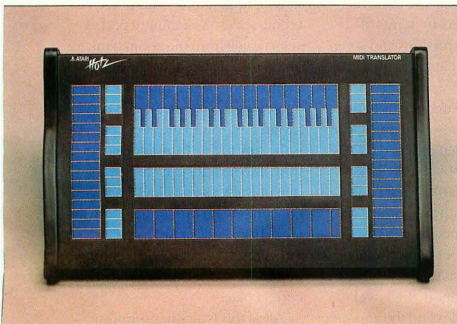
Apparently record producer/engineer Jimmy Hotz thought so, too, and teamed up with Atari to manufacture a new controller, designed from the ground up, to interface with MIDI music devices and computers, although it is not necessarily limited to those applications. The birth of the Hotz MIDI Translator (nicknamed the “Hotz Box”) has not been without controversy. Reactions vary from “it just lets non-musicians play along with CDs” to “this has the potential to change the music industry.”

Perhaps the most interesting aspect of the Translator is its ability to fit so many different roles. Beginners without any knowledge of MIDI or musical electronics can use it as a “plug and play” device, but it is also a serious tool for professional composers, players and educators who do know a lot about music. Welcome to the 1990s, and one of the most fascinating, unusual, intimidating, musical and enigmatic devices I’ve run across in quite some time.

Getting to Know You

There are two basic parts to the Hotz Translator: the hardware controller itself, which replaces a traditional electro-mechanical keyboard, and the software, which translates your

Figure 1: The Translator's pads, based on force-sensing resistor technology, are arranged in five groups.



A complete set-up, including a Stacy, a Hotz Box and wing unit.

finger pokes into MIDI data. Unlike familiar keyboards, guitars or wind instruments, the playing surface of the Hotz Translator is a flat bed with no mechanical moving parts. In their place is a bevy of touch-sensitive rectangular pads. Simply touching one or more pads generates control signals which are immediately detected and routed to the Atari computer. The software converts the control signals into MIDI-note or expression data, depending on the function currently assigned to each pad, then back out of the computer and on to the destination MIDI instruments or equipment.

The hardware controller unit is substantial: large (37 inches by 22 inches), heavy and expensive

(somewhat less than \$6,000). Part of the reason for the cost is that the internal electronics need to be quite sophisticated to handle the huge amount of data the Translator is capable of creating. Ten parallel processors collect and merge all the data for output, resulting in extremely fast operation. Even under worst case conditions, it takes less than seven milliseconds between the time you touch a pad until its resultant MIDI data is output by the Atari computer. This is lightning fast compared to standard keyboards, which can take from seven to 180 milliseconds due to mechanical action time, keyboard scanning lags (determining which keys have been pressed) and time to sense low-

velocity notes. Why such high-performance hardware? Hotz envisions the Translator as a universal "control-ler platform" for many applications, current and future, MIDI and otherwise. The more horsepower that's available, the fewer limits it may encounter later.

Touch and Go

The surface of the main controller unit holds five groups of pads. These are touch sensitive, based on force-sensing resistor technology, and designed for triggering single or multiple notes. The pads (see Figure 1) are arranged in two vertical strips of 16 along the left and right sides, one horizontal strip of 11 large pads toward the bottom, 21 narrower pads ▶

Most MIDI devices are a kluge between old instruments and new technology. Jimmy Hotz, working with Atari, invented a new way of creating electronic music, one which bridges the gap between a computer's abilities and a composer's creativity. Here's an overview of what Atari is offering musicians in stores today.

HOTZ BOX

directly above those, and a group of pads laid out more or less like a three-octave keyboard towards the top of the unit.

There are also four groups of three pads dedicated to producing signals such as modulation or pitch bend. These spotlight the underlying force-sensing resistor technology, since they enable expressive nuances that have to be played to be believed. Tricks like bending up by a certain interval and then wiggling your finger to produce vibrato are easy to do and controllable. Hotz was trained as a guitarist, and his desire to translate some of that instrument's abilities to his controller is clear.

In addition to the pads, the controller unit has six, one-quarter inch auxiliary input jacks and eight RS-232 serial ports. The auxiliary inputs can be used for additional note and/or control effects such as volume, note transposition and sustain. For example, you can trill your fingers between two note pads while using a foot pedal to sweep up and down octave ranges. The controller unit itself connects through its MIDI Out port to the MIDI In port of an Atari computer.

Additional wing units can be hooked into the main unit, giving you additional pads to expand your controller system. These wings are similar to the main unit but smaller and with different pad layouts.

Translation Service

The translator software takes incoming signals from the controller unit and converts them into conventional MIDI data. When you consider that each pad has its own set of definitions for what notes or controller data are to be sent, that these definitions can be reassigned on the fly, and that there are numerous pads feeding data into the computer simultaneously — well, we're talking very impressive, sophisticated

software. The initial version of the Hotz Translator software filled the computer screen with an intimidating series of numbers and symbols, making the cockpit of a 747 look like child's play by comparison. Thankfully, this has been simplified and continues to be refined as the system matures. It's also worth remembering that you don't have to use all the features all the time. In fact, it's best to think in terms of simple chord progressions and song patterns as you get used to the Hotz Box.

There are three main parts to the software setup. These structures can be considered independent data processors: the upper bank, lower bank, and zoom bank. Each bank contains "cells" with assignments relating notes to specific pads. Generally, the upper bank contains a collection of chords that will be used in a given composition, the lower bank contains scales and the zoom bank provides instructions for changing the assignments on the fly.

The Hotz software contains one of the most complete libraries of chord structures in the world. Any chords, from simple majors and minors to extremely complex and exotic voic-

ings, are easily set up and assigned to desired pads. Yes, touching a single pad can actually give you all the notes for an E minor 7th with an added 9th over multiple octaves, if you so desire. Literally, over a billion chord voicings are possible with just a single row of pads.

Is your hand too small to span wide chords? The translator eliminates such physical limitations, a

special blessing for handicapped players frustrated by conventional instruments. The lower bank usually contains the scales that will be played on the pads you've designated for melodies, as opposed to chord clusters. Special pitch bend effects are built into the Translator's repertoire to produce tones "between the cracks" of normal keyboard semitones and to emulate ethnic scales. Assigning a pad to select a cell from the zoom bank automatically changes the assignments in the upper and lower banks according to specifications you've programmed into the zoom cell. This is the key to the Translator's operation: its character can change dynamically as you play. It lets you concentrate on bringing the musical ideas from your brain into reality rather than focusing on the physics of placing the correct fingers in the correct places.

All of this is a rather simplistic overview in that the Translator can send data over multiple MIDI channels, set up system exclusive strings, add vibrato, transpose, and much, much more. The Translator allows for a fluid, transparent alteration of the relationship between input and

You can't make any mistakes because it is impossible to hit a bad note.

limitless, but magazine space is not, so let's zero in on one common way to use the Translator.

The Brain/Instrument Connection

To understand the Translator's main appeal to professional musicians requires a bit of understanding of how a musician makes music. Most musicians agree that getting music from their heads out through an instrument is an imperfect process at best. Glitches often occur as nerve impulses travel down your fingers to a musical instrument. You might hear a great 64th-note run in your head, but not be able to play that fast due to limited dexterity. Or you may hit a wrong note, throwing off your concentration.

There are other problems as well. Keyboard players know how difficult an interval of a tenth is to play one-handed, but those with small or inflexible hands may not be able to play a tenth at all. Guitar voicings also are subject to limitations; among other things, you can't play two notes on the same string at the same time. A guitar can give wide-open musical voicings, but clustering many close-by notes into a chord is difficult.

Another point is that most musical instruments are inherently inefficient devices. For any musical idea you want to play, many of the keys on a keyboard or frets on a guitar are unnecessary and unused. For example, if you're playing a C major scale on a keyboard, the black keys are useless unless you need to play them to shift into a different scale, in which case some of the white keys may now become useless. Being able to hit notes that are not part of the scale in which you work can lead to "wrong" notes.

The Translator attacks these problems in a unique way. Its software reconfigures notes triggered by the pads, on the fly, so there are no useless notes. For novice musicians, this means you can't make any

mistakes because it is impossible to hit a bad note. As you might expect, accomplished musicians tend to scoff at musical instruments that don't allow for mistakes. Most such novice-oriented devices are so restrictive that an advanced musician will rapidly lose interest.

The Hotz Box avoids this trap. If you know music, you can configure scales so that, for example, the third

programming, set up or other brain-bending tasks required. Playing music doesn't get much simpler than that.

Granted, at its present multi-thousand dollar price tag (not counting the computer) few non-professionals will buy the Translator. Atari's plans, however, call for eventual downscale models of the Hotz controller, culminating in a low-cost,

The keyboards we play today are very similar to those that Bach played.

or the fifth will always show up on the same pad in a group of pads, regardless of the musical key. If you hear a seventh in your head and want to play it, you'll probably be able to pick it out instantly, thus streamlining the brain-to-instrument connection. Should you hit the wrong note, at least it will fit with what you're playing.

Jamming with Mick

So what's this about playing along with CDs? The Translator can reconfigure itself not just in response to using pads, but also through MIDI program change commands (and if driven by a SMPTE-to-MIDI converter, via SMPTE time code). Hotz expects to exploit the new CD+MIDI specification and is encouraging the artists with whom he works to embed within CDs the "cues" necessary to drive the Translator.

The first of these "cued" CDs will be from Mick Fleetwood, slated for a late 1990 release; other artists are in various stages of incorporating this process into their own releases. Consumers with a CD+MIDI-equipped CD player can simply plug its MIDI output into the Translator and play along with their favorite artists — no

mass-market item to be distributed through K-Mart-type outlets. To appeal to consumers, there also will have to be significant growth in the CD player market. As of today, only JVC manufactures a MIDI-equipped CD player and it is a bit pricey.

Reality Check

There are some limitations to this musical blue sky. The current translator software does not let the pads produce aftertouch, a common MIDI-modulation control. The hardware is capable of doing it but, considering the number of pads, the resultant signal load could easily overwhelm the MIDI communication channels.

Since the software is an integral part of the system, you can't use the Translator without your Atari computer (although the Stacy laptop would be fairly compact). Perhaps a more serious consideration is the long learning curve if you want to master the instrument. On the other hand, learning keyboard or guitar isn't all that easy either; there's no getting around the fact that mastering an instrument, not just bashing on it, requires dedication and practice.

Fortunately, the Translator can do ▶

HOTZ BOX

some very satisfying things right out of the box. When I first received one for evaluation, I was immediately sucked into playing some wonderfully huge chord voicings and matching melodies using pre-programmed software. For songwriters, the Hotz Box is a dream come true, offering instant access to all the components of music but requiring little, if any, playing chops. The easy accessibility also promotes serendipitous events, where you hit something you didn't intend to and produce something better than expected. The preliminary manual advises having a sequencer going at all times to capture any good ideas that come along; I can certainly vouch for that.

The Hotz Translator is not vaporware — it is real, currently shipping and in use today. It is manufactured in the United States and sold directly

through Atari. Various price estimates have appeared in different articles — these reflect a variety of bundled configurations of main unit, side wings and computer. Fleetwood Mac used it on their recent "Behind The Mask" album and are using it on their current, Atari-supported world tour.

It is also being used for much more humane and rewarding purposes — as a means for handicapped and autistic children to make music and express themselves. In one such instance, Atari recently donated a Hotz Box, computers and peripherals to the Children's Hospital of Stanford University.

In its present state of development, the Translator is too expensive for many musicians, and potentially quite overwhelming at first. However, Hotz continues to streamline the user interface and Atari has its eye on lowering the cost. The first

fruit of this is the Translator II, a new lower-cost version (\$3000) that was introduced at the past summer's National Association of Music Merchants show. This is a smaller, more portable unit, dedicated to musical applications. With innovations like this, the marriage of Atari and MIDI seems destined to be a long and happy one. ■

Craig Anderton is the founding editor of Electronic Musician magazine and a recognized expert on MIDI, with several books to his credit. This is his first article for START.

PRODUCT MENTIONED

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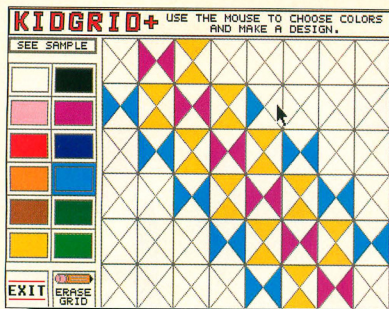
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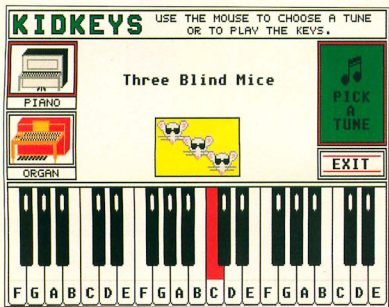
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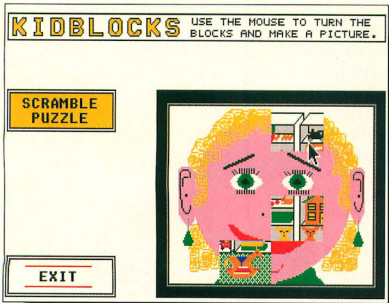
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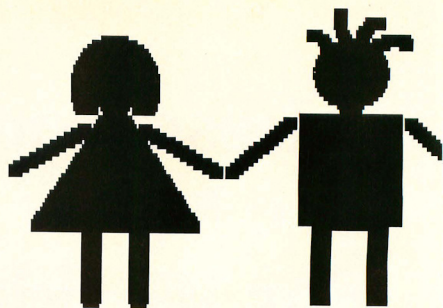
KidGrid+ Main Screen. To fill in a triangle, simply click on a color and then on the desired triangle.



KidKeys includes 20 songs for you to play or you can play your own.



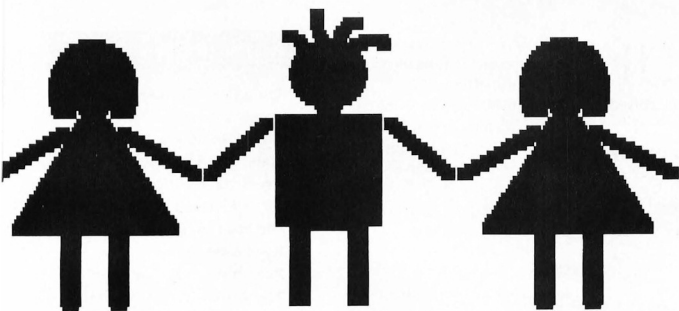
Click on the blocks in KidBlocks to solve the puzzle.



BY D.A. BRUMLEVE

P R E

Originally marketed under the MichTron label, Preschool KidProgs is an animated learning adventure for children ages 2 to 6. Three programs in one let your child create colorful designs, solve easy block puzzles and play and listen to music. START is pleased to present this educational treat on this month's disk.



S C H O O L K I D P R O G S

AT A GLANCE

Program:	Preschool KidProgs
Type:	Learning game for 2 to 6 year olds
Requirements:	512K, low rez
Arcfile:	KIDPROGS.PRG
Files:	BLOCKS.CLP KIDBLOCK.P11 KIDGRID.P11 KIDKEYS1.P11 KIDKEYS2.P11 KIDPRG23.PRG

KidGrid+ is a drawing program with 192 triangles waiting to be filled with one of 12 colors. KidKeys is a tone generator that can be a piano or organ and lets your child either pick a tune from the provided picture menu or play their own musical creation. KidBlocks is a multi-sided block puzzle that the child must unscramble to solve.

Getting Started

From your START backup disk, double-click on the archive file KIDPROGS.PRG and choose Extract when the dialog box appears. Select a destination disk and the files will un-ARC directly onto that disk. Make sure that the files BLOCKS.CLP, KIDBLOCK.P11, KIDGRID.P11, KIDKEYS1.P11, KIDKEYS2.P11 and KIDPRG23.PRG are in the same folder. Now, double-click on KIDPRG23.PRG to run Preschool KidProgs.

Main Menu

At the Main Menu screen click on the part of the program you wish to run. Your choices are KIDGRID+, KIDKEYS and KIDBLOCKS. Click on EXIT to return to the Desktop.

KidGrid+

KidGrid+ is a drawing program. The drawing screen is a grid of 192 triangles. To fill a triangle with color, click on the color you want and then the triangle.

Red is the default fill color. To choose a different color, click the on the color of your choice.

Click on SEE SAMPLE to load a random picture onto the grid. Note that doing this will erase any picture you already have on the grid, so don't use this option unless you want your picture to be erased. There are 12 sample pictures.

ERASE GRID clears any picture currently on the grid. If you want to ▶

Preschool KidProgs offers kid-friendly features specifically designed to stimulate the development of young children.

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KIDPROGS

erase just part of a picture, choose the white color icon and fill in the triangles with white.

You can fill the triangles on the grid one at a time, or you can hold either or both mouse buttons down and move the mouse across the grid ("drag" the mouse).

Click on EXIT to return to the Main Menu.

KidKeys

KidKeys is a tune player that also lets you play the keyboard directly. The program has two major screens: the main screen with the keyboard and the pick-a-tune screen.

The piano option is the default. When you press the mouse on the keyboard, the notes will sound like a piano. To change to the organ option, click on ORGAN. A red box

KidKeys can either be a piano or an organ.

around the instrument icon indicates the current choice.

To pick a tune, click on PICK A TUNE. The pick-a-tune screen will show 20 tune icons. Click on the tune you want to hear. You will then see the keyboard with your tune icon displayed above it. The program will then play the tune. See the sidebar for a guide to the pick-a-tune screen icons. Click on EXIT to return to the Main Menu Screen.

KidBlocks

KidBlocks is a multi-sided block puzzle. Each block is in the correct location, but, when scrambled, none of six different sides may be "up." When you click on a block, it turns to a different side. Your task is to turn the blocks until a recognizable object

Tune Icons For KidKeys

I'm A Little Teapot
London Bridge
Ring Around The Rosey
Mary Had A Little Lamb
I've Been Working On
The Railroad
Old MacDonald Had A Farm
Rock-A-Bye Baby
Row, Row, Row Your Boat
The Tinsey-Winsey Spider
Go Tell Aunt Rhodie
Frosty The Snowman
Twinkle, Twinkle, Little Star
Happy Birthday To You
Hickory Dickory Dock
Where Is Thumbkin ?
Jingle Bells
A Tisket, A Tasket
Pop! Goes The Weasel
The Muffin Man
Three Blind Mice

appears and the puzzle is solved.

When KidBlocks begins, the blocks are scrambled in the puzzle box with different sides up. You unscramble the puzzle by clicking on a block until the side you want is up; then go on to the next block. When a puzzle is completed, special things will happen on the screen — watch and listen closely to catch them all. To continue working on the puzzle, just click on any block you want to change, or click on SCRAMBLE PUZZLE to mix up the blocks.

Click on EXIT to return to the Main Menu. ■

D.A. Brumleve has written some two-dozen programs and numerous articles for and about children and computers. She now publishes her programs commercially under the D.A. Brumleve label. Current offerings include Kidpainter, Kidpublisher Professional and Super Kidgrid.

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Universal Item Selector III

REVIEWED BY DAVID PLOTKIN, START CONTRIBUTING EDITOR

AT A GLANCE

Product:	Universal Item Selector III
Type:	Utility
Company:	Application and Design Software 909 NW Starlite Place Grants Pass, OR 97526 (503) 476-0071
Price:	\$24.95
Requirements:	512K, all resolutions
Summary:	A must-have utility that's gotten even better.

The Universal Item Selector is probably one of the most utilized products ever developed for the ST. It is an invaluable substitute for the inadequate file selector native to the ST's operating system. Not only is UIS easier to use, it increases the functionality of the machine. UIS III gives you more and I wouldn't be without it.

Installing UIS III

UIS III goes into your AUTO folder. It is then summoned -- superceding the default selector box -- whenever your programs call for a file selector. The package also includes a version of UIS that you

can install as a desk accessory. This accessory is compatible with Codehead's MultiDesk. UIS III, itself, is compatible with virtually all ST software, though it must be installed before Codehead's Maxifile in the AUTO folder for some of Maxifile's functions to work properly.

The Visual Difference

At first, UIS III looks like any other selector box. It presents the files in a scrollable box, with the usual selection and directory lines. This is, however, where the similarities end.

First, you can modify the file mask. A mask is the criteria a file must meet for it to appear in the scrollable box. This mask is normally *.* With UIS III, you can drag a file to the top shaded bar to change the mask to match your file. You can also place a file on the selection line and double-click on the name or extension to change it to an asterisk. The contents of the selection line can then be dragged to the shaded bar. So, you can set a file mask without ever typing a single character.

Other new options involve the directory line. Backing out the

directory path is as simple as double-clicking on the directory you want. Say, for example, you have a path such as D:WORDFLAIR/DOCUMENTS/LETTERS, and you want to back out to D:WORDFLAIR. All you do is double-click on WORDFLAIR in the directory line. You can also back out to the root directory by clicking on the drive letter.

UIS III also supports Quickpath, a system that lets you set up 10 paths, which you activate with the mouse or function key. Select a Quickpath to place that path on the directory line and jump to it instantly.

UIS III adds two wide modes to the body of the selector box. The first shows all the information for the standard 12 files, plus their time and date; the other shows 36 files. The font size can be varied as well, providing 64 file names (in the 36 mode) on a color monitor and 128 filenames on a monochrome screen. These can be somewhat hard to read, but are very useful for multi-file operations.

To select a file, click on it. To select multiple files, you can [Shift]-click on each file, lasso a group, or hold the right button and left-click on each file. As you add files to the

and disable the blitter chip. Try it and you will see that the blitter chip speeds up graphics operations significantly. The speedup you see, however, does not fully reflect the true speedup caused by the blitter chip. To understand why you first must understand the multi-windowing nature of GEM.

Whenever a GEM AES-function call is made (including `evnt_multi()` and `vro_copyfm()`) the GEM task dispatcher switches control to a task (program or desk accessory) in another window. While this is fine, indeed necessary, for a well-behaved GEM application, it is not ideal for the ultimate high-speed graphics demonstration because a certain amount of the computer's processing power is given to other tasks.

What I wanted was a way to optionally devote all the computer's power to running SBOINK, giving

the blitter chip a chance to strut its stuff. But how to blit without calling the AES blitter function? The answer is to go straight to the lowest-level graphics call, the line-a blitter function (which is what the AES does, after running the task dispatcher).

On your START disk is a file called SVRO.C. This file has a replacement binding for the `vro_copyfm()` library function call, and this binding sets up the line-a variables without invoking the AES. Its use is transparent. If you link with the file SVRO.O, you will get the fast binding; otherwise you get the standard AES binding. In any case, you don't have to change your source code.

There are a few other advantages. AES just sets up the line-a variables anyway, and I do it almost three times as fast. Also, a virtual workstation handle is not required, so the blit

works whether or not you have a valid workstation handle.

If you run SBOINK as a program and select Fast Mode from the menu, the special binding will make SBOINK blit as fast as possible. If you have a blitter chip, you will see that the blitter chip can move graphics around faster than even pure 68000 assembly code, and blitter users get this benefit without any changes to code! The difference between the normal speed and fast mode is the overhead incurred by GEM's task dispatcher and other GEM tasks.

Watch for "Advanced Blitter" next month! ■

Atari network developer Samuel Streeper recently moved to Palo Alto, Calif., where he works for NeXT. His "Programming the Blitter" series began in the August 1990 issue.

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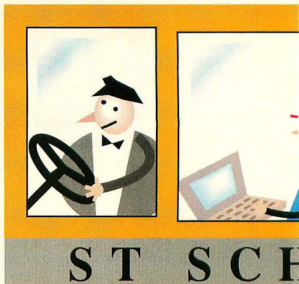
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GET A HEAD START AT HOME



BY KERRY WHELAN

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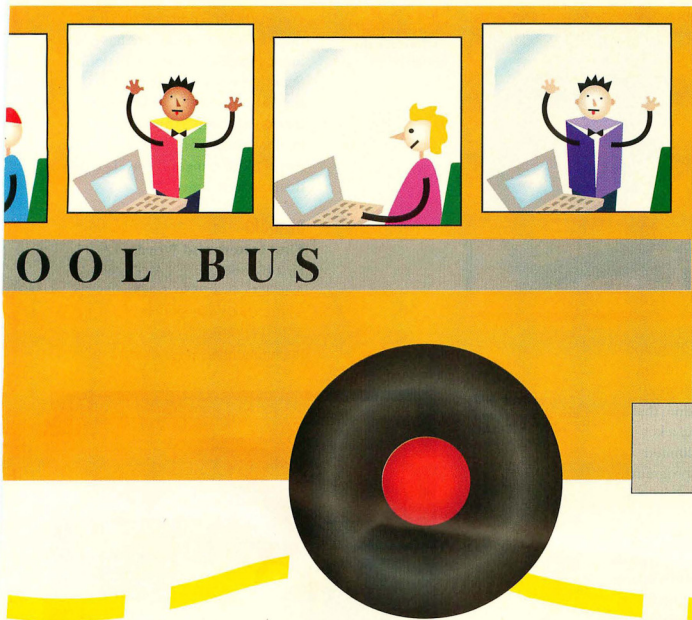


Do you want to give your children an edge on learning? Do you want to ensure that they'll be computer literate in an increasingly high-tech society? Or do you simply want to help them acquire basic math, reading and language skills in an effortless, entertaining way? If the answer is yes to any of these questions, then look no further than your ST.

Because of its exceptional graphics and sound, the ST is an ideal educational tool. By making learning fun, educational software for the ST keeps kids happy, motivated and absorbing basic academic skills. Even if your children aren't using an education-specific program, simply exploring the ST teaches them the computer literacy they will need for the future.

Many features of the ST literally turn learning into child's play. The GEM interface is so easy to use that my four-year-old can save pictures to disk without any trouble — although Mom gained a few grey hairs the first time he tried it.

Preschool and elementary school



software for the ST incorporates beautiful color and expressive sound with instruction on language, music, numbers, time and spatial relations. Programs for older children offer study in math, science, geography, touch typing and foreign languages. At college, the student can use the ST to give papers that professional polish.

ST software is reasonably priced or, in the case of some excellent public domain programs, available for the cost of a download. There are dozens of commercial and public domain packages available; I'll get you started with the following thumbnail sketches of a few of my favorites. They're divided into skill categories: preschool, reading, arithmetic, science and foreign language. Take a look — you're bound

to find a program to fit your needs and your budget.

PRESCHOOL

First Shapes, \$29.95. First Byte Software, c/o Electronic Arts, P.O. Box 7530, San Mateo, CA 94402, (800) 448-8822 (U.S.); (415) 571-7171 (Canada)

Recommended ages: 3 to 5

Mr. Ted E. Bear introduces the preschooler to shapes in this full-featured program from First Byte. The friendly bear talks to your children, asking them to choose activities by pointing to large picture boxes and clicking the mouse. There are four games: a Concentration clone, changing shape sizes, designing toys out of shapes and choosing the right size shape.

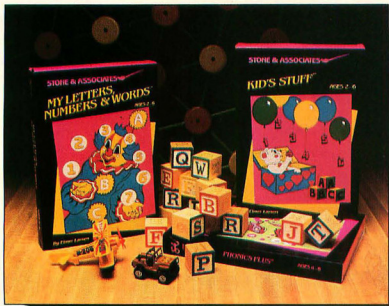
Because of its many features, First Shapes is a good value. Concentration's difficulty can be set to any level; children can play against a friend or against Ted E. Bear. Kids can save toy designs and print the picture. Best of all, reward messages can be personalized with your child's name.

Kid's Stuff, \$39.95. Stone and Associates, 7910 Ivanhoe Ave., Suite 319, La Jolla, CA 92037, (619) 459-9173

Recommended ages: 3 to 5

Kid's Stuff offers three activities from a picture-style menu: counting, letter recognition and free-style typing. Its charming graphics and gentle pace will appeal to the typical preschooler.

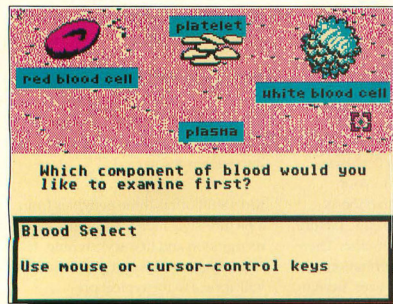
By counting correctly or typing ▶



the correct letters of a word, graphics on the screen come to life. The simple presentation of all three activities suits young children that are just beginning to figure out a keyboard and a mouse. To a limited extent, you can tailor the program to meet individual needs.

Tiffany's Barnyard and **Seaside**, Free/Public domain. On GENIE under the ST Roundtable Library #9 (Education) or #31 (Children's Applications); on CompuServe under the Atari Arts Forum
Recommended ages: 3 to 5

These two Concentration clones by Frank Hundley use color and action to increase memory skills and give



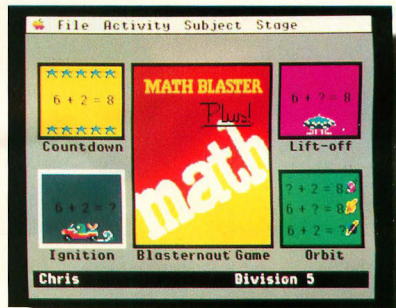
Kid's Stuff teaches preschoolers the basics.

young children practice with the mouse. Tiffany's Barnyard has farm animals hidden behind barn doors; Seaside has sea animals hidden behind gates, with four levels of increasing complexity. Hundley is to be congratulated for the professionalism of these games — Seaside is particularly well done.

READING

First Letters and Words, \$29.95. First Byte Software, c/o Electronic Arts, P.O. Box 7530, San Mateo, CA 94402, (800) 448-8822 (U.S.A.); (415) 571-7171 (Canada)
Recommended ages: 3 to 8

Practical drills are the hallmark of **MathBlaster Plus**.



First Letters and Words uses voice instructions to guide the young user through its four games. The parent or teacher can control the content and level of difficulty.

Non-readers can learn the alphabet, both upper- and lower-case letters, while beginning readers can learn the names of the parts of a dinosaur's body or puzzle out the answers to an animal riddle game.

Arrakis Advantage-Biology Volume 4 explores the human circulatory system.

Read-A-Rama, \$49.95. Unicorn Software, 2950 E. Flamingo Road, Las Vegas, NV 89121, (702) 737-8862
Recommended ages: 5 to 8

Read-A-Rama teaches children word

recognition and spelling skills, using a colorful circus theme. Parents can customize the word lists.

First the child is presented with a picture and word (there are six different pictures in a number of different categories). To test reading, a memory game asks kids to find the objects from different categories. The child can be asked to type the name of the picture in the spaces provided.

MATHEMATICS

Algebra I, \$29.95. MichTron, 576 S. Telegraph, Pontiac, MI 48053, (313) 377-8898
Recommended ages: 12 to 14

This introduction to algebra presents linear equations to junior high schoolers. It covers theory, gives examples, then asks students to solve algebraic equations and word problems.

Algebra I has five levels of difficulty and teaches using real-world problems, such as investments, percentage and motion. Its tutoring abilities are its best feature. The program walks students through problems, giving hints and facilitating conceptual understanding. Computer sessions can be printed.

Arrakis Advantage - Geometry II, \$19.95. Atari Corp., 1196 Borregas Ave., Sunnyvale, CA 94086, (408) 745-2000
Recommended ages: 16 to adult

Geometry II uses a quiz format, coupled with imaginative graphics and animation, to cover the basics of geometry. The program explains a concept, then asks a question, and gives a final exam. At any time, students can ask for a different concept, an example or a test. They can save their scores and position in the program. It runs in either color or monochrome.

A teacher and a good text are still

needed to explain the subtleties and details of the subject. But as an introduction or review of geometry, this program is pure pleasure.

Magical Math 1, \$29.95. Atari Corp., 1196 Borregas Ave., Sunnyvale, CA 94086, (408) 745-2000
Recommended ages: 7 to 10

In *Magical Math 1*, part of Atari Corp.'s Bentley Bear Series, a math question must be answered so Bentley can accomplish his task. The number of digits in the operation, type of operation and amount of time allowed to answer the question can be changed.

It would be nice if there were more action on the screen and if input from the numeric pad or keyboard was allowed. But since so few educational programs will run in color or monochrome, it's a great resource for owners of monochrome systems.

MathBlaster Plus, \$39.95. Davidson and Associates, 3135 Kashiwa St., Torrance CA 90505, (213) 534-4070
Recommended ages: 6 to 10

Updated for the ST in 1989, *MathBlaster Plus* introduces kids to basic math facts. The program is nothing fancy, but with its solid drill and practice functions, *MathBlaster Plus* could be found in any elementary school's computer lab. The manual for the program is detailed and clearly explains the five options available. With its editor, parents can design and print test papers. *MathBlaster Plus* includes a record-keeping function for teachers.

Math Talk, \$29.95. First Byte Software, c/o Electronic Arts, P.O. Box 7530, San Mateo, CA 94402, (800) 448-8822 (U.S.A.); (415) 571-7171 (Canada)
Recommended ages: 6 to 10

Professor Matt A. Matics leads his students through both drills and games in *Math Talk*.

The game *Table Talk* presents your child with addition, subtraction, multiplication and division questions. In *Mystery Number*, he or she has to figure out the missing numbers in math problems. Parents and teachers can customize the drills, print questions and record the results. Children who do well in math may lose patience with *Math Talk*'s slow response time.

Math Wizard, \$39.95. Unicorn Software, 2950 E. Flamingo Road, Las Vegas, NV 89121, (702) 737-8862
Recommended ages: 6 to 10

The imaginative graphics and liberal use of color make *Math Wizard* appealing to children and adults. Wizards, dragons, trolls and elves will help one or two players through four different drills disguised as games.

A warning to parents: in *Math Wizard*, dramatic sound effects follow both right and wrong answers. Children may enjoy making mistakes as much as they like getting the answers right! To prevent any problems, children may need some supervision when playing.

Space Math, \$14.95 (plus shipping and handling). Intracorp Inc., 14160 SW 139th Court, Miami, FL 33186, (305) 252-9040
Recommended ages: 8 to 14

Space Math is an adaptation of the popular arcade game *Lunar Lander*. Players must answer math questions in order to safely land a space ship on the moon. Black holes, meteors and the effects of gravity are combined with math equations so the higher levels are a real challenge; by Level 8 players had better know their math! ▶

ST Commercial Educational Software, Compiled by Marta Deike, START Assistant Editor

PRE-SCHOOL

- Abzoo** \$29.95. MichTron, 576 S. Telegraph, Pontiac MI 48053, (313) 377-8898
- Animals** \$34.95. Computer Keys, 21929 Makah Road, Woodway WA 98020, (206) 776-6443
- First Shapes** \$29.95. First Byte c/o Electronic Arts, P.O. Box 7530, San Mateo CA 94402, (800) 448-8822 (U.S.); (415) 571-7171 (Canada)
- Kid's Stuff** \$39.95. Stone and Associates, 7910 Ivanhoe Ave., Suite 319, La Jolla CA 92037, (619) 459-9173
- Kinderama** \$39.95. Unicorn, 2950 E. Flamingo Road, Suite B, Las Vegas NV 89121, (702) 737-8862
- Memory Master** \$39.95. Stone and Associates, 7910 Ivanhoe Ave., Suite 319, La Jolla CA 92037, (619) 459-9173
- Mixed-Up Mother Goose** \$29.95. Sierra On-Line, Coursegold CA 93614, (209) 683-8989
- My Letters, Numbers & Words** \$39.95. Stone and Associates, 7910 Ivanhoe Ave., Suite 319, La Jolla CA 92037, (619) 459-9173

ELEMENTARY SCHOOL (Ages 5 to 11)

- Adventures of Sinbad** \$49.95. Unicorn, 2950 E. Flamingo Road, Suite B, Las Vegas NV 89121, (702) 737-8862
- Aesop's Fables** \$49.95. Unicorn, 2950 E. Flamingo Road, Suite B, Las Vegas NV 89121, (702) 737-8862
- All About America** \$59.95. Unicorn, 2950 E. Flamingo Road, Suite B, Las Vegas NV 89121, (702) 737-8862
- Bentley Bear: Alpha Tutor** \$29.95. Atari Corp., 1196 Borregas Ave., Sunnyvale CA 94086, (408) 745-2000
- Bentley Bear: Equation Builder** \$29.95. Atari Corp., 1196 Borregas Ave., Sunnyvale CA 94086, (408) 745-2000
- Bentley Bear: General Store** \$29.95. Atari Corp., 1196 Borregas Ave., Sunnyvale CA 94086, (408) 745-2000
- Bentley Bear: Magical Anagram** \$29.95. Atari Corp., 1196 Borregas Ave., Sunnyvale CA 94086, (408) 745-2000
- Bentley Bear: Magical Math 1 - 3** \$29.95 (each). Atari Corp., 1196 Borregas Ave., Sunnyvale CA 94086, (408) 745-2000
- Bentley Bear: Memory Master 1 & 2** \$29.95 (each). Atari Corp., 1196 Borregas Ave., Sunnyvale CA 94086, (408) 745-2000
- Bentley Bear: Spelling Bee** \$29.95. Atari Corp., 1196 Borregas Ave., Sunnyvale CA 94086, (408) 745-2000
- Bentley Bear: Typing Tutor** \$29.95. Atari Corp., 1196 Borregas Ave., Sunnyvale CA 94086, (408) 745-2000
- Decimal Dungeon** \$39.95. Unicorn, 2950 E. Flamingo Road, Suite B, Las Vegas NV 89121, (702) 737-8862
- First Letters & Words** \$29.95. First Byte c/o Electronic Arts, P.O. Box, 7530 San Mateo CA 94402, (800) 448-8822 (U.S.); (415) 571-7171 (Canada)
- Fraction Action** \$39.95. Unicorn, 2950 E. Flamingo Road, Suite B, Las Vegas NV 89121, (702) 737-8862
- Goldrush** \$39.95. Sierra On-Line, Coursegold CA 93614, (209) 683-8989
- Kidpainter** \$25.00. D.A. Brumleve, P.O. Box 4195, Urbana IL 61801-8820, (217) 337-1937
- Kid Publisher Pro** \$25.00 (Free demo on CompuServe, GEnie and Delphi). D.A. Brumleve, P.O. Box 4195, Urbana IL 61801-8820, (217) 337-1937
- Mathblaster Plus** \$39.95. Davidson & Assoc., 3135 Kashiwa St., Torrance CA 90505, (213) 534-4070
- Math Talk** \$29.95. First Byte c/o Electronic Arts, P.O. Box, San Mateo CA 94402, (800) 448-8822 (U.S.); (415) 571-7171 (Canada)
- Math Wizard** \$39.95. Unicorn, 2950 E. Flamingo Road, Suite B, Las Vegas NV 89121, (702) 737-8862
- Perfect Match** \$29.95. MichTron, 576 S. Telegraph, Pontiac MI 48053, (313) 377-8898
- QuizShare: Solar System** \$10. Mad Scientist Software, 13422 N. Bayberry Circle, Alpine UT 84004, (801) 785-3028
- QuizShare: World Geography** \$10. Mad Scientist Software, 13422 N. Bayberry Circle, Alpine UT 84004, (801) 785-3028
- Read-A-Rama** \$49.95. Unicorn, 2950 E. Flamingo Road, Suite B, Las Vegas NV 89121, (702) 737-8862
- Read & Rhyme** \$39.95. Unicorn, 2950 E. Flamingo Road, Suite B, Las Vegas NV 89121, (702) 737-8862
- Space Math** \$14.95 (Plus Shp/Hnd). IntraCorp Inc., 14160 SW 139th Court, Miami FL 33186, (305) 252-9040
- Super Kidgrid** \$25.00. D.A. Brumleve, P.O. Box 4195, Urbana IL 61801-8820, (217) 337-1937
- Tales from the Arabian Nights** \$49.95. Unicorn, 2950 E. Flamingo Road, Suite B, Las Vegas NV 89121, (702) 737-8862
- Wonders of the Animal Kingdom** \$39.95. Unicorn, 2950 E. Flamingo Road, Suite B, Las Vegas NV 89121, (702) 737-8862
- Word Master Vocabulary Builder** \$49.95. Unicorn, 2950 E. Flamingo Road, Suite B, Las Vegas NV 89121, (702) 737-8862
- Young Math** \$39.95. Stone & Assoc., 7910 Ivanhoe Ave., Suite 319, La Jolla CA, (619) 459-9173

JUNIOR HIGH SCHOOL (Ages 12 & 13)

- Algebra** \$29.95. MichTron, 576 S. Telegraph, Pontiac MI 48053, (313) 377-8898
- French Verb Tutor** \$49.95. ASDE Inc., 151 rue Jolicoeur, Hull Quebec J8Z 1C8, Canada, (819) 770-7681
- Magical Myths** \$49.95. Unicorn, 2950 E. Flamingo Road, Suite B, Las Vegas NV 89121, (702) 737-8862
- Spanish Verb Tutor** \$49.95. ASDE Inc., 151 rue Jolicoeur, Hull Quebec J8Z 1C8, Canada, (819) 770-7681
- Typing Tutor/Word Invaders** \$34.95. Academy Software, P.O. Box 6277, San Rafael CA 94903, (415) 499-0850

HIGH SCHOOL (Ages 14 to adult)

- Algebra I** (Vol. 1 & 2) \$19.95 (each). Atari Corp., 1196 Borregas Ave., Sunnyvale CA 94086, (408) 745-2000
- Algebra II** (Vol. 1 & 2) \$19.95 (each). Atari Corp., 1196 Borregas Ave., Sunnyvale CA 94086, (408) 745-2000
- Algebra III** \$19.95. Atari Corp., 1196 Borregas Ave., Sunnyvale CA 94086, (408) 745-2000
- Biology** (Vol. 1 - 4) \$19.95 (each). Atari Corp., 1196 Borregas Ave., Sunnyvale CA 94086, (408) 745-2000
- Chemistry** (Vol. 1 & 2) \$19.95 (each). Atari Corp., 1196 Borregas Ave., Sunnyvale CA 94086, (408) 745-2000
- Geometry Tutor** \$39.95. ASDE Inc., 151 rue Jolicoeur, Hull Quebec J8Z 1C8, Canada, (819) 770-7681
- Geometry** (Vol. 1 & 2) \$19.95 (each). Atari Corp., 1196 Borregas Ave., Sunnyvale CA 94086, (408) 745-2000
- Home Planetarium** \$49.95. Atari Corp., 1196 Borregas Ave., Sunnyvale CA 94086, (408) 745-2000
- Mavis Beacon Teaches Typing** \$49.95. Software Toolworks, 19808 Nordhoff Place, Chatsworth CA 91311, (818) 885-9000
- Physics** (Vol. 1 & 2) \$19.95 (each). Atari Corp., 1196 Borregas Ave., Sunnyvale CA 94086, (408) 745-2000
- Reader en Français** \$50.00 (Canadian). N.I. Software, 1600 San Juan Ave., Victoria B.C. V8N 2L6, Canada, (604) 721-2919
- Statistics** \$19.95. Atari Corp., 1196 Borregas Ave., Sunnyvale, CA 94086, (408) 745-2000
- Trigonometry** \$19.95. Atari Corp., 1196 Borregas Ave., Sunnyvale, CA 94086 (408) 745-2000

SCIENCE

Arrakis Advantage - Biology

Volume 4, \$19.95. Atari Corp., 1196 Borregas Ave., Sunnyvale, CA 94086, (408) 745-2000

Recommended ages: 16 to adult

Last in a series of four programs on human biology, this program investigates the circulatory system with text and animation. Students can begin anywhere within the blood stream. The program explains key circulation components, and defines unfamiliar words at the student's request. It also gives automatic pop quizzes. The student can ask for an informal exam, with feedback on review screens, or a formal, final exam.

LANGUAGES

French Verb Tutor and Spanish Verb Tutor, \$49.95 (each). ASDE

Inc., 151 rue Jolicoeur, Hull Quebec J8Z 1C8, Canada, (819) 770-7681
Recommend ages: 12 to adult

Beginning linguists can use the first of these programs' four levels to test themselves on regular verb conjugations. The advanced level provides fluent linguists with a reference dictionary of conjugations using all ▶

START's Gallery of Educational Programs

by Marta Deike, START Assistant Editor

If you've been following START since the beginning, you already have a library of educational programs on disk. If you haven't, you can order the following learning tools by calling 1-800-234-7001 and requesting the issue in which it was published. The disk and magazine can be purchased separately or together. The software is on the disk; its documentation is in the magazine.

PRESCHOOL

Julia, by Phil Comeau, is a mouse-based drawing program that does not require use of the buttons, allowing toddlers easy and uninhibited freedom of expression. *November 1989 disk, Vol. 4, No. 4 (only disk available)*

ELEMENTARY SCHOOL (Ages 5 to 11)

Match Quiz ST, by Jon A. Rick, is based on the old Concentration game, with three challenging variations, Math, Word and Music Quiz. *June 1989 disk, Vol. 3, No. 11*

The Vocabularyian, by John B. Holder, is an editable vocabulary

tutor with a preset lexicon. *October 1988 disk, Vol. 3, No. 3*

JUNIOR HIGH SCHOOL (Ages 12 and 13)

Spanish Master, by Anthony Barbieri, drills students on the tenses and conjugations of regular and irregular verbs. *January 1989 disk, Vol. 3, No. 6*

ST Microscope, by Ron Schaefer, M.D. and Kathy Schaefer, M.D., opens a window on physiology by simulating real-world slides of neurons and blood smears, then explaining the display. *October 1988 disk, Vol. 3, No. 3*

HIGH SCHOOL (Ages 14 to adult)

The Grapher, by Delmar Searls, creates pictures from the trigonometric functions of sine and cosine, enabling students to visualize such abstract concepts. *Fall 1987 disk, Vol. 2, No. 2*

The Astronomer, by Ignac A. Kolenko Jr., shows your young Copernicus the universe on your ST, mapping the position of planets, stars and other celestial bodies at different times and dates. *Summer 1987 disk, Vol. 2, No. 1*

ST/ime \$59.95



Lithium 10year battery backed-up clock and calendar module that fits in all the STs. Install it under one TOS ROM chip and all your files will be date and time stamped correctly. Comes with digital corner clock display. Frees up your cartridge port. Stop wasting time setting time! 3yr. warranty.

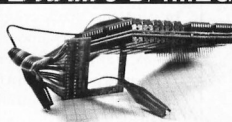
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tenses and persons. The programs know conjugation rules for any verb, regular or irregular.

Linkword - French, call for price. Artworx Software Co. Inc., 1844 Penfield Road, Penfield NY 14526, (716) 385-6120
Recommended ages: 13 to adult

Dr. Michael M. Gruneberg designed this program to help students get a basic grasp of French quickly and easily — a thing it does very well. An audio disk and printed glossary help with pronunciation. The program covers basic grammar, leading to simple sentence translation.

The Linkword series is visually and phonetically based. For example, once I've imagined Mike Tyson carrying a deer on his shoulders, I'll remember that deer is masculine.

The program works like flash cards, giving students the option of a predefined lag time to visualize the word before it disappears. There is a lot of travel-oriented vocabulary in Linkword, which makes it appealing to the vacationer.

Independent Study

This is by no means an exhaustive list of all the commercial and public domain educational software. Do a little studying on your own and you'll find more excellent programs. Many of the companies mentioned here have a whole line of products and CompuServe, GEnie and Delphi devote areas to such programs. On GEnie look under the ST Roundtable Library #9 (Education) or #31 (Children's Applications); on CompuServe under the Atari Arts Forum; on Delphi under Groups AtariST. ■

Entrepreneur Kerry Whelan has covered the Atari educational software market for Canadian publications for the last two years. This is her first article for START.

ST WHIZ KIDS

Programming is becoming a forgotten art among adult computer users, but many people still enjoy it immensely — especially children. Of those who do experiment with programming, a few will go on to become hard-core users.

Harry Garland

Harry Garland lives in the heart of Silicon Valley, not far from Atari Corp. headquarters in Sunnyvale, Calif. The blond, bespectacled 13-year-old began programming in BASIC on a Cromemco C-10A when he was 6 or 7 and received an ST on his 8th birthday.

Garland's programs are as diverse as his interests, ranging from the serious to the silly. He has written a game, in which the player must collect ice cream while avoiding a monster, and a telecommunications program that calls a national correct-time service and sets the computer's built-in clock.

Like the other two boys profiled here, Garland's favorite subject in school is math. Inspired by Pac Man, Garland created Mathman, whose purpose is to gobble only prime numbers.

Garland puts up with a fair amount of teasing from other kids about his hobby. "They think [programming] is easier than it really is. They think it is neat, but they tell me to change things." While that's fine sometimes, other times they ask him to do the impossible.

This summer Garland plans to continue improving his program-

ming skills. He'll be attending a computer camp to learn Pascal.

Jesse McCabe

Jesse McCabe, a muscular, 14-year-old brunet, lives in a rural Illinois community. He's been programming for the last four years and now owns his own ST.

McCabe and the others didn't learn to program all by themselves; each had an adult they could turn to for help. McCabe first learned BASIC programming on his father's IBM PC.

McCabe uses his ST to track locker combinations he has collected from friends, storing them in a database he wrote himself. McCabe also has written animation and drawing programs and an on-screen calculator.

McCabe doesn't have to put up

"They call me 'geek' and stuff."

with the teasing Garland does. "The kids at school are really interested in my ST and the programming you can do on it. I gave my 8th-grade report on the ST," McCabe says.

Danny Brumleve

My son, Danny Brumleve, lives in a university town in central Illinois. He began programming in ST BASIC when he was 8.

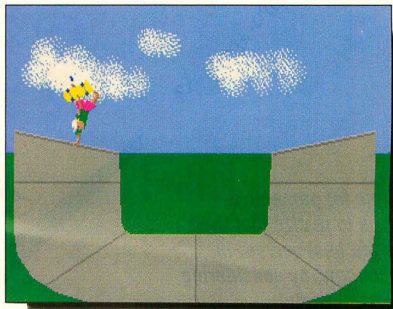
Brumleve is a slender, brown-eyed 12-year-old who specializes in joystick-controlled games. He has experimented with a drum-machine



three boys spends anywhere from five to 30 hours a week programming.

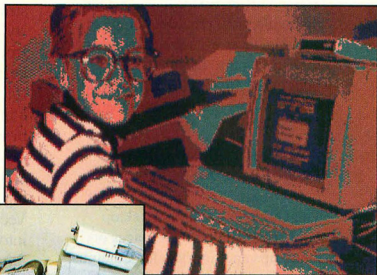
Though teachers, parents and other adults support Brumleve's programming activities, his peers are

Left: McCabe (standing) and Brumleve at the ST. Right: Brumleve's SK8 Sharks game.



MIDI program, a program to track his savings and a non-digital, on-screen clock, but his most recent effort is SK8 Sharks, inspired by Epyx's California Games.

Writing a game like SK8 Sharks, with its 50-some sprites and the ability to perform airborne 360s, is a considerable task. Brumleve worked on it full time for two months. Each of the



Garland digitized his self-portrait with ComputerEyes.



harsh critics. "They make fun of it," he says. "They call me 'geek' and stuff. And they make sarcastic insults about my game, even if they like it. "I can tell they like it because they play it a lot!"

Career Minded

Each of these young programmers sees a career in computing in his future.

McCabe says, "I probably will go into animation or programming, because that is probably the most enjoyable thing I do right now." Garland thinks he'll be a Unix programmer. Brumleve used to want to be an astronaut, but "now I think I want to be a programmer. Even if I didn't make a lot of money, I'd still have fun doing it."

— D.A. BRUMLEVE

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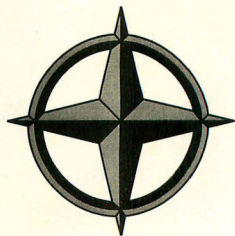
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TYPOGRAPHY

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PKS Write is a high performance text editor written specifically for the Calamus DTP System. Its ease of use and special capabilities, including complete macro compatibility with Calamus for generating pre-tagging information, increase productivity and comfort while creating documents. **PKS WRITE retails for US \$99.95.**

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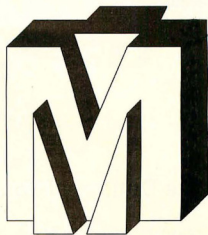
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Minimum System Requirements:

All Atari ST's with at least 1 MByte of RAM, a double sided disk drive and an SM124 monochrome or 19" high resolution monitor.

"Calamus is the most powerful DTP program for the ST – or any machine for that matter."

Start Magazine April 1990



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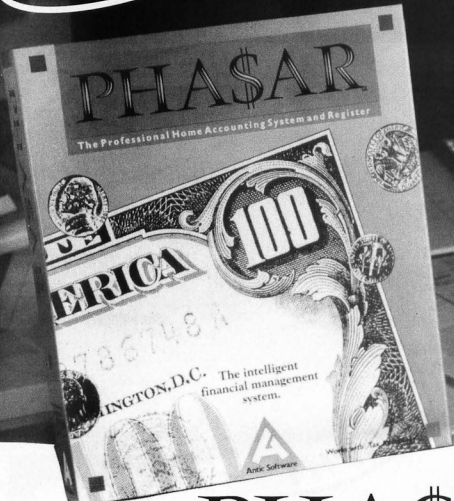
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INTERMEDIATE BLITTER

BY SAMUEL STREEPER

AT A GLANCE

Program:	SBOINK	
Type:	Tutorial	
Requirements:	512K, high or medium rez	
Archfile:	BLITTER2.PRG	
Files:	BOINK.IM2	BOINGKGA.PRG
	BOINK.IM3	IMGTEST.C
	BOINK.P12	IMGTEST.PRG
	BOINK.P13	SBOINK.C
	BOINGKGA.LST	SBOINK.PRG
		SVRO.C
Language:	C and GFA BASIC 3.0	

In last month's "Beginning Blitter" I discussed basic GEM blitter routines, then used them to display a bitmapped DEGAS picture within a GEM window.

This month I'll carry the same idea a few steps further, using the blitter to do flicker-free animation within a window.

With single buffered animation, the user views the erasure of the old image and the construction of the new, and the result is a distracting flickering effect. In order to provide smooth animation, a trick known as double buffering is often used.

Double buffering means constructing the next animation frame in a buffer not visible to the user, and then switching quickly to the new frame, thus maintaining the illusion

of motion. The blitter routines give the fast switching speed needed for this trick.

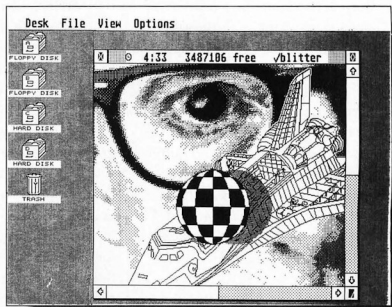
Boink With A Twist

On this month's START disk is SBOINK, a variation on the classic bouncing ball theme. SBOINK uses double buffering to achieve its flicker-free animation. You'll find it useful to view the program and

and BOINK.P13 in the same folder as SBOINK.PRG. To start the program, double-click on SBOINK.PRG. The C code which produced it is found in SBOINK.C.

In SBOINK the ball bounces within the confines of a GEM window, which constantly displays the time and free memory, and allows you to change the screen colors and enable or disable the blitter chip, if

SBOINK loads animated graphics directly over background screens.



follow the code as I discuss double buffering in more detail.

To view SBOINK, double-click on the archive file BLITTER2.PRG and choose Extract when the dialog box appears. Select a destination disk and the files will be un-ARCD directly onto that disk. Make sure that BOINK.IM2, BOINK.IM3, BOINK.P12

present. Furthermore, SBOINK is a complete GEM application which runs either as a program or a desk accessory simply by changing its extension from .PRG to .ACC and rebooting. (See "Accessorize Your Programs" in the October 1989 issue of START.) When run as a desk accessory, the ball continues to bounce

even as you perform tasks in other windows, such as typing into your word processor.

Double Buffered Animation

SBOINK maintains three off-screen graphic buffers. The first buffer, the background buffer, contains a DEGAS picture which serves as the bouncing ball's backdrop. This buffer also is used to construct the next animation frame off screen.

The second buffer, the ball array buffer, contains a bit image of the ball in six stages of rotation, plus a mask for the ball's shadow effect.

The third buffer, the save area, is used to store the region of the background buffer overlaid by the ball. I use the contents of the save area to restore the background buffer to its original state before constructing the next animation frame.

The SBOINK animation sequence is a five step process, and uses the blitter routines to move graphic blocks around.

Step 1: Blit from the save area to the background buffer, thus restoring the background buffer to its original state and erasing the last image of the ball.

Step 2: Calculate the next position of the ball and store in the save area the portion of the background buffer that will be overwritten by the ball.

Step 3: Blit the ball's mask from the ball array into the background buffer, using the blitter's logical OR mode (see "Beginning Blitter" in the August 1990 issue of START). This puts a black circle in the picture where the ball will go, as well as a 50 percent black pattern that simulates the ball's shadow.

Step 4: Select the next ball image from the rotation-simulation series stored in the ball array. Blit it into the black void left by the mask. The background buffer is now complete and ready to blit to the screen. Note that all the work we have done so far has been in off-screen buffers, invis-

ible to the user!

Step 5: Present the user with the results of our animation. Calculate the smallest rectangular region which contains both the old and new positions of the ball. Blit this region from the background buffer to our window's position in screen memory, clipped to our window's rectangle list. Because the old ball is erased on screen at the same time the new ball

Step 3: Wait for a vertical trace interrupt so you don't switch screen "pages" until the complete screen will be drawn from top to bottom.

Step 4: Switch to the second screen "page." The user is now viewing the second screen "page," so clear the appropriate memory area of the now-hidden first screen "page" and construct your next animation

In order to provide smooth animation, a trick known as double buffering is often used.

is drawn, the animation is smooth and flicker free.

The GFA BASIC Example

The file BOINKGFA.LST demonstrates how to animate our bouncing ball using GFA BASIC 3.0. View the bouncing ball by double-clicking on BOINKGFA.PRG; first make sure BOINK.IM2, BOINK.IM3, BOINK.PI2 and BOINK.PI3 are in its folder. Instead of running in a GEM window, this example uses an animation technique known as page flipping, which is frequently used for programming games.

Page flipping cannot be used by GEM programs because several programs share the screen, each assuming that the area used for screen memory has not been changed. Page flipping, however, is the best technique for high-speed flicker-free animations. It requires the following steps.

Step 1: Reserve 322256 bytes of memory, the storage size for a normal screen. This is your second screen "page."

Step 2: Construct an image in the second screen "page." Since this area is not being displayed, the user does not see your image while it is under construction.

frame by repeating steps 2 through 4.

Program vs. Accessory

The program version of SBOINK has a menu option to load a different background picture, but desk accessories cannot have menubars. Consequently, I duplicated the picture load function in a button in the desk accessory's information dialog box, activated by holding down [Left Shift] while selecting the SBOINK desk accessory entry. Since that function is redundant for the program version, the program modifies its information dialog box, hiding the button by modifying the button's object flags using `dial [DIALLOAD].ob_flags = (LASTOB | HIDETREE)`.

One Last Trick...

Besides being a useful programming demonstration, I intended SBOINK to show the speedup effects of Atari's legendary blitter-chip hardware versus the standard GEM blitter-software routines. SBOINK is a perfect test vehicle for such an example because it moves around *lots* of graphics data.

If your machine has a blitter chip installed, SBOINK presents a vertical scroll bar that allows you to enable ▶

and disable the blitter chip. Try it and you will see that the blitter chip speeds up graphics operations significantly. The speedup you see, however, does not fully reflect the true speedup caused by the blitter chip. To understand why you first must understand the multi-windowing nature of GEM.

Whenever a GEM AES-function call is made (including **evnt_multiO** and **vro_copyfmO**) the GEM task dispatcher switches control to a task (program or desk accessory) in another window. While this is fine, indeed necessary, for a well-behaved GEM application, it is not ideal for the ultimate high-speed graphics demonstration because a certain amount of the computer's processing power is given to other tasks.

What I wanted was a way to optionally devote all the computer's power to running SBOINK, giving

the blitter chip a chance to strut its stuff. But how to blit without calling the AES blitter function? The answer is to go straight to the lowest-level graphics call, the line-a blitter function (which is what the AES does, after running the task dispatcher).

On your START disk is a file called SVRO.C. This file has a replacement binding for the **vro_copyfmO** library function call, and this binding sets up the line-a variables without invoking the AES. Its use is transparent. If you link with the file SVRO.O, you will get the fast binding; otherwise you get the standard AES binding. In any case, you don't have to change your source code.

There are a few other advantages. AES just sets up the line-a variables anyway, and I do it almost three times as fast. Also, a virtual workstation handle is not required, so the blit

works whether or not you have a valid workstation handle.

If you run SBOINK as a program and select Fast Mode from the menu, the special binding will make SBOINK blit as fast as possible. If you have a blitter chip, you will see that the blitter chip can move graphics around faster than even pure 68000 assembly code, and blitter users get this benefit without any changes to code! The difference between the normal speed and fast mode is the overhead incurred by GEM's task dispatcher and other GEM tasks.

Watch for "Advanced Blitter" next month! ■

Atari network developer Samuel Streeper recently moved to Palo Alto, Calif., where he works for NeXT. His "Programming the Blitter" series began in the August 1990 issue.

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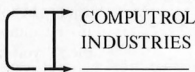
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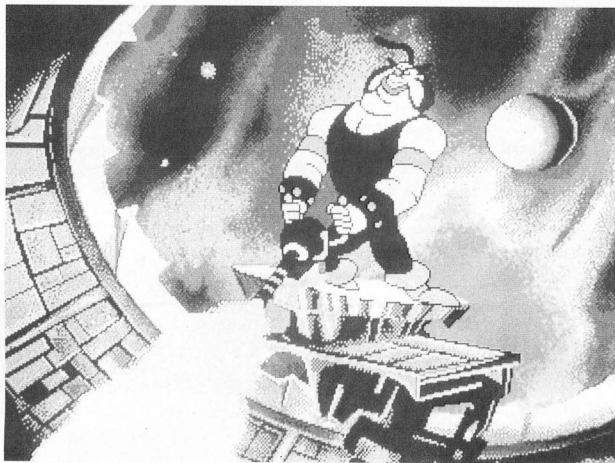
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Space Ace, Batman, Indy, Stik—Gripper

In Which Smith Goes To The Movies And Gregg Gets A Grip



Space Ace

REVIEWED BY CLINTON SMITH

AT A GLANCE

Game	Space Ace
Company:	ReadySoft Inc. 30 Wertheim Court, Unit 2 Richmond Hill, Ontario L4B 1B9 Canada (416) 731-4175
Price:	\$59.95

Requirements: 512K, color monitor

Summary: Timing is the key in this stunningly animated game based on the famous laser-disc coin-op.

One of the most visually stunning coin-op arcade games of all time was Don Bluth's animated laser-disc game *Space Ace*. This SF follow-up to *Dragon's Lair* featured beautiful, high-quality film animation that was a sight to behold. Now, thanks to the 16-bit audio-visual capabilities of the ST, you can enjoy *Space Ace* in your home.

Gameplay

Space Ace chronicles the adventures of the muscular space hero Ace and his beautiful partner Kimberly. Ace

has run afoul of the nastiest dude in the galaxy, a fellow by the name of Borf, who is in possession of a device called the Infanto ray. This ray can turn any adult into a baby and Borf has already given Ace a small sample of its power. As a result, Ace intermittently turns into a nerdy guy named Dexter.

While attempting to stop Borf's plans of global conquest, Kimberly has been captured. Dexter (and sometimes, Ace) must make his way through Borf's evil traps so he can rescue her and put an end to Borf's childish ways.

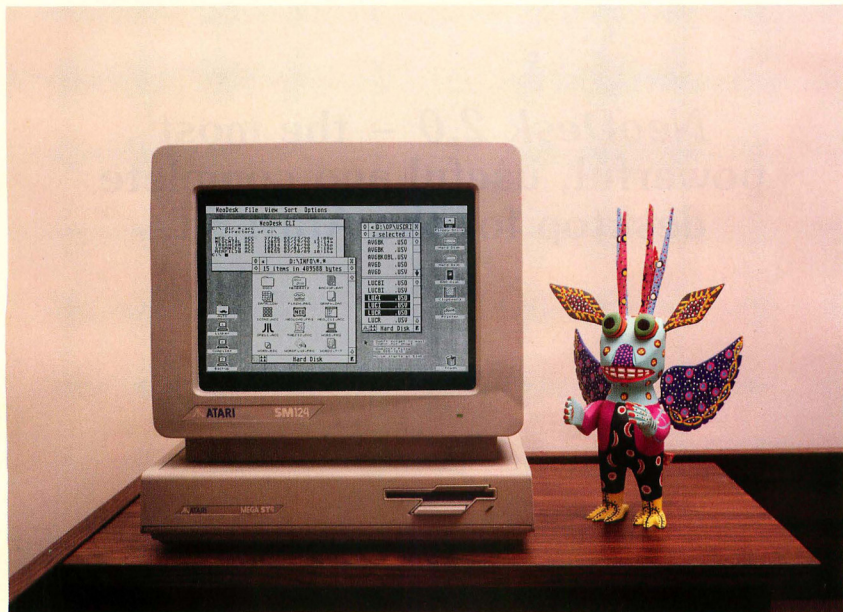
In each animated scene (there are

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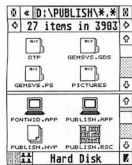
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NeoDesk introduced the idea of placing your commonly used programs directly on the desktop while pioneering the concept of assigning different icons for individual files. Now NeoDesk 3 takes you a step further, introducing several original concepts which will make you want to scream "I want my NeoDesk 3!".



With NeoDesk 3 you can now keep folders directly on the desktop itself for easy access. Of course, what good is a desktop which you can't jot some notes on? Not much. With NeoDesk 3 you can write "notes" directly onto the desktop itself.

Ultimate Desktop



NeoDesk 3 allows you to look at two different parts of the same directory, thanks to its amazing *Split Window* feature.

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icons, independently of each other. Each window can even have its own sorting and text options.

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Add some of the other NeoDesk features such as a brand new icon editor, keyboard equivalents, and hot keys (execute your favorite programs with a single key), then you have more than enough reasons to buy NeoDesk. But for those of you who need a little more, read on.

NeoDesk 3 now offers a unique *File Clipboard* which lets you hold files and folders temporarily in memory while you format a new disk, switch disks, or search through your hard disk. Think of it as an automatically expanding and shrinking ramdisk.



clipboard

Macros NeoDesk 3 gives you the power of *Macros*, with which you can automate a complete series of desktop operations like opening windows, copying files, executing programs, etc. Then assign them to any key on your keyboard.

NeoDesk 3 also has special support for 5 1/4" floppy drives. It even formats all disks with the correct information so they will work on MS-DOS computers. NeoDesk 3 supports up to 10 different screen resolutions including low resolution.

Of course, these features would not be useful unless they are easy to use. Rest assured, NeoDesk 3 has been designed to be "upwardly compatible". Use NeoDesk just like you used the original desktop. No need to forget all that you've already learned. NeoDesk 3 also comes with a very complete and clear manual. If you happen to have any problems, our helpful support staff is only a phone call away.

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is the *Recoverable Trashcan* which lets you recover (at any time) any files deleted with it.

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NEO_CLI.ACC

No matter who you are, NeoDesk 3 has something to you. From helpful file search capabilities to a powerful directory reorganize function, you can do it all with NeoDesk. Thanks to NeoDesk's ability to reduce itself automatically, there is no need to worry about memory consumption. Of course, there's lots more, which you can discover by ordering your own copy today!

NeoDesk 3 and the NeoDesk CLI are available from your local dealer, or order toll free by calling (800) 284-GRIB and get FREE 2nd Day shipping (US only). Call or write for upgrade and other information.

GRIBNIF SOFTWARE

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Photo by Rick Newton. Entire ad copyright © 1990 Gribnif Software.
Little monster not included in package.

40 in all), you must figure out which joystick moves will safely take Ace/Dexter to the next scene. These moves must be executed at the correct time or you'll be treated to one of the many life-ending animations.

Playing Space Ace boils down to knowing which joystick move you have to make and when you have to make it. The game is simply a contest of timing.

Recommendations

Space Ace features gorgeous background scenes with smoothly animated characters cavorting around them. It is simply the best animation I've ever seen on the ST. Accompanying these visuals is a stunning digitized soundtrack that features dialogue, sound effects and music from the coin-op version. The game also takes advantage of the STE's 4,096-color palette when run on that computer.

Space Ace does have its shortcomings. The original coin-op version was massive (25 minutes of animation) and it would have taken quite a few disks to fit everything into the ST version. As a result, many scenes from the arcade have been left out.

The original Space Ace also gave you a number of choices for getting through the game. At several points, you could choose to turn into Ace to make a sequence more challenging, or stay as Dexter and take on something a little easier. There were also multiple directions so you could experience different storylines. To streamline the flow of the home version, and lessen disk swapping, there is only one path through the game. Dexter appears in some scenes; Ace in others.

Since Space Ace takes a number of hours to complete, a save-game option is included.

Caveat: Space Ace comes on

four double-sided disks though the manual claims that single-sided owners can play half of the scenes in the game. However, when I ran the game from a single-sided drive, I could only play the first scene. When the game tried to go to the next scene, my drive made the grinding noise that a single-sided drive makes when it tries to access a double-sided disk and would proceed no further. Single-sided drive owners should check this with their dealer before buying the game.

Indy, The Graphic Adventure

REVIEWED BY CLINTON SMITH

AT A GLANCE

Game	Indy, the Graphic Adventure
Company:	Lucasfilm Games P.O. Box 10307 San Rafael, CA 94912 (415) 662-1902
Price:	\$49.95
Requirements:	512K, color or monochrome monitor
Summary:	Great fun for fans of that globe-trotting archaeologist.

Creating a graphic adventure based on a film is a tricky business. If you follow the plot too closely it won't

be very fun or challenging for people who saw the movie. On the other hand, if the game has few or no ties to the picture, fans will be disappointed. In their latest offering, Lucasfilm has walked this tightrope perfectly with their graphic adventure *Indiana Jones and the Last Crusade*.

The Quest for the Grail

In Lucasfilm's cinematic style, Indy begins with opening credits that are displayed on the sides of the circus trains which young Indy is chased across during the beginning of the film. The detailed 63-page grail diary is both entertaining and beneficial to gameplay.

The game follows Indy's adventures as he attempts to find his missing father and the fabled Holy Grail. These adventures take Indy from Venice and its mysterious catacombs, to the Nazi stronghold Castle Schloss Brunwald, on to the skies above Germany and finally to the fabled Temple of the Grail.

Nice Touches

While many of the scenes in the game are from the movie, there are also more than enough new scenes to make it interesting for people who have seen film. One of the best features of Indy is that there are

Lucasfilm's
Indy, The
Graphic
Adventure
is full of
surprises
even for
those who
have seen
the movie.



multiple solutions to many of the puzzles in the game and you don't have to do things exactly as they happened in the film.

Another nice touch: while you can try to fight your way out of a confrontation, you can also try to talk your way out of one by selecting a response from a group of on-screen choices.

Recommendations

Indy features the handy Lucasfilm adventure interface -- no typing, just point and click -- that makes the game incredibly easy to play. Along with the adventuring, Indy includes some arcade sequences (fist fights, biplane flying and mazes) that really spice up the game.

Indy features higher-resolution graphics than previous Lucasfilm adventures thanks to an improvement in their SCUMM (Script Creation Utility for Maniac Mansion) development system. The sound effects throughout the game are pretty good and the music includes recognizable themes from the film.

Indy comes on three double-sided disks but Lucasfilm will exchange them for single-sided ones. The disks aren't copy protected so you can install the game on a hard drive.

Batman, The Movie

REVIEWED BY CLINTON SMITH

AT A GLANCE

Game	Batman, The Movie
Company:	Data East 470 Needles Drive San Jose, CA 95112 (408) 286-7074
Price:	\$39.95
Requirements:	512K, color monitor
Summary:	Slick graphics and non-stop action make this game based on a movie particularly appealing.

Anyone who's been on this planet for the last year knows that the movie *Batman* was the number one hit of 1989. Data East and Ocean have done an excellent job in bringing all the excitement of this film to the ST.

Indy contains multiple solutions so it's never the same game twice.

Playing The Parts

Faithful to the movie, Level 1 of *Batman* takes place in the Axis chemical plant. Infamous gangster Jack Napier and his band of hoodlums are robbing the joint and you must don your crime-fighting gear to stop them. Napier is waiting at the far right of the factory and you must climb, jump and swing your way around the maze-like setup of platforms so you can reach him before time runs out.

Patrolling the factory are gun-toting and grenade-throwing goons who you can dispatch with a toss of your famed Batarang. The Batarang and your rope can also be used to climb to higher levels or to swing across chasms.

Since you're in a chemical plant, you also have to watch out for chemical leaks that sometimes emit from the deadly pipes. Contact with the leaks, thugs or their weapons eats up your energy, which is represented by a Batman face. As you lose energy the face becomes that of the Joker. When it's all the Joker you lose one of your lives.

When you beat Napier he also gets a first-hand lesson in chemistry when he falls into a vat of green toxins. He and the chemicals don't mix too well and he becomes the Joker. There are four more levels that promise challenging fun.

If you've seen the movie, then you can guess what's in store. However, it's up to you whether or not the Joker gets it in the end.

Recommendations

The various sequences in *Batman, The Movie*, are all very enjoyable and well done. The Batmobile sequence, which uses a pole-position perspective, is as good as many driving simulations I've seen. And the graphics throughout the game are great. The only weak point in *Batman* is the sound. You can choose between music -- which sounds okay but doesn't come close to Danny Elfman's excellent score for the film -- or sound effects, which are pretty standard stuff. Some digitized effects from the movie would have been better.

Overall, *Batman, The Movie*, is one of the best action games based on a movie I've ever seen. It's sure to please both fans and non-fans of the film.


Stik-Gripper

REVIEWED BY DAVE GREGG

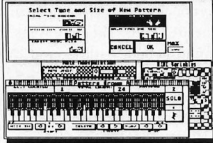
AT A GLANCE

Product:	Stik-Gripper
type:	Joystick holder (hardware)
Company:	Duggan DeZign Inc. 300 Quaker Lane, Suite 7 West Warwick, RI 02886 (800) 843-1223
Price:	\$18.95
Requirements:	Any joystick with a base width of 2 1/2 to 4 5/8 inches and a maximum height of 2 1/8 inches
Summary:	This handy joystick holder is a must buy for flight simulation fans.


The hand is not the steadiest of appendages, particularly for playing computer games. At the most critical times, a slip of the wrist can mean the difference between life



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"M"



Music Mouse

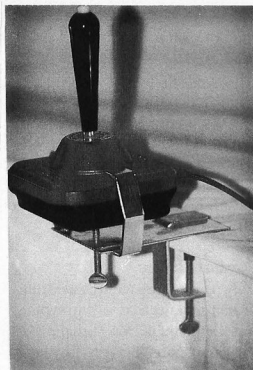
M is an amazing interactive, composing, and performing instrument. It has a truly unique graphic interface and the music it creates have made it a favorite of musicians and performers world-wide. On-screen sliders control velocity range, note density, note order, and time distortion for up to four separate voices and MIDI channels. **M** has drum sync, MIDI file support, and independent channelization.

Music Mouse^{em} is an "intelligent instrument" written by programmer-composer Laurie Spiegel that uses the mouse in conjunction with the computer's keyboard for full real-time control over up to four MIDI musical sound sources. Mouse movements are used to change the position of four lines on a grid, which translates to music. **Music Mouse** is a truly enjoyable introduction to beginning computer music.



Dr. T's
MUSIC SOFTWARE, Inc.
220 Boylston Street, Suite 206, Chestnut Hill, MA 02167

Demo disks available for \$5 each.



Recommendations

There's no doubt that Stik-Gripper is the solution for more solid game control but in its present form, there appears to be a limit to the types a joysticks it can accommodate. Just keep this in mind before you buy.

(Editor's Note: Duggan DeZign has a special rebate offer for user groups. Contact Duggan DeZign for more information.) ■

Veteran arcade Clinton Smith has written numerous game reviews for various ST publications. This is his first appearance in START. Dave Gregg divides his time between writing for START and nuclear physics.

and death. That's why a product like Stik Gripper is so handy. It's a joystick holder that keeps your game control rock solid. Flight simulation fans who often rely on both the keyboard and joystick will find Duggan DeZign's Stik Gripper especially helpful.

Putting It All Together

Stik-Gripper is made of tough steel and is easy to assemble. It's

adjustable so that it fits snugly on the lip of any table.

The types of joystick Stik Gripper works with is limited. The ideal stick appears to be a tower/base type that's under four inches wide. The Atari stick comes quickest to mind. The Beeshu Hot Stuff joystick is over four inches so it didn't quite fit. Hand-held sticks such as the one from Epyx, and Mindspace's PowerPlayer are also a tough fit.

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AT A GLANCE

Product:	Pro MIDI Player version 4.0
Type:	MIDI controller program
Company:	Pro MIDI Systems P.O. Box 864 Grand Forks, BC VOH 1H0 Canada (604) 447-6264
Price:	\$99
Requirements:	512K, color or monochrome monitor
Summary:	A reliable but limited performance system.

format files are supported (single stream, multichannel), as well as real-time recording of MIDI sequence and system exclusive data.

Unfortunately, there are absolutely no editing capabilities. Only record and playback are implemented, along with a couple of nice features such as a text file to accompany sequences (for lyrics or technical info) and external display of song name and status messages to synthesizer alpha-numeric displays. The latter helps avoid carting around a monitor but is limited to the few synths with the appropriate hardware, such as the Roland D series. Depending upon your available memory, up to 45 songs can be loaded at one time and hard disk owners have access to as many as 10

different sets of 26 songs each. Songs can be played in any order, called either from the computer keyboard or MIDI master controller.

Pro MIDI Player works with all ST and Mega and both monochrome and color monitors. It uses a hardware key that plugs into the cartridge port for copy protection.

Basic Operation

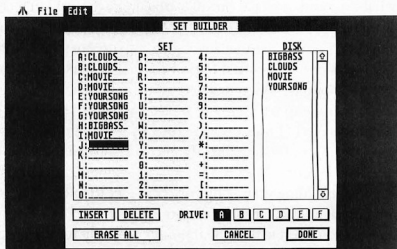
Pro MIDI Player is made up of two different programs: Recorder and Player. Recorder lets you record MIDI/Sysex data and edit set lists and the master controller configuration. Player loads and plays the MIDI/Sysex data and text files. The best way to familiarize yourself with the basic Player commands is to run PLAYER.TOS, which loads a default ▶

What kind of MIDI software should be at the heart of a performance system? Publishers have responded with a variety of capabilities, from the powerful UltraMIDI by MIDImouse to the simple Pro MIDI Player. This review will focus on the latter.

Play What?

The basic function of the Pro MIDI Player is to access and play a large number of MIDI sequences without having to load from disk during a performance. Standard MIDI level 0

Figure 1: The Set Builder dialog box. Notice the same songs back to back for several loops.



configuration and three demo songs. Once loaded, pressing the Help key displays the basic commands, such as Play, Abort Song and Pause.

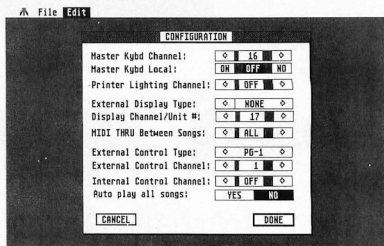
Songs loaded into the Player are immediately accessible with the letter keys and numeric pad, so that you can easily change your mind during a performance and deviate from the preset order. All songs required in a set must be in the Songs folder, along with their associated Sysx and text files. When a song is played, the Player first searches for a matching sysx and/or text file. If found, the Sysx file is sent out over MIDI and the text file is dumped to the monitor, then the playback starts. Text file displays are limited to 22 lines per song, a limitation that is somewhat annoying but understandable.

However, the fact that MIDI files have to be copied into the Songs folder and then their extensions changed individually from MID to SNG is a lot more frustrating. There should be a simple import routine in the Recorder to do this automatically.

The Recorder accepts data in real-time from any MIDI source, including tempo changes and most system-exclusive data. Recording starts with the first MIDI message received. When data is finished, you must manually press [Spacebar] to stop recording or else there will be a pause at the end for as long as it took to cancel recording after data was complete. You then provide song parameters: the song's full name, MIDI-thru and the local on/off status during song playback. The MIDI-thru option lets you rechannelize all data coming into the ST's MIDI In port to a preset channel. When finished, click on Done to return to the standard save-file window, where you can save your song directly into the Songs folder.

After recording your songs or (transferring MIDI files into the Songs folder), you need to arrange them in the desired play order (Set Order) by

Figure 2: The Configuration dialog box. More external display types are being added.



selecting Build Set from the Edit menu. The Set Builder window makes it easy to choose the order from all songs available in the folder (see Figure 1). Looping of songs is not directly supported but can be accomplished by placing the same song back to back. To save the set order click on Done and choose PERFORM.SET as the file name. This default set loads on boot.

Hard disk owners can access up to 10 different sets by adding a number at the end of perform when saving the set file. These set files must be in the same root directory as the Player program. You can select among them by using the function keys ([F10] is the default set). Press [Escape] at any time during a load to abort the load cycle; only those songs loaded to that point will be displayed, ready for play.

Various performance options may be set through the Configuration option from the Edit menu (see Figure 2). These include Master keyboard-MIDI channel, Master keyboard Local on/off, External display type (NONE, DX-7, JX8P, D10, D50, MT-32), MIDI-thru between songs, External Control (allows playback commands to be triggered from a MIDI keyboard) and Auto Play (to cycle through the set songs). This file is saved as PERFORM.CFG and loads on bootup.

Ready for the Road?

Should you base your performance

system around the Pro MIDI Player?

This depends largely on your budget. For a price of \$99, it offers a reliable performance system that will continue to grow as more updates become available.

But as is often the case with software designed for complex musical requirements, Pro MIDI Player offers some nice features while excluding others that many people may find necessary. For example, there is no way to automatically send a start message at the beginning of playback to trigger a drum machine (or a stop at the end!). This can be managed by programming the rhythm patterns on your sequencer, using the drum machine only as a sound module. Nonetheless, this is an annoying oversight.

Also missing is tempo control that would let you alter tempo before (or during) song play. Performers who change tempo in response to audience mood would find a feature like this invaluable and it shouldn't be difficult to implement. The weak manual has been rewritten, which should make it more helpful and understandable.

Although the Player and Recorder are not as easy to use as they could be, they can be in very helpful to the performing musician and have proven their utility on stage. ■

Mibai Manoliu is a musician/producer and computer consultant living in the L.A. area.

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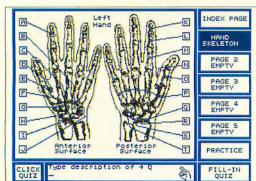
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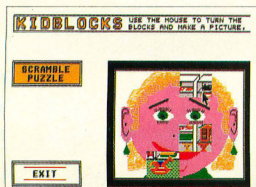
Programs on your START Disk



Anatomy (etc.) 22

ANATOMY (ETC.) By Robert Grunbok **PAGE 22**

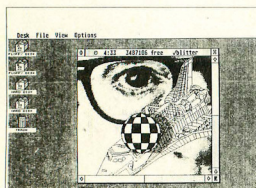
This click-and-question picture quiz uses the ST's superb drawing capabilities to offer a fun and friendly learning tool. More sophisticated than flash cards, Anatomy (etc.) combines both language and visuals, providing a two-pronged approach to studying.



Preschool KidProgs 36

PRESCHOOL KIDPROGS By D.A. Brumleve **PAGE 36**

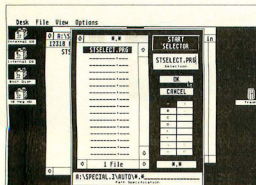
Originally marketed under the MichTron label, Preschool KidProgs is an animated learning adventure for children ages 2 to 6. Three programs in one let your child create colorful designs, solve easy block puzzles, and play and listen to music. START is pleased to present this educational treat on this month's disk.



SBOINK 52

SBOINK By Samuel Streeper **PAGE 52**

Last month's "Beginning Blitter" tutorial demonstrated basic blitter routines. This month we will do flicker-free animation within a window using a variation of the classic bouncing ball theme. SBOINK constantly displays the time, the amount of free memory, and will allow you to change the screen colors and enable or disable the blitter chip, if present.



START Selector 71

START SELECTOR By Charles Johnson **PAGE 71**

The START Selector is the inaugural program in our series, START Classics. These are perennial favorites from past issues; useful, popular software that every ST owner should have. Our first classical offering replaces the standard TOS "Item Selector" with an intuitive, GEM-friendly interface.

compatible not applicable	Archive	Size		Memory		Resolution	Notes
		START FILE	FILE	HIGH	LOW		
Anatomy (etc.)	ANAT_ETC.PRG	255K					
Laserbrain version 1.31	LAZBRAIN.PRG	277K					Atari freeware
Preschool KidProgs	KIDPROGS.PRG	276K					
SBOINK	BLITTER2.PRG	152K					Intermediate Blitter
START Selector	CLASICO1.PRG	70K					First published in Special Issue #3

How to get START programs up and running

1) Write protect your disk.
 2) Make a backup copy. We format the disk using TWISTER.PRG (written by Dave Small and Dan Moore, Summer 1988 issue of START) to increase the size of a single-sided disk to 400K. You can back up onto one Twisted, single-sided disk; one double-sided disk; or two GEM-formatted, single-sided disks.

NOTE: TWISTER DOES NOT WORK WITH GEM'S DISKCOPY. To make a backup, open a window for your START disk, then drag the files from the window to the backup disk.

3) Store the original and use the backup hereafter.

4) Un-ARC the files. We use Double Click Software's DC SEA utility to create self-extracting archive files. To un-ARC a program, simply double click on the filename.

NOTE: IF YOU USE NEODESK'S ALTERNATE DESKTOP, DISABLE IT BEFORE UN-ARCING.

5) When the dialog box appears, choose Extract.

6) When the file selector appears, choose a destination disk (hard disk, RAM disk or floppy disk) for the uncompressed files. Make sure the destination disk has enough space for the uncompressed files, whose sizes are given in the chart on the previous page.

The screen goes blank, then the files are listed as they are extracted, and marked "OK" if the uncompression is successful.



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CHINESE BRUSH STYLE



By Angus Christian

With *DEGAS Elite*

DEGAS Elite, one of the standard drawing programs for the ST, offers multiple work screens, GDOS text fonts and sophisticated block manipulation features, making it well suited to produce high-quality, original, black-and-white art for many professional publishing situations. To illustrate the program's capabilities, I'll show you how I simulated a Chinese monochrome brush painting.

I chose this style because it posed an especially grueling test. Chinese painting relies on fluid, controlled brush work for its effect. It has rigid rules of design, though each work must be a spontaneous composition.

Obviously I couldn't match the deliberate brush work of a master painter by drawing freehand with a

mouse, so I took a different approach. First, I analyzed the structure of the style, solved each element as a separate problem and then re-integrated them into a consistent whole. My subject was the classic image of a bamboo tree.

From The Ground Up

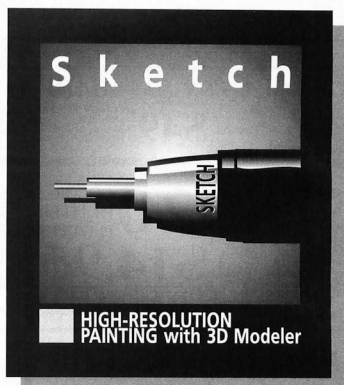
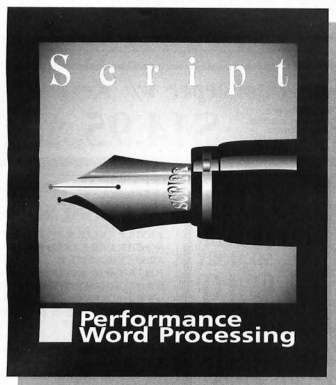
Bamboo painting begins with the trunks (seldom just one). I placed them close together, but at an angle to each other so that they seemed to converge below the bottom of the picture. This compositional relationship is referred to in brush painting as "host and guest." Remember it because we will encounter it throughout the exercise. The stroke used to represent the segments of the trunk is called the "bone stroke." I used a variation of it for the smaller

branches as well.

I selected the thick, diamond-shaped brush from the DEGAS palette and set down sixteen pairs of points to represent the ends of each section of bamboo. These also were the ends of my bone strokes. I didn't have to be precise, but I kept in mind that the final proportions of the trunks depended on the placement of these points.

Using DRAW I enlarged the points into big smudges, leaving some room to play between the pairs. Switching to LINE mode I chose the crosshair brush and connected the dots to form the bone stroke outlines.

Next, I gave the bone strokes some texture. Using outline mode I carefully positioned the crosshair just below the intersection of a smudge and a line (this works best with very ▶



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jagged lines) and clicked the mouse button. The line thickened naturally toward the endpoint. I did this for all the endpoint/line intersections. If nothing happens when you try this, you simply missed the line; press [Undo] and try again. You can even try this along the midsection of one or two of your lines to relieve the regularity. Play around with your lines and thickening technique until you're satisfied with the bone shapes, then emphasize all of the left-hand lines by doubling-up on them or by going over them with a thicker brush.

Branching Out

Before adding branches I determined the general area where I wanted to place leaves. Next, I created a series of small bone strokes, starting the lines from between two trunk sections, and, using short segments,

scribed gentle arcs toward the leaf areas.

When you try this leave a little space between branches. Remember the "host and guest" relationship when you draw in the second and third level branches. Each guest branch should play a subordinate role to that of its host.

I thickened the primary branches near where they intersected with the trunk by doubling-up on the lines. To complete my smaller-version bone strokes, I switched to DRAW mode and capped the ends of each line segment with a rough dot shape (not too big).

By now my work was starting to resemble a bamboo tree, with a nice "woodcut" look to it. For very simple graphic statements this look might be preferable to the more textured look that I eventually achieved.

Since I couldn't reproduce the

continuous shading of watercolor, I had to compromise with a different texturing technique. Selecting the long vertical brush and switching to SMEAR mode, I carefully ran this brush down the left inside of my bone strokes. This gave me a stippled effect. The trick here was not to lose line definition in the edges.

I continued on into the ends of the bones, pulling the edges of the black areas into the white interior. Corrections were made with the AIRBRUSH in black or white mode as needed. I SMEARED the thicker parts of the branches as well. My results weren't the same as if I had used watercolors, but it was certainly suggestive of the desired style and, I hope, visually impressive. Again, my goal was to adapt the style, not reproduce it literally.

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Lastly, The Leaves

In bamboo painting, leaves are painted with single deliberate strokes and it takes considerable practice to be able to do them properly. There are also rules about how leaves are grouped together; I could exploit this feature to make up for my lack of expertise and a real brush.

In a different work screen I carefully drew the outline of a single leaf. When you create your leaf, don't worry too much about its size or orientation, just the proportions. You can use the STRETCH function to perfect the shape and copy it back to your leaf work screen. ROTATE or SKEW the leaf to give it an orientation of about five o'clock.

I used this single leaf to generate all of the others in my picture. I observed the "host and guest" rule in forming leaf pairs and never let them converge to a single point. I also

added a smaller leaf off to one side for three-leaf groups and used pairs to build up four-leaf patterns.

The Chinese graphically refer to the proper angular relationship of such patterns as "fish looking for the same food." Keep this in mind as you assemble your groups and you probably can't go too far wrong. Don't use more than five leaves in a single group. As with the original leaf, use the BLOCK functions to create a basic palette of leaf groupings in different sizes. Save this screen to disk for use in the future.

To finish the composition I chose a group from the leaf screen and formed a block around it (make sure your blocks are set to X-RAY mode). Moving to the trunk screen I copied the grouping wherever I liked, keeping several points in mind. First, I tried not to place the ends of the leaves directly on the ends of the

branches, but offset them wherever possible. Secondly, my palette was only a starting point. I continued to manipulate the patterns to fit in with the general composition, and, finally, I tried to make my leaves carry the curves of the branches.

For a master, this kind of painting is almost a performing art and it is common to "warm up" with a few before settling down to creating the masterpiece. If you saved both of the basic screens to disk (the trunks and the leaves), you can always repeat this final composition exercise until you achieve exactly the effect that you like. ■

Angus Christian is the owner of Scribes Design Co., a technical writing and graphic design company in B.C., Canada. This is his first article for START.

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Script

German Document Processor Hits U.S. Shores

REVIEWED BY DAVID PLOTKIN, START CONTRIBUTING EDITOR

AT A GLANCE

Product:	Script
Type:	Word processor
Company:	Megamax Application Systems 1200 E. Collins, #214 Richardson, TX 75081 (214) 699-7400
Price:	\$79.95
Requirements:	1MB, high rez
Summary:	A first version with lots of potential.

If you're in the market for writing tools, you may have heard about Script, Megamax's new document processor imported from Germany. Script includes multiple fonts, graphics importation and an effective interface that make it an impressive product, until, that is, you try to print.

Installation

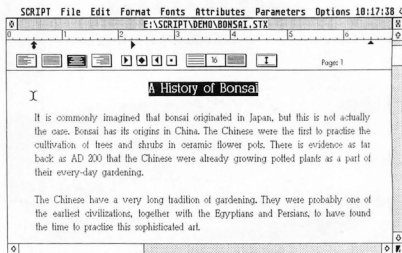
Installing Script is a snap. Boot up and select your printer and fonts. All fonts are available on screen and for use with 9- and 24-pin dot matrix printers and laser printers. The laser version is compatible with the Atari's SLM804, HP Deskjet and Deskjet+.

Down to Basics

Script is completely GEM-based, and very fast. It can display up to four documents in separate windows. Below the standard menu bar is a ruler area in which to set margins and tabs, justification and line spacing.

Script supports the usual word processing functions: word wrap, search and replace, block, cut and paste, headers and footers, and includes a user-modifiable spell-check dictionary. It saves and imports ASCII text, but cannot read any other format. It automatically reformats text or adjusts margins as you type -- there is no need to manually reformat as you go.

Script's main window.



Dressing Up The Text

Script uses non-GDOS proprietary fonts, which means that only those supplied by Megamax are available to you. The supplied fonts come in several sizes of only one typeface -- hardly enough to really dress up a document. Perhaps other fonts will be released in time, but until then, your type alternatives are confined to the standard bold, italics, underline, superscript, and subscript and two point sizes.

Graphics can be imported into a document, but only in Script's proprietary format, STad, which is compatible with Megamax's Sketch drawing program and nothing else. There is, however, a utility included that converts DEGAS

(uncompressed) files to STad format. There is also a screen capture routine that lets you take a screen shot in STad format from any program with access to desk accessories. I found the graphic-import procedures a bit clumsy -- I wanted to read the DEGAS picture directly (without the need for conversion) and compress files.

Imported images fill up the entire screen, but you can edit the image with a dotted box and select portions of the image for your document. Press a key to pour the picture into your document at the current cursor location. You cannot edit images once you've inserted them, although you can adjust their size and location.

Script can handle footnoting, complete with automatic numbering. You can insert page numbers and time and date into the document -- either the time and

date that the document was created, or a special field that is updated at print time. No hyphenation dictionary is included, but you can insert "soft" hyphens, which remain only if necessary.

Problems In The Printing

The problems with Script are primarily in the printing. Margin settings are particularly frustrating. You cannot set the right or bottom margins, only the left and top. To add to the frustration, these margin settings don't get saved so you must set them every time you reload the file. Printing with the top margin set causes a document to run off the bottom of the page in normal printing mode, although not in draft mode.

In draft mode, the printer characters are wider than the font supplied with Script. So printing in draft mode causes the document to

run off the right side of the paper. Draft mode printing is relatively fast, but normal mode is painfully slow. My Deskjet+ printer with print spooler, which is very fast even under the control of GDOS behemoths such as WordUp or Easy Draw, pauses in Script at the end of every pass of the print head.

The Scope of Script

In its current version, Script shows a lot of potential. The printing limitations, however, disqualify it as a muscular document processor, so I don't recommend it for professional writers. It is very easy to learn and use (not to mention comparatively inexpensive), making it a great buy for the beginner. ■

Contributing Editor David Plotkin is a chemical engineer for Chevron U.S.A.

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Outline Art

Font Manipulation on the ST Comes of Age

REVIEWED BY DAN FRUCHEY, START CONTRIBUTING EDITOR

AT A GLANCE

Product:	Outline Art
Type:	Calamus graphics companion
Company:	ISD Marketing 2651 John St., Unit 3 Markham, Ontario Canada, L3R 2W5 (416) 479-1880
Price:	\$289.95
Requirements:	1MB, high rez
Summary:	A desktop publisher's dream come true.

In 1989 ISD Marketing released Calamus, one of the most powerful and professional desktop publishing programs available for the ST. This year ISD follows up Calamus with a companion product, Outline Art, an incredibly powerful program designed to manipulate text and vector graphics through a variety of special effects. It adds flexibility to ST desktop publishing that rivals similar products on the IBM or Macintosh.

All the Basics

Like its parent, Calamus, Outline Art is icon driven. It works by

manipulating vector fonts and graphics, which are, essentially, lines and simple geometric shapes. These lines and shapes act as infinitely resizable templates. They can be moved, stretched and otherwise manipulated, and still retain their identity and relationship to one another. The lines are resolution independent, which means they maintain the highest resolution possible on any output device, including monitors, printers and typesetting machines.

Outline Art manipulates these templates or outlines to create new designs from existing ones. If this sounds intimidating, it isn't. All you

have to do is indicate the font you want and the program does the rest.

Outline Art in Action

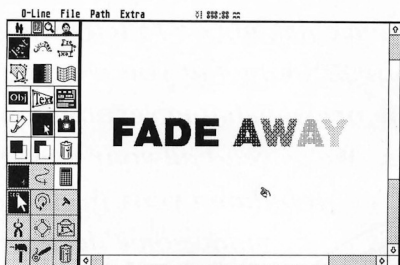
To start Outline Art define an area in which to place your text. In the dialog box that appears, type your message, specify a font and decide whether you want the text rotated, curved or traced upon a predefined path. Click on OK and within seconds your design will appear on the screen. It's really that simple.

Many additional options are available which can be defined when you type in text. You can kern characters, right or left justify text, center it or space it out across the

Outline Art is the powerful graphics program for Calamus.



You can adjust the percentage of the grey shading by the letter.



screen. Precise font sizes can be defined manually, or you can let the program decide on a font size, based on the size of your defined frame.

You can adjust character, letter and word spacing for a variety of effects, including elongated and condensed text. You can also rotate or italicize characters separate from the defined text flow path. You can

also outline letters and fill them with any grey shade. One option will even automatically adjust the greyscale of a letter from one percentage of grey to another. When rotating text, you can define the angle of rotation and determine whether text will follow an inner or outer circle.

Once your text is generated, you

can manipulate it further with Outline's Calculator. The Calculator contains a series of predefined formulas that lets you automatically mirror, flip and rotate text. It can also shape the text to resemble a globe, cylinder or cone. You can define your own formulas as well.

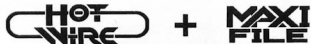
Text designs can be converted to graphic designs, which give you still more freedom. The Object menu lets you move individual lines in the character templates to create a variety of special effects.

Outline includes a clipboard to save work temporarily. Within the clipboard you can also create multiple copies with different greyscale variations and specific locations on the page. You can layer objects and place them in the foreground or background. Multiple zoom levels are available for detail

continued on page 88

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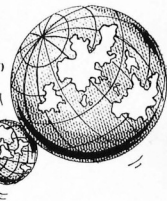
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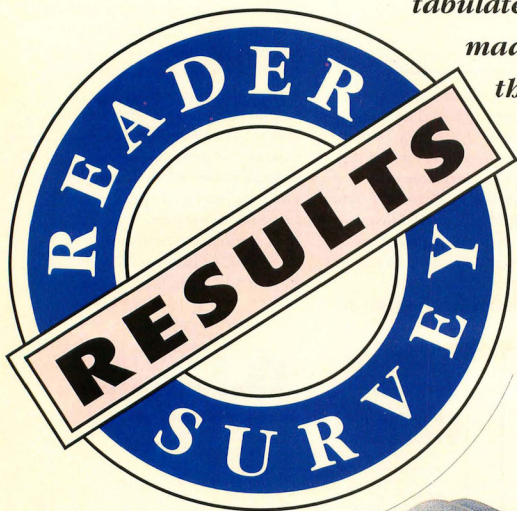


Micro Creations

"Creating New Worlds"
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In the May 1990 issue we asked you to tell us who you are, how you use your ST and what you would like to see in START. We had an overwhelming response, including many detailed letters. We've read all your comments,

tabulated your preferences and made some decisions about the editorial direction of the magazine. We now present a profile of the START reader and a blueprint for the new START magazine.



First, we want to say thank you to all the people who took the time to fill out the survey and send us kudos and criticisms. Second, we want to say that we analyzed your responses carefully and paid special attention to your likes and dislikes. You obviously know what you want from START, which makes it easy for us to tailor the editorial content. Over the next few months watch for changes in START, changes you suggested.

The most frequent request we received was for more — more articles, more programs, more reviews, more tutorials, more new products. We're happy to announce that START has grown. From now on we'll publish 124 pages each month, and we're expanding our coverage to encompass new Atari products — the Portfolio, TT, Stacy and Lynx — as well as the ST's forerunner, the 8-bit machine.

We're also packing more into the pages we have. Last month the expanded "Products Update" debuted, along with the buyer's guide

list of available commercial software. You've made it clear that what you want is information on tools to help you better use your ST. You've chosen the best personal computer value on the market — power without the price, as Atari boasts — and you look to START to help you boost that power.

The START Reader

The typical START reader is a 40-year-old male subscriber, earning \$36,000 a year. He bought his Atari computer — a 1040ST with a double-sided drive and a color monitor — for his personal use and considers himself an intermediate user. A dot-matrix printer and a modem are part of his setup, and he either owns or is considering buying a PC emulator and a memory upgrade. He's isolated from his peers; he doesn't belong to a user group or dial bulletin boards. He uses his ST for word processing, game playing, desktop publishing and MIDI applications.

In general he's satisfied with START's coverage, but would like to see a thicker magazine, especially more hints and tips and hardware and software reviews. He thinks the way to improve the disk is to publish more utilities, product demos and public-domain software.

The New START Magazine

What you want is what you get. The new START magazine will continue to focus on products and productivity, and we'll be adding features that will give you more understanding and control of your machine. For example, the "START Bookshelf" and a glossary will accompany all "Getting Started" lessons, like next month's on desktop video. At your request, the reviews will become more critical, and we will run more comparisons. We're republishing popular, time-tested programs, "START Classics," so that every new user has access to the best ST tools.

Furthermore, we're announcing a new department, "User Interface," wherein you, the readers, will share with each other hints and tips on applications, ask for help and information, and exchange all the power-user tricks you've learned over the years. The greatest resource within the Atari community are the users and START is pleased to provide a forum for them. Write to START User Interface, 544 Second Street, San Francisco, CA 94107.

In the November issue are the first columns from two contributing editors. Dan Frucy will handle the extremely popular applications of word processing and desktop publishing. Former START editor Andrew Reese, whose interests lie in graphics and multimedia, will expand our Cyber Corner coverage to encompass all aspects of the cyber arts, such as animation, rendering and computer-aided design. Ex-Atari employee Christopher Roberts also joins our list of contributing editors, taking on the duties of telecommuni-



cations guru. Not only will he lead you through the information maze available via modem, he'll also research the best public-domain and shareware programs, which will be published on your START disk.

In addition to the public-domain programs, the START disk will include demos of new products, something which has proved very popular for the British ST magazines. And we will hunt for the best utilities available for the ST and publish them. As you told us, productivity is important to you.

Soon we'll be giving you a larger disk. After dropping the double-sided Heidi format, we vowed to find a more accessible, problem-free way to present the disk. In the end we decided on the most basic format of all. Beginning with the January 1991 issue, the START disk will be straight double-sided, with only the largest files ARCEd. We're announcing this early so that the 10 percent of our readers with access to only a single-sided drive can upgrade their system or find access to a double-sided system.

Why Did We Ask That?

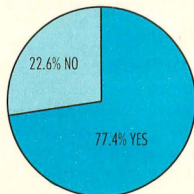
We asked some survey questions in order to gauge your feelings about certain ideas raised by readers. Based on your answers, we've decided to 1) get a Delphi account; 2) closely track the TT and provide coverage when it sees general release; 3) publish more monochrome games; and 4) keep the program documentation in the magazine.

Your answer to the most significant question we asked, about your preference for a disk or non-disk subscription, was surprising. Almost half of you were interested in a non-disk subscription. Antic Publishing is currently analyzing the cost and mechanics of splitting the START subscription list.

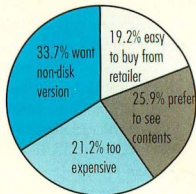
1990 START Reader Survey Results

How many people read your copy of START magazine? We're pleased to see that you share your magazine; about 1.5 people read each copy. **How many people use your ST?** On the average, at least one other person uses the respondent's ST.

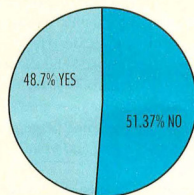
Do you subscribe?



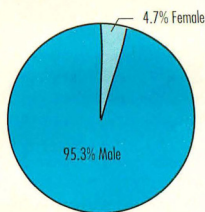
If you don't subscribe, why?



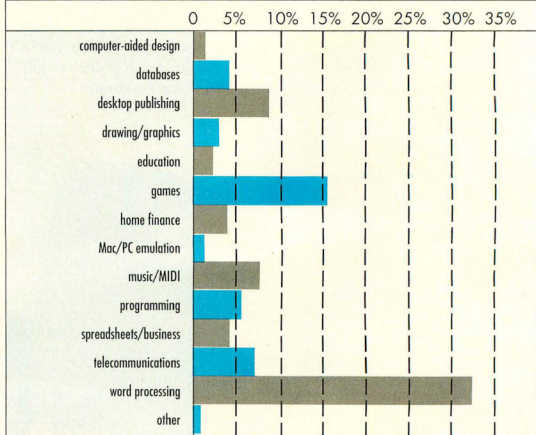
Would you buy a non-disk subscription?



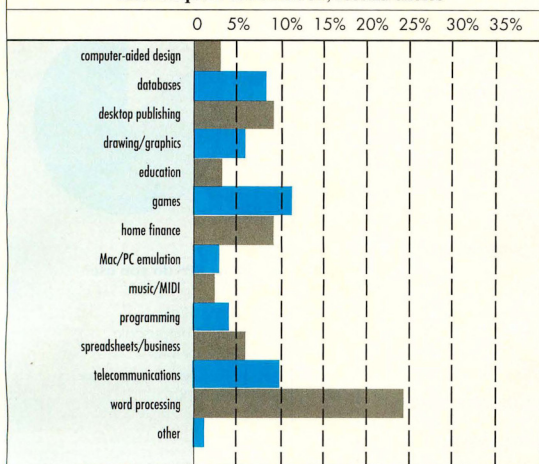
Are you male or female?



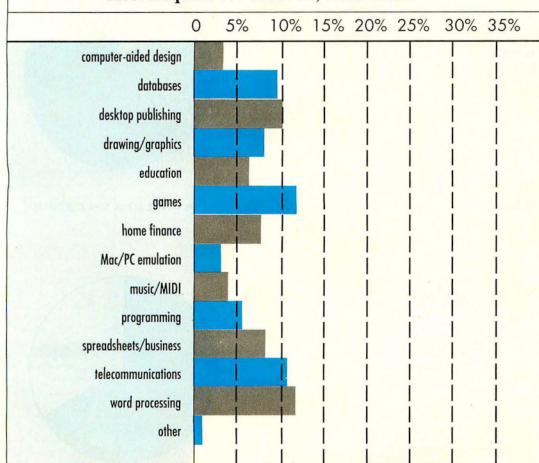
Most frequent use of the ST, first choice



Most frequent use of the ST, second choice



Most frequent use of the ST, third choice



Kudos and Criticism

As we mentioned before, some of you included detailed letters with your surveys. Here's a sampling of your comments:

"I feel the issues of March, April and May 1990 are the best string of issues I have seen — and I have been a subscriber since issue two."

"It sure would be nice if you could somehow get companies to provide you with demos of their games, so that you could include them on your disk."

"I don't want less of anything. I rely on START for all my info and mail order advertisers."

"It looks like you guys are dying. Dying from lack of ideas, lack of craft, lack of pride."

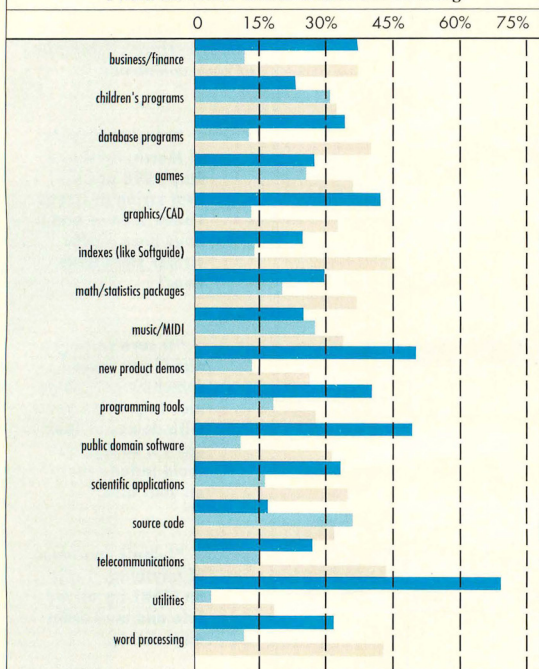
"How about picking up the ST-XPRESS archives for us to buy? Same with Compute ST and ST Log or any other magazines that went down."

MORE

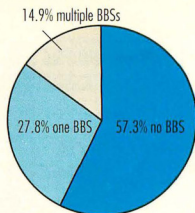
SAME

LESS

I want the START disk to include the following:



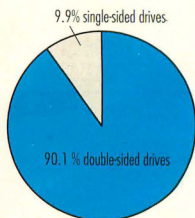
Do you subscribe to a BBS?



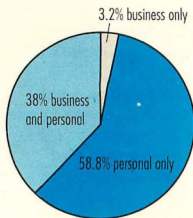
What BBS do you use?

- 64.9% GEnie
- 50.8% Compuserve
- 12.7% Delphi
- 16.7% specialized service
- 1.0% BIX

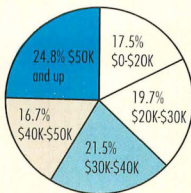
What disk drives do you own?



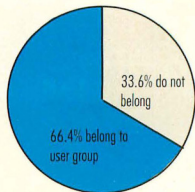
Do you use your ST for business or personal use?



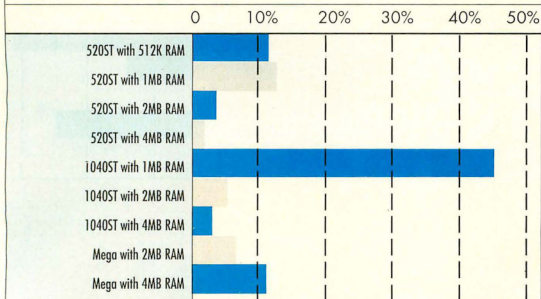
What is your income? The average income is \$36,000.



Do you belong to a user group?



What system do you own? Only a small percentage, 15.9 percent, have installed TOS 1.4 in their machine.



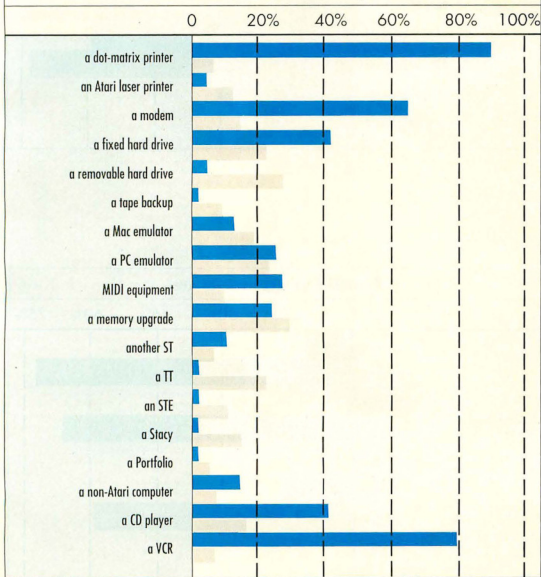
"Another article idea is to do a comparison of the various commercial telecom services available. Don't forget to list the amount and quality of Atari support available."

"One problem I do have about the magazine is the lack of software on disk for monochrome monitors, especially games."

WILL BUY

OWN

I now own or will buy:



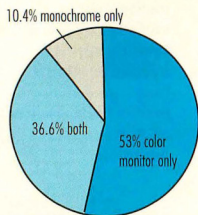
"In the past you have failed to update useful software (like CardStack) but have updated Slither."

"Reviews do not seem to cover all products in a category, but are complete on those they cover."

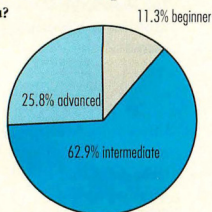
"Publish a special issue that has all the hardware and software reviews for that year."

"I've never seen such support in any other industry. The people who run your organization by phone are by far superior to those in any business that I've dealt with."

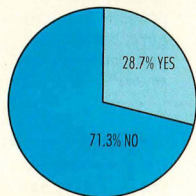
What monitors do you own?



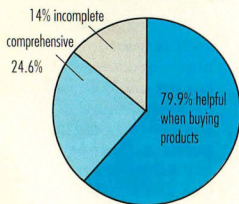
What level of computer user are you?



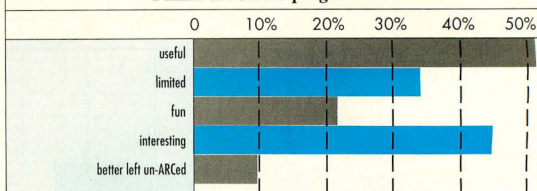
Do you want the program documentation removed from the magazine and put on disk?



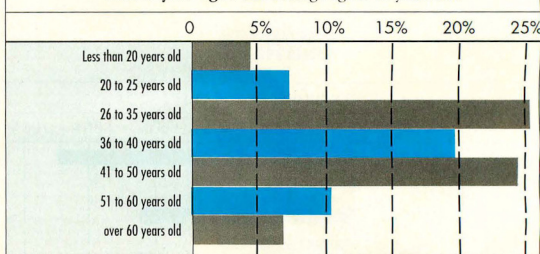
I think START reviews are:



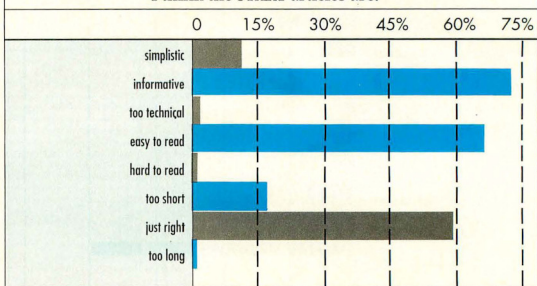
I think the START programs are:



What is your age? The average age is 40 years old.



I think the START articles are:



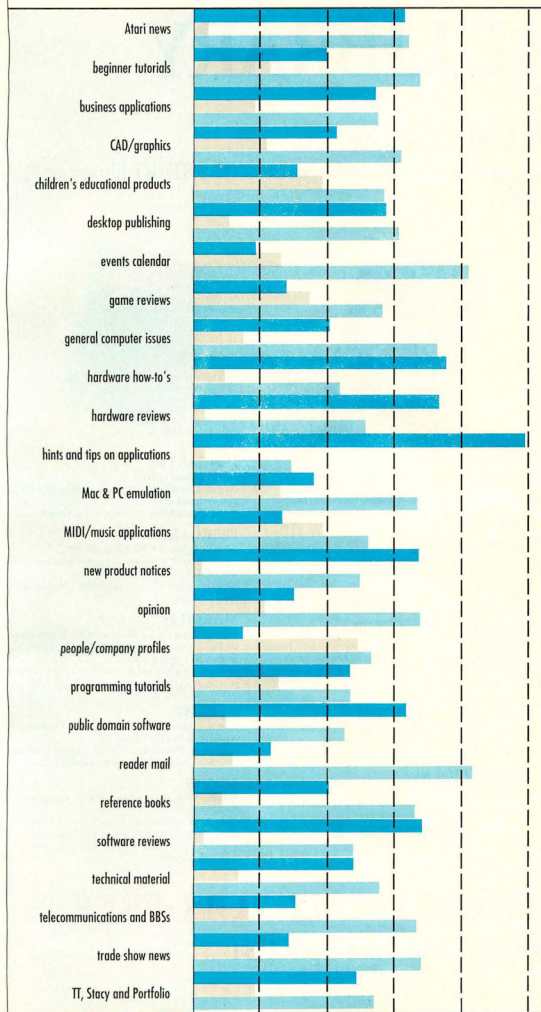
MORE

SAME

LESS

I want START to devote magazine space to the following:

0 15% 30% 45% 60% 75%



"Your current publication doesn't compare well with the very helpful, more technical and tutorial version provided during the first year or two of publication."

"I'd also like to see more artwork and pictures at the start of each article."

"You need more nuts and bolts type writing. Start with regular columns on programming in C, GFA BASIC or ST BASIC."

"Shoot Small."

"I eat up anything Dave Small writes. More!"

"Being a slick, color magazine, your deadlines are too far ahead to be any good at trade shows, news, etc."

"Have you ever considered starting a software club, a la the book-of-the-month clubs? Such things exist in England."

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Get Your Back Issues Now

You'll want to have every issue handy for quick reference. The START library... it's there when you need it!



WINTER 86

Features: Jack Tramiel Interview, Buyer's Guide.
On Disk: Noise Doodling; Address Book; Auto Dialer; Label PrinterSt; Writer Secrets.
Reviewed: Mark Williams C.; Menu+.

SUMMER 87

On Disk: The aStronomer; Text Compression and Huffman Coding with Personal Pascal; Flicker Animation Program; MIDISAVE.
Reviewed: Word Writer ST; Data Manager ST; Swiftcalc ST; Five BASiCs compared

SPECIAL ISSUE #2

Features: Drawing and Painting Programs Overview; Desktop Video; How to Set Up Your own MIDI Studio; Rock 'n' Roll with Atari; Shopping List of Music Hardware.
On Disk: The Cartoonist; MIDI View; Ear Trainer.
Reviewed: Synth-Droid; Nym Patch Editors; Music Studio and Music Construction Set.

SPRING 88

Features: Earthquake; Upgrading Your ST; Dave Mason Interview.
On Disk: Home Budgeting; Exploring Prolog; 1987 Tax Template; Battle for the Throne.
Reviewed: Personal Finance Programs; Desk Accessories Compared.

SPECIAL ISSUE #3

Features: The ABCs of Desktop Publishing; The ST in Business; Business Graphics; Database Overview.
On Disk: Card# STack Database; START Selector; Play the Market.

SUMMER 88

Features: Three Years with the ST; Mick Fleetwood Interview.
On Disk: Planning Traveler; Writing Your Own Help Files; Fractal Landscape Generator; Klondike Solitaire.
Reviewed: Microsoft Write

SPECIAL ISSUE #4

Features: Games and Entertainment
On Disk: Naval Battle; World Discovery; Guitar Simulator; Byte Mechanic; ReSTART.
Reviewed: Dungeon Master; Chessbase; Four Sonic Flight Patch Editors; Quantum Paint 1.2.

OCTOBER 88

Features: Programming Under Pressure.
On Disk: Vocubularian; Brickworks; ST Microscope.
Reviewed: Desktop Publisher ST; SMPTE Track; Softsynth; C Language Overview.

NOVEMBER 88

Features: The ST and MIDI.
On Disk: AVS; Script; Appointment Calendar.
Reviewed: LDW Power; MIDI Power; Superbase Professional.

DECEMBER 88

Features: Hardware
On Disk: Wombats II; Santa BBS; Discovery Construction Set; Five Sort Routines.
Reviewed: Monterm's Viking Monitor; DynaCaDD; Five Hard Drives Compared; Ricoh PC Laser 6000.

JANUARY 89

Features: Editor's Choice.
On Disk: GFA BASIC 2.0; Spanish Mastery; STARTKey
Reviewed: Slither.
Reviewed: GFA BASIC 3.0; Creator and Notator.

FEBRUARY 89

Features: Thanks for all the Fish; ST: 1999.
On Disk: 'Dah-Ditter; Moon Calendar; Kamikaze Chess. Killer Chess; VCR Organizer.
Reviewed: Atari's Planetarium; Robtek's Skyplot; Mirage Sample Editor's.

MARCH 89

Features: Three Artists Who Use the ST; Software Rental.
On Disk: Seurat Draw and Paint Program; Assembled Saucers; ST Coloring Book.
Reviewed: Graphics and Animation Programs Compared; Digigram's Big Band; Overview of Six CAD Programs.

APRIL 89

Features: Jimmy Hotz's MIDI Magic; Dr. T Interview; The New TOS ROM Error Codes.
On Disk: ST Writer Elite 3.0; Poker Solitaire; RAM Baby.
Reviewed: Utilities; R/C Aerocopper; MIDI Draw

MAY 89

Features: CompuServe's Sports Forum; Atari Goes to College.
On Disk: Space Wars 2400; GFA Object; 1988 Tax Template; SIFT (START's Instant File Translator
Reviewed: Buyer's Guide to Telecommunications Programs; Calamus.

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JUNE 89

Features: Do Anything Business Computer; Arcade Addition.
 On Disk: GFA Vector, Match Quiz ST; Screenwriting with WordPerfect; ST Pinocchio; Exploring Spreadsheets; Traveling Mattes.
 Reviewed: Juggler II; Switch/Back; Revolver; Graphics Tool from Migraph; MIDI Drummer..

JULY 89

Features: MIDI in the Future Tense; Making MIDI Affordable
 On Disk: Babel; GFA Object; The ST Thremin; START Arcade
 Reviewed: Sound Digitizers; EZ-Score Plus; Pagestream; Turbo ST1.4; Hi Soft BASIC and Hi Soft BASIC Professional.

AUGUST 89

Features: Secrets of a Good User Interface
 On Disk: POGO; File Search; Splines on Splines; Stumbling Blocks
 Reviewed: Ultrascrip; DevpacST; dBMAN V; After-Market Floppy Disk Drives; MIDI Magic

SEPTEMBER 89

Features: Sam Tramiel Interview; Computer Game Violence
 On Disk: Aeveta I; Ehora; The Seven Skulls; Newspeed; Slither Screen Editor; Cinko
 Reviewed: Eight Games; Fleet Street Publisher 3.0; STAC; STOS and TaleSpin; NewScore

OCTOBER 89

Features: STACY and Portfolio Preview
 On Disk: CAD-3D-to-DynaCADD Converter; Schedule Maker; ST Softguide; WordPerfect Macros; Boingo
 Reviewed: DynaCADD 1.56; Hotwire, NeoDesk 2.0 and VDOS ProQueue; Entry-Level Sequencers; Computer Guide to the Solar System

NOVEMBER 89

Features: The Transputer Connection: Atari and Perihelion; Donny Osmond Interview; The START Disk's New Look
 On Disk: RezRender; JULIA; Final Approach Controller

DECEMBER 89

Features: The Future of Atari Computing: A Small Tour of UNIX, Pt. I; Elmtch's ParSec Graphic Interface
 On Disk: GFA Companion; Attack; Word Puzzle
 Reviewed: Accelerator Boards; Beat Box; Mice

JANUARY 90

Features: A Small Tour of UNIX, Pt. II; CD-ROM; Battle of Britain
 On Disk: CAD-3D to DXF Conversion; Mystic Realm; Laserdisc Remote Control; Score ST
 Reviewed: Supercharger & Spectre GCR; Diamond Back & Hard Drive Turbo Kit; ST Pictascan; BetaCad

FEBRUARY 90

Features: A Small Tour of UNIX, Pt. III; TT-TOS Secrets
 On Disk: Chaos on your ST; Crunch Time Football; X-10 Controller; AI Doctor
 Reviewed: Finex V; Final Cut; The Cuckoo's Egg

MARCH 90

Features: Roberta Williams Interview; A Small Tour of UNIX, Pt. IV
 On Disk: CAD-3D 1.0; Mountain Solitaire; Spinwheel
 Reviewed: Clip-Art Overview; Removable Hard Disks; BeckerCAD

APRIL 90

Features: Word Processor Comparison; PHASAR Tips
 On Disk: ST Writer Elite 3.6; PHASAR 3.0; 89 Tax Templates; Super Jackpot Slots
 Reviewed: Desktop Publishers Overview; PC Speed

MAY 90

Features: Telecommunications; Sound Designer Scott Gershin Interview
 On Disk: InfoBase ST; Styzor's Contest; Computer Writers
 Reviewed: Critical Path; Dr. T's T-BASIC; VIDI ST; WordUp 2.0; FAST Tape Backup; Protekt

JUNE 90

Features: Alexey Pazhitnov Interview; Wayne Gretzky Hockey; Sexist Software Perspective
 On Disk: Bugs; Crossword Creator; Wordle; Warrior ST; Fun Pages
 Reviewed: For the Fun of It (11 Games); WORDFLAIR

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OUTLINE

Special effects
are a snap with
Outline Art.



continued from page 77

work with up to 1/100 mm detail visible.

Save graphics in Calamus' own vector graphic format (.CVG) or in a special Outline Art format (.OL). You can only export files as graphics rather than text. This means you can't edit them in Calamus, but just resize them. If you don't own Calamus you can still use Outline Art through an included utility that converts graphics to and from

Postscript or Encapsulated Postscript format.

Shortcomings

Outline does not include a print option. If you want to see how your work will look you have load your files into Calamus or convert them to Postscript format, which is a waste of time. A print option is mandatory.

The only other problem with Outline Art involves ISD's

commercial fonts. Many of these fonts contain too many points for the program to handle. When you convert text to graphics the program informs you it cannot make the conversion. This happened to me even with short words that contained four or five letters. So I was unable to perform some manipulations on text generated with the commercial fonts. My only option was to edit each letter individually, which took time to do.

Final Thoughts

Outline Art is an outstanding program. It's easy enough to use for beginners and includes high-end functions for the advanced designs of power users. For experienced desktop publishers, it'll be love at first sight. ■

Dan Frucbey is a START contributing editor. He lives in Santa Rosa, Calif.

At START magazine we appreciate every subscriber we have. Please let us know how we're doing and how we can improve our service.

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THE START SELECTOR

A Revved-Up Replacement For Your File Selector

BY CHARLES JOHNSON

AT A GLANCE

Program:	START Selector
Type:	File selector
Requirements:	512K, any rez
Arctype:	CLASIC01.PRG
Files:	STSELECT.PRG STSELECT.S
Language:	assembler

Since its debut in the summer of 1986, START magazine has published over 200 applications, utilities, games and tutorials. But while all the programs have been great, some of them have been especially great. This issue we introduce the "START Classic," an on-going feature presenting the best of our best. Charles Johnson's START Selector from Special Issue Number Three kicks things off.

The START Selector is a complete replacement for the ST's built-in file selector, maintaining total compatibility with the original while adding many new and useful features. After you install it, any program that calls the ST's built-in item selector box will automatically use the START Selector instead. This includes just about every major program written for the ST -- including 1st Word, GFA BASIC, Flash, DEGAS Elite, CAD-3D, Spectrum 512 and Cyber Paint. The Selector won't work with programs that use their own file selector, such as Calamus.

Getting Started

From your START backup disk, double-click on the archive file

CLASIC01.PRG and choose Extract when the dialog box appears. Select a destination disk and the files will un-ARC directly onto that disk. Copy STSELECT.PRG into the AUTO folder on your boot disk or hard drive. Unlike some programs, it doesn't matter whether STSELECT.PRG runs first, last or somewhere in the middle of your list of AUTO programs. Now reboot your computer and run any program that calls up a file selector -- your START Selector will appear.

Double-click on STSELECT.PRG to run START Selector from the Desktop. If you use this method, a dialog box will appear asking whether you really want to install the START Selector. Click on Install. The START Selector runs on all ST

and Megas, in all three resolutions.

What's So Good About It?

START Selector makes it very easy to look at the files on a different disk drive -- no more jumping from mouse to keyboard to mouse. There's a convenient array of buttons labelled A through P that represent the 16 possible logical drives that can be connected to the ST. Changing to another drive is as simple as clicking one of the 16 buttons. The START Selector determines how many drives are actually installed and the inactive drive buttons are grayed-out (disabled). To get the current directory after you've swapped disks, click on that drive's letter. If you double-click one of the drive

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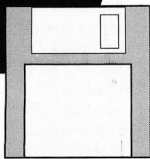
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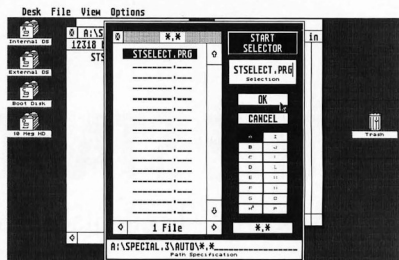
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buttons, the START Selector will display the amount of free space left on the disk in that drive.

One of the first things you'll notice about the START Selector is that it's quite a bit larger than the ST's built-in selector. The file window now shows up to 16 files at once, rather than the nine files allowed by the GEM Item Selector. The up and down arrows, slider and scroll bar all work in exactly the same way as before. Either click a filename and then click the OK button, or double-click a filename to select it in one step. Enter folders with a single click. To back out of folders, click on the close box in the upper left of the file window.

There's another shortcut to backing out of nested subdirectories to any level or to the main directory. If you double-click on a folder name on the Path Specification line at the bottom of the START Selector, you will instantly back out of the level, without having to step through the folder one at a time. To back out all the way to the main directory, double-click on the drive letter or anywhere before the first backslash (\) on that line. And, if you prefer, you may still edit the Path Specification line directly.

At the bottom of the START Selector's file window, you'll see a box showing the number of files in the current directory, with right and

left arrows at either end. Click on these arrows to cause the file window to scroll through and display the size, time of last change (in 24-hour format) and date of last change for each file in the window. The file window is fully active when showing the size, time or date; you can scroll up or down, enter and back out of folders, or select files.

Underneath the drive buttons on the right side of the START Selector is a button labelled *.*. Click here to cause the current search specification (such as *.DOC or *.PRG) to be replaced by *.*. This is a quick way to show all files in the current directory. The previous search spec is saved in the button, so it can be replaced simply by clicking on it again.

If you try to read a directory in the GEM Item Selector that contains more than 100 files, you'll only see the first 100. For hard-disk users especially, this limit can be frustrating -- it's easy to accumulate more than 100 files in a hard-disk subdirectory! The START Selector expands this limit to 300 files, which should be more than enough. ■

Charles Johnson is one of the founders of CodeHead Software, creators of such popular programs as Hotwire, MultiDesk and G+Plus.

BY MARTA DEIKE, START ASSISTANT EDITOR

Utilizing Your ST

If you're in the market for utilities, look no further. **START** has received word of several major releases for your ST. **MicroMiser** has entered the family of ST databases with **Ultra-base FBC**, a high-speed, high-capacity database designed for small businesses and laypeople, with powerful functions such as auto-backup, modem transfer and user-defined menus. **Ultrabase FBC**, \$249.

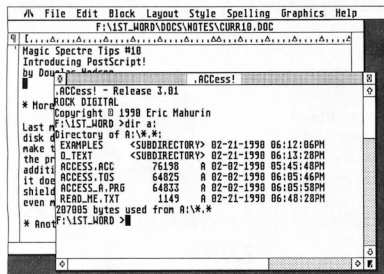
MicroMiser Software, 31413 Westward Ho, Sorrento, FL 32776, (904) 383-0745.

If you need an indexing tool, take a look at **CardFile** (current version 1.41), **GT Software's** electronic answer to the Rolodex. It lets you instantly add cards, dial the phone, address envelopes and merge data with your favorite word processor. **CardFile**, \$25. **GT Software**,

12114 Kirton Ave., Cleveland, OH 44135-3612, (216) 826-5308.

Have you envied your buddy's ability to delete all his IBM batchfiles with a simple "del *.bat"? Well, no need to covet IBM functionality; command-line interpreters are here. **TUI**, from Silicon Mountain Systems and **ACCESS!**, from Rock Digital bring CLI to GEM. **TUI** (pronounced Too-ey), \$29.95. **Silicon Mountain Systems**, 5989 Ohio River Road, Huntington, WV 25702, (302) 525-0164. **ACCESS!** \$29.95. **Rock Digital**, 2901 Kenmore Ave., Dayton, OH 45420, (513) 254-3160.

With **Access!**, from **Rock Digital**, a CLI window can be called up within any program.



Forecaster III, by Randall Kopchak, predicts the weather, analyzes current atmospheric conditions, and displays a weather almanac for the day. You can also use it to calculate heating and cooling degrees, and windchill factor. **Forecaster III**, \$25. **Randall Kopchak**, 2233 Keaven Lane, Florissant, MO 63031, (314) 831-9482; **Comuserve** (70357,2312); **GENIE** (GREG); **Delphi** (GREG).

Desktop Accessories

Technical wizards interested in consulting will want to check out **The Guide to High-Tech Consulting and Contracting**, recently published by High-Tech Consulting Research Inc. The book includes advice for beginners and pros, with tips ranging from interviews to taxes. **The Guide to High-Tech Consulting and Contracting**, \$29.95. **High-Tech Consulting Research Inc.**, 2039-F Civic Center Drive, N. Las Vegas, NV 89030, (703) 378-3618.

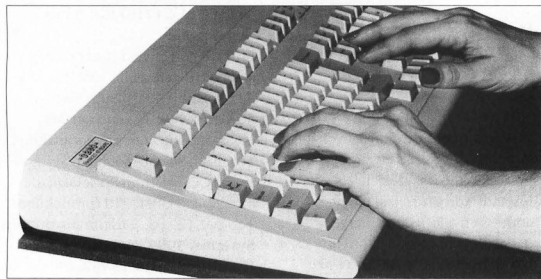
Organize your workstation with these three accessories. **Label Logic**, from AMT Communications, is a kit of 144 labels to identify ports, cables, drives, expansion slots and peripherals. **The Archive Disk File Modulator Cube**, from Weber & Sons Inc., is a cubic-foot of disk storage, with four drawers that hold up to 600 disks. **The Anderson Disk Box** holds 200 disks in 10 different compartments. **Label Logic**, \$6.95. **AMT Communications**, 2741 Plaza del Amo, #201, Torrance, CA 90503, (213) 320-7757. **Archive Disk Cube**, \$32.95. **Weber & Sons Inc.**, 3468 Hwy. 9, Freehold, NJ 07728, (201) 431-1128. **Anderson Disk Box**, \$7.95 (plus \$1.95 shp/hnd). **Anderson's**, 9435 Leo Road, #25, Ft. Wayne, IN 46825.

Publisher's RoundTable

GENIE Information Services has just added an online RoundTable devoted to desktop publishing. **The Design To Print RoundTable** is open to anyone interested in graphic design, electronic editorial communication, or production technology and publishing systems. For further information on price and service call **GE Information Services**, 401 N. Washington St., Rockville, MD 20850, (800) 638-9636. ▶

Prevent The Body Blues

If you work long hours at your computer, you could be seriously jeopardizing your health. Fournier & Co. has come out with **Wristonics**, a thick, durable pad to support your wrists and prevent strained tendons. Wristonics, \$14.95. **Fournier & Co., c/o Marcus Franklin & Associates Inc., 6507 E. Circulo Dali, Anaheim Hills, CA 92807, (714) 921-1810.**



Prevent repetitive strain injuries with Fournier & Co.'s Wristonics support pad.

Games, Glorious Games

Fasten your jet-pack belt — Psygnosis has released the ST version of **Blood Money**, the burnin' battle arcade game. Under the banner of "World's Fastest Shoot 'Em Up For ST," **Anarchy** runs at 50 frames a second. And if that won't satisfy your stimulation quota, enter their 3D racing game, **Matrix Marauders**, which includes a built-in talking navigator.

The biggest scoop du jour, however, is that Psygnosis has finally formed a U.S. distribution base (headed by our favorite Antic veteran, Jerry Wolosenko). **Blood Money**, \$39.95. **Anarchy**, \$39.99. **Matrix Marauders**, \$39.99. **Psygnosis, Ltd., 29 St. Mary's Court, Brookline, MA 02146, (617) 731-3553.**

Dive into an undersea adventure in Miles Computing's **Aquanaut**, where you must fend off horrific marine life, liberate the captive population and meet the master alien race in a final showdown. Interplay helps suspend your disbelief in **Future Wars**, an adventure game that incorporates a new cinematic graphics system. Based on Greek mythology, **Olympus**, from Olympian Software, includes over 600 digitalized locations, 17 animated characters and a whole slew of hydra-headed puzzles. Moose Enterprises makes its debut with **Xe-vec**, a high-seas strategy game, written by Sam Gueydan, for you and up to four of your buddies. Check it out.

Aquanaut, \$39.95. **Miles Computing Inc., c/o Electronic Arts, 1810 Gateway Drive, San Mateo, CA 94404, (800) 245-4525 (U.S.); (415) 571-7171 (Canada).** **Future Wars**, \$49.95. **Interplay Productions, 1575 Corporate Drive, Costa Mesa, CA 92626, (714) 545-9001.** **Olympus**, Call for price. **Olympian Software, c/o Paradise Bay, 28 Normanside Drive, Albany, NY 12208, (518) 482-7149.** **Xe-vec**, \$19.95. **Moose Enterprises, c/o BRE Software, 352 W. Bedford Ave., Suite 104, Fresno, CA 93711, (209) 432-2159.**

Rhapsody in Electric Blue

MIDI musician Jeffrey Reid Baker has teamed up with the New York Choral Society (conducted by Robert DeCormier) to record the world's first harmonically synthesized version of **Carmina Burana**. Check out his CD, produced by orchestral giant John McClure.

And while you're at it, pick up Reid's other MIDI oeuvre, which he created using Dr. T's KCS line and his own Tempo Master. **Rhapsody In Electric Blue**, as well as the collection **Everyone's Favorite Synthesizer Pieces**, are produced by Newport Classic; all CDs are available at Tower Records or in your local record stores.



Shakespeare On Disk

You've heard of books on tape; now the Complete Works Publishing Company brings you books on disk. **The Complete Works of William Shakespeare** is available in a 50-plus disk set, with approximately one to three plays per disk, as well as comprehensive references. The work is written in 1st Word and Protext formats.

Scheduled future releases include works from Oscar Wilde and Dante. Order a catalog for more. Shakespeare's plays range between \$11 and \$15 per disk (including U.S. Air Mail delivery). **The Complete Works Publishing Company, Capons Farm, Cowfold Horsham, West Sussex RH13 8DE, Great Britain, (011-44) 403-864-386.**

Antic™

The ATARI Resource

EDITORIAL

ANTIC MOVES!

START actually began inside **Antic** as the ST Resource section, so it somehow seems fitting that **Antic** goes back into START — and all the different Atari computers are being covered in one larger monthly magazine again.

For every issue left on your existing **Antic** six-times-yearly disk subscription, you will now get *two* monthly issues of START without a disk.

Tom Byron's START editorial explained most the changes that spontaneously came together to make us decide to skip a summer issue of both START and **Antic** — resuming publication with this October START that begins including **Antic** as a monthly separate section for the XE/XL/800 Ataris. However, our biggest logistic job during this hiatus was to begin adding the thousands of former Analog and ST/Log subscribers who have chosen to finish their subscriptions with **Antic** and START. Most of these additional Analog subscribers will begin receiving their new START/**Antic** magazines with the next issue.

Low-Cost ST

Times change quickly in the computer world. Already Atari has quietly stopped manufacturing 8-bit computers, largely because of falling costs for the 520ST. As one Atari executive told us privately, "For \$399 we're selling a mass-market 520ST that works with your television set, includes good starter software, and connects to standard peripherals. Why would anybody spend just about the same amount of money for a new 130XE computer plus an XF551 disk drive?"

Yet for many of us, our Atari XE/XL/800 computers still do everything we need and we have no reason to spend hundreds of dollars for a newer system (such as a bare-bones PC clone) which might be inferior in key areas such as graphics, sound and programming ease. That's why there's still some need for **Antic**, and we remain here to serve you 8-bit Atarians to the best of our resources.

Nat Friedland

Nat Friedland
Editor, **Antic**

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Antic Trivia Machine

*Challenge yourself with our questions,
or challenge friends with yours!*

By Marc Lombardo

Antic Trivia Machine is easy to operate and easy to reprogram, but it may not be easy to win. This BASIC program for one to four players runs on 8-bit Atari computers with at least 48K memory and disk drive.

These days, trivia games have even penetrated the arcades. The little coin-op trivia machines present fun, challenging, colorful games — at a quarter a pop. On some coin-op units, that gives you a whole four questions, with maybe a single bonus question thrown in if you're really good.

Now you can bring the trivia challenge to your Atari and test your useless knowledge with the Antic Trivia Machine. This simple BASIC program lets up to four players play at once. A time limit adds to the challenge. The multiple-choice questions are picked at random, so it can take several games to see all the questions. The questions included in the program aren't the hardest in the world, but this article explains how you can easily go into the listing and add your own.

Getting Started

Type in TRIVIA.BAS, Listing 1, check it with TYPO II,

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Mt. Morris, IL 61054

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and be sure to save a copy to disk before you run it. (Warning: The questions have not been encrypted so you will see all the questions and answers as you type them in.)

When you first RUN the program, a title screen appears while a little tune plays. At the prompt, press any key to continue with the game. You will be asked to enter the number of players, and then each player's name.

As the game itself begins, the first player's name will appear at the top of the screen. Then, one category out of six is chosen, and finally the question itself. Each question has three possible answers listed. Press the letter next to the answer of your choice.

You get 100 points for each correct answer. The goal is to get 500 points before your opponents do. However, to make the game fair, the computer will ignore the score until each player has played each round. If two players tie at 500 points, the game will continue until one player is ahead at the end of a round.

Adding Questions

If you get tired of the questions, or just want to add more, you can easily enter your own. (Make sure you have a backup copy of the original, just in case!) The questions are entered in the form of BASIC DATA statements, which you can see at the end of the program listing. If you're familiar with BASIC, the format should be self-evident.

But even if you're *not* used to working with BASIC, the changes needed are easy to make. The easiest way to start modifying the program is RUN it, then press the [BREAK] key when the program asks for the number of players. Type LIST and then press [RETURN], and the program listing will scroll up your screen. Press [CONTROL] [I] to stop and restart the listing. You can LIST a single line by number, or a series of lines by entering the first and last line numbers, separated by a comma as in: LIST 10,100.

Each DATA statement begins with a line number followed immediately

by the word DATA. The information in the DATA statement must come in the following order:

1000 DATA CATEGORY,QUESTION,
CHOICE A,CHOICE B,CHOICE
C,ANSWER

A sample statement could be:

2000 DATA 3,What is the world's tallest
building?,Sears Tower,Empire State
Building,Earl's Doughnut Shop,A

The category is indicated by a single letter, and the answer by a single letter. The questions and answers may use uppercase and lowercase letters, numbers, spaces. They CANNOT include commas, which are used to separate the data items. If you do put a comma in your question by accident, and try to play the game, you'll find that your question now ends at the comma, and the rest of the question appears as choice A.

The categories at present are 1, Animals; 2, Games and Sports; 3, General; 4, Storybooks and Fairy tales; 5, Heroes and Villains; 6, TV and Cartoons. You can change the categories to anything you like by changing their names in lines 230 and 360.

Whenever you change a line in the program, check to make sure it's correct and press [RETURN] while the cursor is still on that line. This enters the changes into memory. If you just use the [CONTROL] [ARROW] keys to move the cursor to a new line, your changes will be lost. Use [CONTROL] [INSERT] to add new lines — just be sure to start each new line with a new line number.

When you've finished changing and adding questions, simply SAVE the file to a new disk by typing SAVE "D:TRIVIA.BAS". You can make several different versions of the program, each with different questions, just by SAVEing each version with a different name: "D:TRIVIA2.BAS", "D:TRIVIA3.BAS", and so on. ▲

Marc Lombardo is from Ralston, Nebraska. This is his first appearance in *Antic*.

Kung Fu Master

Take on the huge warrior Tattoo in a fight to the death

By German Gonzalez

As a Kung Fu master, you've been in some strange fights, but this one is the deadliest yet.

You're up against the warrior called Tattoo, a monstrous hulk with the body of a Sumo wrestler and unbelievable strength. His favorite weapon is a deadly chain, and you'll have to jump quickly to keep out of his way.

Getting Started

Type in KUNGFU.BAS, Listing 1, check it with TYPO II, and be sure to SAVE a copy to disk before you RUN it.

If you have trouble typing the characters in lines 2 through 10, don't type these lines. Instead, type in Listing 2. When RUN, this program creates these hard-to-type lines and stores them in a file called LINES.LST. To merge the two programs, type NEW, then LOAD "D:KUNGFU.BAS" and then ENTER "D:LINES.LST". Be sure to SAVE the completed version of the program.

The Battle Begins

Tattoo not only looks big, he has twice your strength and stamina, as

Your Kung Fu skills and speed are your only weapons against this giant opponent. This BASIC martial arts game runs on 8-bit Atari computers with at least 48K memory and disk drive.

indicated by the lines of squares at the top of the screen. When one of you gets hit, you lose strength, and eventually you lose a square. The fight continues until one player dies.

Making things tougher for you, the end of Tattoo's swinging chain packs a mean wallop. It also has a long range, forcing you to keep your

distance. Fortunately, Tattoo doesn't move too fast — and you've got plenty of moves to keep you out of reach.

Use your joystick to move your player. Without pressing the [FIRE] button, the possible moves are as follow:

JOYSTICK	FIGHTER
Up	Jump straight up
Down	Crouch down
Right	Walk to right
Left	Walk to left
Upper Right	Jump right
Upper Left	Jump left

If you hold down [FIRE] as you move the joystick left and right, your player will kick, or jump and kick.

Now you're ready to enter the dark chamber and take on Tattoo. Watch out for his chain and stay alert, and you just might have a chance. ▲

German Gonzales of Arica, Chile submitted Kung Fu Master while staying in the U.S. as an exchange student. This is his first appearance in Antic.

THE Physics

How to program realistic-looking movements!

By Charles Clark

Learn some physics and discover some new programming possibilities for your games and animations with these five short BASIC demos that run on all 8-bit Atari computers. Each demo shows you how to program and display realistic movements onscreen, from simple straight-line motion to the paths of objects in orbit.

Programmers of games or animated graphics frequently find it necessary to imitate the movement of physical objects such as missiles or spaceships. To make them appear realistic, it helps to have a mathematical model for these motions, an equation or equations that express how such things move. This article and the accompanying programs demonstrate a variety of motions, providing the equations needed to simulate them.

Getting Started

This article has five BASIC programs — PHYS1.BAS, PHYS2.BAS,

PHYS3.BAS, PHYS4.BAS and PHYS5.BAS. Each program runs separately, so you can type in only the listings for effects you'd like to try. PHYS1.BAS is in Listing 1, PHYS2.BAS is in Listing 2, and so on. Type in each listing separately, check it with TYPO II, and be sure to SAVE a copy to disk before you run it.

These are very simple demos without extensive built-in instructions, so they might be a bit confusing at first. If you don't enter the right numbers, you may not be able to tell that the program is doing anything. Read each relevant section of this article to see what the valid en-

tries are, and you'll also find some good sample values to try as a test. If a program appears to lock up, or won't accept your input at some point, just press [BREAK], then type RUN to try again.

Uniform Motion

According to Newton's First Law of motion, a body either remains at rest, or moves uniformly in a straight line at constant velocity unless acted on by an outside force. In other words, once a body is set in motion it keeps that motion. It is no longer necessary to exert any force on it to keep it moving. Mathematically, this can be written:

of Motion

$$X = X_0 + V_0 T$$

where

X_0 = initial position (distance units)

V_0 = initial velocity (distance per unit time)

T = time

X = position at time T (distance units)

You must remember to use a consistent set of units. If your distances are given in feet, and time in seconds, then velocity must be given in feet per second. As long as you're consistent, you can use any units you like — miles per hour, kilometers per minute, or even furlongs per fortnight.

To see this thrilling equation in action, RUN PHYS1.BAS. Enter a starting position, such as 0. Then try entering several velocity values ranging from 10 to 100. The program calculates and plots the object's position every 0.1 seconds. If the object leaves the screen it wraps around and reenters at its starting point. Press any key to restart the program, or press [BREAK] to return to BASIC.

Note that the object's speed is constant. Its position is strictly a function of time. That is, as time increases, its distance from a fixed point increases proportionately. This very simple equation doesn't allow for gravity, friction, or any of the other forces that would normally affect an object's motion. No object on Earth could move in this manner,

but it might be appropriate in the near-vacuum of deep space where there is little gravitational pull or friction.

Accelerated Motion

When an outside force acts upon a body, the body moves with accelerated motion, according to Newton's Second Law of motion. In other words, that body's velocity (speed) is no longer constant. Many common motions that we experience can be mathematically represented by equations derived from Newton's Second Law. The position of an object can be calculated if its acceleration can be calculated at any given time.

In reality, difficulties arise from the fact that a variety of forces are present in nature. These forces are not necessarily constant either, and may depend on such factors as time, the object's velocity, or the object's distance from the force itself. As a result of all these factors, the acceleration of an object in reality could continually change, complicating the motion.

For our purposes, we'll consider a single force that can be considered constant — Earth's gravity. When an object is under the influence of gravity very near the surface of the Earth, the object's acceleration can be considered a constant 32 feet per second, at each second. This is true for an object regardless of its mass.

The position (height) of the object at any time is found by the following equation:

$$Y = Y_0 + V_0 T - G T^2 / 2$$

where

Y_0 = initial height

V_0 = initial upward velocity

T = time

G = gravitational constant

Y = height at time T

Other useful equations of the motion are:

$$Y_{MAX} = V_0^2 / 2G + Y_0$$

$$T_{MAX} = -V_0 / G$$

$$V_{TERM} = -\sqrt{V_0^2 + 2G(Y_0)}$$

$$T_{TERM} = (V_{TERM} - V_0) / -G$$

where

Y_{MAX} = object's peak height

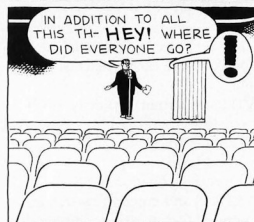
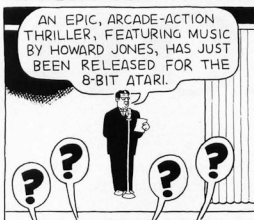
T_{MAX} = time object reaches peak height

V_{TERM} = terminal velocity as object reaches ground level

T_{TERM} = time when object reaches ground level

To test this equation, RUN PHYS2.BAS and enter a few trial initial upward (positive) velocities and initial heights. The program calculates and plots the object's position every 0.1 seconds.

Don't worry if the object leaves the screen. It will reappear as it comes back down. (If it takes too long you can always press [BREAK] and RUN the program again.) The program calculates and prints the maximum height and the time it takes to get there. It also prints the terminal velocity and the length of



time the object was in flight.

Try entering an initial velocity of 60 and an initial height of 0. The peak height reached will be 56.25 feet in 1.87 seconds. Note the terminal velocity (-60 feet per second) and time of flight (3.75 seconds). Now enter an initial velocity of 0 and an initial height of 56.25 feet. The terminal velocity in both cases is exactly the same, since both objects were stationary (velocity=0) at the same peak height. Note also that the time of the second flight is exactly half that of the first. It takes just as long for an object to reach its peak as it does for it to fall from that height. Also, the terminal velocity of an object fired upward from ground level is exactly the same as its upward velocity. Try entering other numbers and you'll see that this is true for any initial conditions.

Note that the program ignores wind resistance, though if we were dropping feathers, say, it would make a significant difference. The program also makes no allowance for initial velocities greater than escape velocity (the velocity required for an object to escape Earth's gravitational pull, approximately 36,000 feet per second).

You can change the gravitational constant in line 1030 to any number you wish. This way you could examine, say the motion of an object on Jupiter ($G=84.5$) or on the moon ($G=5$).

Projectile Trajectory

If an object is fired at an angle instead of directly upward, an additional component must be added to the equation of the motion. The vertical component of the motion is expressed as:

$$Y = Y_0 + V_0 \sin(A) \cdot T - G \cdot T^2 / 2$$

nearly identical to the equation for the freely falling body. Here A is the angle (in degrees from the horizontal) at which the projectile is fired. The horizontal component of the motion can be written:

$$X = X_0 + V_0 \cos(A) \cdot T$$

Note the similarity to the equation derived from Newton's First Law of motion.

To see the trajectories that result from different firing angles, RUN PHYS3.BAS. Enter an initial upward velocity (0 to 100 feet per second), a starting height (0 to 60 feet) and an angle (0 to 90 degrees). The program calculates and plots the position of the projectile every 0.15 seconds. The peak altitude, terminal velocity and the range are printed when the projectile lands.

Choose an initial velocity (60 feet per second works well) with a starting height of 0. Run the program several times, varying only the angle. Start a 90 and decrease the angle by 5 degrees each time. If you don't erase the projectile's trail between runs, you can easily judge which angle gives the projectile the greatest range.

Harmonic Motion

Another useful motion occurs when an attractive force varies proportionately to the object's distance from the force. As the object moves further away, the force's effect becomes greater and greater. Eventually the force becomes so great that the object begins moving towards it. In that case, the force decreases as the object gets closer.

When the object reaches the force, the force's effect is zero, but the object's speed allows it to overshoot the force and move away. The force increases once again, and the motion repeats itself. This movement about a fixed point is called harmonic motion. It simulates the motion of springs, pendula, musical instruments, and other vibrating or swinging objects.

Mathematically, the position of the object if found as follows:

$$S = S_0 + \cos(T \cdot \text{SQR}(K/M))$$

where

S_0 = initial distance from force

T = time

K = the force constant

M = the mass of the object

S = distance from force at time T

In addition, the period of the oscillation can be calculated as follows:

$$P = 2 \cdot \pi \cdot \text{SQR}(M/K)$$

where

P = period

PI = 3.142

The program PHYS4.BAS demonstrates this motion. When you RUN the program, vertical bars will appear on the screen, each bar representing a length of 10 centimeters. Enter a starting position between 10 and 70 centimeters. Choose an initial mass for the object (100 grams or so). You can examine the effect of varying the object's weight by running the program several times. Or try varying the force constant K in line 3030 to see its effect on the object.

The velocity of the object is greatest at the central point (0 cm) and gradually slows to 0. The object then reverses direction and moves back to the center. In nature, forces such as friction would slow the object down, causing its swings to decrease in distance and time, eventually going to zero.

Gravitational Force

When two bodies are under the influence of their mutual gravitational attraction, Newton discovered that the force involved was proportional to the product of their masses and inversely proportional to the square of their distance. Basically, this provides a model for the motion of an object in orbit around a much larger object, such as a planet or star. It is not possible to write a simple, single equation to demonstrate this motion exactly. In any case, the gravitational force of our object would be so weak that it's not practical to show all the forces, motions and distances in proper scale onscreen.

However, some simple approximations are possible, and can be scaled to fit on a computer screen. The following equations are used to simulate the motion:

$$R = \text{SQR}(X^2 + Y^2)$$

$$F = K/(R^2 * R)$$

where

X = screen x-coordinate

Y = screen y-coordinate

R = distance between objects

K = scaled gravitational constant

F = acceleration caused by force

The x and y components of the acceleration are respectively:

$$AX = AX - (X * F)$$

$$AY = AY - (Y * F)$$

Finally, the x and y-coordinates are incremented by:

$$X = X + AX$$

$$Y = Y + AY$$

These equations can be seen in operation with PHYS5.BAS. When RUN, the program first requests the x and y-coordinates of the object in orbit. It will accept onscreen coordinates only (x-coordinates from -80 to 79 and y-coordinates from -39 to 40). Next, x and y acceleration components are requested (ranging from -1.5 to 1.5).

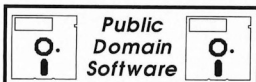
The program then calculates the position of the object in orbit around the central object. If the object leaves the screen, you can press [BREAK] and RUN the program again, or wait for the object to (possibly) come back onscreen.

For some safe orbits, try entering values of 30,0,0,1.00 or 60,0,0,0.5 (highly elliptical orbits) and 30,0,0,1.5 (nearly circular orbit). The gravitational constant K in line 4030 can be changed if you wish to experiment with its magnitude.

Note that an orbital object moves quickly when it is close to the central body and slows down as its path takes it further away. Be careful not to enter initial accelerations that are too high or too low. If the objects come too close together (usually because the input acceleration was too low) you won't see anything happening. If the input acceleration is too high the object will leave the screen (and the orbit) and not come back.

All these equations form a basis for many of the motions you might want to simulate. Innovative programmers can add additional refinements such as the effects of friction, wind velocity or wind resistance for even more realism. With joystick control of velocity or acceleration, you could add that realistic touch to your games and simulations. **A**

Charles Clark lives in Newark, Delaware. This is his first appearance in Antic.



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Inside Antic Music Processor

*Do-it-yourself music programming
—all about AMP file structure*

By Steven Lashower with Pravin Wagh

Antic Music Processor (AMP) is one of the most powerful music composition tools available for the Atari 8-bit computers. There are some things AMP can't do, however, that could be easily done by BASIC programs using AMP file data. The following article explains the AMP file structure for programmers, who might then write various AMP enhancer programs — for example, a music scoring program that could print out sheet music. Included also is AMP Analyzer, a powerful AMP

music file decoder written in Atari BASIC that you can use in your own programs. The latest version of AMP appeared as Antic's July 1989 Super Disk Bonus. At least 48K memory is required to run AMP.

If you've been involved with the Atari 800/XL/XE computers for a few years, you've probably seen music player programs for songs created with Lee Actor's Advanced Music System, or AMS. As AMS plays songs, it shows the notes being played by highlighting the appropriate keys on a piano keyboard on-

screen. As interesting as this piano metaphor is, there's still room for improvement.

Having authored several AMS songs, I made up a wish list of features that I would include if I ever wrote my own music program. From day one, I knew I'd have to improve on AMS to get people to take me seriously. I felt that the user interface, the way users interact with the program, must be enhanced. The note entry commands needed to make more sense, as did the player. It also needed to be much faster than

AMS. Finally, my music processor would allow something missing from even the most current version of AMS - lyrics! To accommodate this new visual addition, the piano display would have to go.

The first results of my programming efforts appeared on the December 1988 Antic Disk as Antic Music Processor (AMP). This first release, Version 1.2, had been in the works for more than a year. While the player portion of the program worked as I had planned, the music editor still lacked a way to enter lyrics. However, six months later AMP 2.0 was released with an editor for lyric entry.

AMP 2.0 and accompanying article appeared in the June 1989 **Antic** magazine and disk. A very slightly altered version with a minor bug fix, AMP 2.1, appeared on the August 1989 disk *without* accompanying instructions.

The beauty of the Atari 8-bit computers lies in their simplicity, and I tried to keep AMP's file structure equally simple. Each data file is divided into four sections: a header, the music data, a trailer, and text for lyrics. Once you know its structure, the data isn't hard to interpret, or even manipulate.

In the June/July 1990 **Antic**, Joe Cabuk describes how he cracked the AMP code on his own to create the "Antic Music Transposer and Shifter" programs which ran in that issue. Now you don't need to struggle to interpret all the odd numbers in AMP files. The following tutorial explains exactly how the data is organized within the files. And the AMP Analyzer program demonstrates techniques for reading and interpreting AMP data in your own BASIC programs.

Getting Started

Type in magazine Listing 1, ANALYZE.BAS, check it with TYPO II, and SAVE a copy to disk. If you have trouble typing the special characters in lines 130 and 250, don't type these lines. Instead, type in Listing 2, check it with TYPO II, and SAVE a copy before you run it.

When RUN, this program creates these hard-to-type lines and stores them in a file called LINES.LST. To merge the two programs, type NEW, then LOAD "D:ANALYZE.BAS" and then ENTER "D:LINES.LST". Be sure to SAVE the completed version of the program.

Before you actually RUN the program, you need to put the name of an AMP song file to analyze in line 330, replacing the filename "D:SAMPLE.AMP". AMP Analyzer simply reads the AMP file specified in line 330, translates the data it finds, and gives you some information on the music.

The analyzer doesn't actually do anything to the song - it's up to you to use the various data-reading and translating routines in your own programs. Lots of comments were included to make it easy to see how the program works with the AMP file structures and data.

Headers and Pointers

Every AMP song file starts with a 13-byte header. The first three bytes identify the song, containing either the letters AMP or AM1. Here AMP indicates that the file was originally an AMS I or II song which was converted over to Antic Music Processor format. An AM1 identifier signals that the song has been edited in AMP and may contain lyric data. All songs saved by Antic Music Processor are given the AM1 identifier, even those that originally had AMP identification bytes.

Bytes four through nine contain three pointers that indicate where the data for each of the Atari's four voices is located. Music for voice 1 starts at the first byte of the music section (the 14th byte of the file). Music data for the second voice follows at the end of all the data for voice 1. Voices 3 and 4 follow in turn. Bytes four through five form a 16-bit number that points to the beginning of the data for voice 2. Bytes six through seven point to data for voice three, and bytes eight and nine do the same for voice 4. Bytes 10-11 point to the beginning of the trailer bytes.

Pointers are also used elsewhere in AMP files, so it's useful to know a little about the way they work. A pointer is simply a number held in two bytes. If you're not used to pointers, the way in which these numbers are arranged can be confusing. In AMP, all points are saved with the low byte first (standard 6502 numeric convention). To figure out the value of a pointer, take the second byte of the pointer and multiply it by 256, then add the result to the value of the first byte. The sum is the pointer value, indicating the number of the byte at which a certain chunk of data begins. In the case of a voice-data pointer, the value tells you at what byte a voice begins, counting from the beginning of the file's music data section - not from the beginning of the file itself.

The last two bytes (12-13) of the header do nothing at present, but that may not always be true. They served as pointers during AMP's early development, and they may be used again in future versions of AMP. To be safe, don't use these bytes for anything.

Music Data

As noted above, the music section of an AMP file has four parts, one for each voice. Everything in the music data works in threes. Each command or note requires three bytes. The data for each voice begins with the hexadecimal numbers \$56, \$01, \$00 and ends with \$FF, \$FF, \$FF.

AMP 2.0 supports six commands. Of the three bytes that make up the command, the first byte is the command itself, and the other two are parameters for the command. The commands are as follows:

Begin New Measure (\$56): This command begins a new measure, and the two bytes that follow indicate the measure number (using pointer format). The data for every voice always begins with \$56, \$01, \$00, which simply means "measure #1".

End Voice Data (\$FF): The \$FF command lets AMP know that it's reached the end of a particular voice. The command repeats twice more

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flats. Bytes 4-5 contain the octave and duration (in clocks) of the last note entered into the editor.

Used once in AMP's paleozoic days, bytes 6-7 are no longer of any importance. Byte 8 can contain one of the following characters: #, F, or a "null character" representing the accidental (sharp, flat, or natural) of the last note entered. Bytes 9-10 form a pointer which contains the length of the fourth section of the music file, the lyric data. Byte 11 is reserved for future expansion.

Lyric Data

Directly following the header is the fourth section of the AMP data file, the section containing lyric data. This section is divided into individual lines, each line containing exactly twenty characters. The Lyric Advance command (\$59) is used to display lyrics. Lower case or inverse characters are used to separate each lyric line into syllables. (Actually, any character with an ASCII code greater than 96 can be used.) The \$59 command causes the next syllable in line to be highlighted. Once all the syllables in a line have been highlighted, AMP displays the next line of lyrics and the whole process repeats.

Important Note: Due to the way the AMP Music Editor was set up, the length (in bytes) of the lyrics must be a number that divides evenly by three. Remember, everything in AMP is done in groups of three! If necessary, this section is padded with the \$FF command, added after the lyrics to adhere to this "rule of three."

Analyzer Program

If some of this information seems hard to understand, don't despair! This file structure grew as AMP developed, and it is rather compressed and complicated. Fortunately, the AMP Analyzer can read all this data for you, and display the translated data on-screen. If you're at all familiar with BASIC, you should be able to follow the program and see how it works - how to read the right bytes in the right order, and so on. All you need to do then is use the various routines in your own program.

If you're trying to analyze very large files, you're going to run out of memory. As written, the program reads in all four voices before starting to analyze them. One way to get around the memory limit would be to modify the program to read in only one voice at a time. If you only need a little more memory, using ICD's BASIC XL with DOS XL would give you an extra 8K of programming space. ▲

Steven Lasbower studies Communications and Computer Science at California State University, Fullerton and works at Disneyland.

Pravin Wagb has a B.S. in Biology and is currently studying Computer Science at the University of California, Los Angeles. Pravin and Steven have been programming together for over five years.

TYPING SPECIAL ATARI CHARACTERS

The Atari Special Characters and the keys you must type in order to get them are shown below:

For [CONTROL] key combination, *bold down* [CONTROL] while pressing the next key. For inverse [CONTROL] [A] through [CONTROL] [Z], press the [⇧] key—or [⇧] on the 400/800—then *release* it before pressing the next key. (Press [⇧] or [⇧] again to turn off inverse.) For [ESC] key combinations, press [ESC] and then *release* it before pressing the next key.

Carefully study the chart above and pay close attention to differences between lookalike characters such as the slash key's [/] and the [CONTROL] [F] symbol [⌘].

NORMAL VIDEO	
FOR THIS	TYPE THIS
⌘	CTRL ,
⌘	CTRL A
⌘	CTRL B
⌘	CTRL C
⌘	CTRL D
⌘	CTRL E
⌘	CTRL F
⌘	CTRL G
⌘	CTRL H
⌘	CTRL I
⌘	CTRL J
⌘	CTRL K
⌘	CTRL L
⌘	CTRL M
⌘	CTRL N
⌘	CTRL O
⌘	CTRL P
⌘	CTRL Q
⌘	CTRL R
⌘	CTRL S
⌘	CTRL T
⌘	CTRL U
⌘	CTRL V
⌘	CTRL W
⌘	CTRL X
⌘	CTRL Y
⌘	CTRL Z
⌘	ESC ESC
⌘	ESC CTRL -
⌘	ESC CTRL =
⌘	ESC CTRL +
⌘	ESC CTRL *
⌘	CTRL .
⌘	CTRL /
⇧	SHIFT =
⌘	ESC SHIFT
	CLEAR
⌘	ESC DELETE
⌘	ESC TAB

INVERSE VIDEO	
FOR THIS	TYPE THIS
⌘	ESC
⇧	SHIFT
⌘	DELETE
⇧	SHIFT
⇧	INSERT
⌘	ESC
	CTRL
	TAB
⌘	ESC
	SHIFT
	TAB
⌘	⇧ CTRL .
⌘	⇧ CTRL /
⇧	⇧ SHIFT =
⌘	ESC CTRL 2
⌘	ESC
	CTRL
	DELETE
⌘	ESC
	CTRL
	INSERT

TYPO II AUTOMATIC PROOFREADER

TYPO II automatically proofreads *Antic's* type-in BASIC listings. Type in the listing below and SAVE a copy to disk or cassette. Now type GOTO 32000. At the prompt, type in a single program line **without the two-letter TYPO II code at the beginning**. Then press [RETURN].

Your line will reappear at the bottom of the screen. If the TYPO II code does not match the code in the magazine, then you've mistyped your line.

To call back a previously typed line, type [*], then the line number, then [RETURN]. When the completed line appears, press [RETURN] again. This is how TYPO II proofreads itself.

To LIST your program, press [BREAK] and type LIST. To return to TYPO II, type GOTO 32000. To remove TYPO II from your program, type LIST "D:FILENAME",0,31999, then [RETURN], then NEW, then ENTER "D:FILENAME", then [RETURN]. Now you can SAVE or LIST your program to disk or cassette.



```

WD 32000 REM TYPO II BY ANDY BARTON
UN 32010 REM VER. 1.0 FOR ANTIC MAGAZINE
HS 32020 CLR :DIM LINE$(20):CLOSE #2:CLD
SE #3
BN 32030 OPEN #2,4,0,"E":OPEN #3,5,0,"E"
YC 32040 ? "K":POSITION 11,1:? "XXXXXXXXXXXX"
EM 32050 TRAP 32040:POSITION 2,3:? "Type
in a program line"
HS 32060 POSITION 1,4:? " :INPUT #2:LINE
$:IF LINE$="" THEN POSITION 2,4:LIST B
:GOTO 32060
XH 32070 IF LINE$(1,1)="" THEN B=VAL(LIN
E$(2,LEN(LINE$)):POSITION 2,4:LIST B:
GOTO 32060
TH 32080 POSITION 2,10:? "CONT"
MF 32090 B=VAL(LINE$:POSITION 1,3:? " :
    
```

```

NY 32100 POKE 842,13:STOP
CN 32110 POKE 842,12
ET 32120 ? "K":POSITION 11,1:? "XXXXXXXXXXXX"
:" :POSITION 2,15:LIST B
CE 32130 C=0:ANS=C
QR 32140 POSITION 2,16:INPUT #3:LINE$:IF
LINE$="" THEN ? "LINE "B": DELETED":G
OTO 32050
UU 32150 FOR D=1 TO LEN(LINE$):C=C+1:ANS=
ANS+C*ASC(LINE$(D,D)):NEXT D
UJ 32160 CODE=INT(ANS/676)
JW 32170 CODE=ANS-(CODE*676)
EH 32180 HCODE=INT(CODE/26)
BH 32190 LCODE=CODE-(HCODE*26)+65
HB 32200 HCODE=HCODE*65
IE 32210 POSITION 0,16:? CHR$(HCODE):CHR$(
LCODE)
UG 32220 POSITION 2,13:? "If CODE does no
t match press [BREAK] and edit line a
bove.":GOTO 32050
    
```

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LISTING 1

Don't type the
TYPO !! Codes 

```

LP 1 REM TRIVIA MACHINE
TL 2 REM BY MARC LOMBARDO
YP 3 REM (C)1990, ANTIC PUBLISHING, INC.
EH 10 DIM NAME1$(20),NAME2$(20),NAME3$(20)
    ,NAME4$(20)
YD 11 DIM QUEST$(80),ANS$(40),TRASH$(10000)
    ,CAT$(20),AS$(80),NB$(40),NC$(40)
XX 15 DIM FINL$(80),ANS$(1):POKE 53769,6:
CURPLR=1:CURSCR=600:WIN=700:TR=9:TRASH
$="000000000.....":RESTORE 1000
JX 20 RESTORE 1000
DU 21 FOR I=1 TO 2000:READ CAT,QUEST$,NAS$,
NB$,NC$,ANS$:TRAP 22:TOTAL=TOTAL+1:NEX
T 1
CX 22 TOTAL=TOTAL-1:GRAPHICS 0:POKE 752,1
DIM MAIN$(500),BS$(80):? "X":SETCOLOR
2,6,15
YB 23 POSITION 12,8:? "":
TE 24 POSITION 12,9:? "":
UA 25 POSITION 12,10:? "":
GC 26 POSITION 12,11:? "":
AF 27 POSITION 12,12:? "":
WI 28 POSITION 12,13:? "":
ME 29 POSITION 12,14:? "":
RM 30 POSITION 12,15:? "":
UQ 31 FOR I=15 TO 0 STEP -1:SETCOLOR 2,6,
1:FOR J=1 TO 5:NEXT J:NEXT I
LY 42 RESTORE 53
GH 43 READ SND,AS$:IF AS$="END" THEN TRAP 1
50:RESTORE 50:TM=TM+1:IF TM<2 THEN 43
TIME=5
AQ 44 IF TM=2 THEN 56
UD 45 IF AS$(1,1)="L" THEN BS=AS$(2,LEN(AS$)
):AS=BS$(1,1):TMS=VAL(BS$(2,2))
OQ 46 IF AS$="E" THEN LNT=10
UR 47 IF AS$="0" THEN LNT=20
SS 48 IF AS$="H" THEN LNT=40
UX 49 IF TMS<0 THEN FOR T=1 TO TMS
LX 50 TIME=3:FOR I=1 TO 10:SEND 1,SND,14
,18:NEXT I:SEND 1,0,0,0:IF TMS<0 THEN
N NEXT T
BS 51 TMS=0:IF PEEK(764)<>255 THEN POKE 7
64,255:GOTO 80
TU 52 GOTO 43
CC 53 DATA 72,E,68,E,64,LQ4,72,E,68,E,64,
LQ4,72,E,68,E,64,Q,72,E,68,E,64,Q,64,Q
,68,Q,72,Q,76,Q,81,Q
NH 54 DATA 1,LQ2,68,Q,81,Q,1,Q,68,H,81,H,
1,LQ2,68,H,81,Q,1,H
EP 55 DATA 1,END
HE 56 IF PEEK(764)<>255 THEN 80
KC 57 IF TIME<100 THEN TIME=TIME+1
SY 58 IF TIME=100 THEN ANT=ANT+1:IF SLOB=
1 AND ANT=20 THEN 61
HH 59 IF TIME=100 AND SLOB=0 AND ANT=40 T
HEN 62
VF 60 GOTO 56
RZ 61 ANT=0:POSITION 1,23:? " Pres
5 a key to continue":SLOB=0:GOTO 56
TH 62 ANT=0:POSITION 1,23:? "
":SLOB=1:GOTO 5
6
DH 80 POKE 16,112:POKE 53774,112
CY 81 POSITION 1,23:? "
=1 TO 40:? "Q":NEXT I
FU 83 IF ROOT=1 THEN ROOT=0:RETURN
J5 85 ? "K"
TL 90 POKE 752,0:TRAP 80:? :? :? "Numb
er of Players":INPUT #16:PLR
RU 100 IF PLR>4 OR PLR<1 THEN POSITION 1,
23:? " Only one to four players can
Play":FOR I=1 TO 500:NEXT I:GOTO 80
JF 105 TRAP 40000
RM 106 ? :? :? :? "
UQ 110 PRINT "Player #1:":INPUT #16:NAME
1$
YH 120 PRINT "Player #2:":INPUT #16:NAME
2$
DC 130 PRINT "Player #3:":INPUT #16:NAME
3$
GA 140 PRINT "Player #4:":INPUT #16:NAME
4$
DX 150 POKE 752,1:ROOT=1:GOSUB 500:? "K"
ZR 160 POSITION 4,2:? "Next Player:":FOR
DE=1 TO 250:NEXT DE
CT 161 FOR I=1 TO 25:SEND 1,I,14,10:NEXT
I:SEND 1,0,0,0
MY 165 IF CURPLR=1 THEN ? NAME1$
OC 170 IF CURPLR=2 THEN ? NAME2$
PO 180 IF CURPLR=3 THEN ? NAME3$
RU 190 IF CURPLR=4 THEN ? NAME4$
SG 195 FOR I=1 TO 50:NEXT I
BZ 196 ? :? :? :?
FE 200 RESTORE 1000:FOR DE=1 TO INT(TOTAL
*RAND(1)+.1):READ CAT,QUEST$,NAS$,NB$,NC$,
ANS$:NEXT DE
KT 201 AS=QUEST$(LEN(QUEST$)-9,LEN(QUEST$)):
FOR DE=1 TO (LEN(TRASH$)-9)
VR 203 IF AS=TRASH$(DE,LEN(AS)+9) THEN GOTO 20
HL 204 NEXT DE
MQ 205 FOR J=1 TO 2
OW 206 FOR I=1 TO 6
DG 220 SOUND 0,115,14,10:POSITION 4,4:? "
Category:":
FI 230 IF I=1 THEN ? "Animals "
UP 240 IF I=2 THEN ? "Story Books "
YW 250 IF I=3 THEN ? "General "
OP 260 IF I=4 THEN ? "Games/Sports "
MR 270 IF I=5 THEN ? "TV/Cartoons "
PU 280 IF I=6 THEN ? "Language Arts "
KI 290 FOR DE=1 TO J*2:NEXT DE:SEND 0,0,
0,0:NEXT I:NEXT J
OQ 300 POSITION 4,4:? "Category:":
HG 310 IF CAT=1 THEN CAT$="Animals
SR 320 IF CAT=2 THEN CAT$="Story Books
ZP 330 IF CAT=3 THEN CAT$="General
AR 340 IF CAT=4 THEN CAT$="Games/Sports
FO 350 IF CAT=5 THEN CAT$="TV/Cartoons
GL 360 IF CAT=6 THEN CAT$="Language Arts
VK 370 ? CAT$:POKE 710,96:SETCOLOR 1,1,13

```



```

OX 361 SOUND 0,35,8.4
SA 362 POSITION X-1,Y:? " >*##### +,####
    #G05UB 600
WC 363 NEXT E:Y=13:POSITION X,12:? " ###
    #G05UB 600:G05UB 600:G05UB 600
    :GOTO 500
SL 370 POSITION X,Y:? "#####
KE 372 FOR T=1 TO 2:5C=PEEK(40522+X):IF 5
    C<0 AND 5C<130 THEN PH2=PM2-0.2:POSI
    TION 22+PM2.5:? "###":GOTO 900
XE 373 G05UB 600:SOUND 0,10,8.7:NEXT T:50
    UND 0,0,0:GOTO 250
UJ 400 Y=12 FOR E=X-1 TO X-5 STEP -1:X=E:
    IF X<2 THEN X=2
OM 401 SOUND 0,35,8.4
MI 402 POSITION X,Y:? " -. ##### 0#### "
    :G05UB 600
UR 403 NEXT E:Y=13:POSITION X,12:? " ###
    #G05UB 600:G05UB 600:G05UB 600
    :GOTO 500
GU 410 POSITION X,Y:? " .#####/0"
YX 412 FOR T=1 TO 2:5C=PEEK(40519+X):IF 5
    C<0 AND 5C<130 THEN PH2=PM2-0.5:POSI
    TION 22+PM2.5:? "###":GOTO 900
WT 413 G05UB 600:SOUND 0,10,8.7:NEXT T:50
    UND 0,0,0:GOTO 250
UJ 500 G05UB 600:GOTO 60
JR 600 SOUND 1,0,0:IF CA THEN 650
JF 605 S=INT(4RND(0)*4):K=1:IF X>XX THEN K
    =3
QM 610 IF A05(CX-X)<10 THEN CA=1:F=5GN(CX-
    X):CX=XX+0.5+CF*1.5:CH=55:LA=XX+FM*10
    :JF=M:1:5ND=0:IF F=0 THEN CA=0
EM 620 POSITION XX,YY,?:? "###":XX=XX-C
    (XX*2):IF 5<K THEN XX=XX+2*(CX<35)
BN 635 SOUND 1,7,4.2:POSITION XX,YY,?:? "###
    #G05UB 600:RETURN
PK 650 CX=CX+F:5C=PEEK(40520+CX):IF CX=LA
    OR 5C<0 AND 5C<23 THEN F=J:CX=CX+
    F:CH=32:IF A05(CX-CX)<4 THEN CA=0
UU 651 IF 5C<0 AND 5C<23 AND 5C<130 AND
    0 5C<145 AND 5C<150 THEN SOUND 1,2,0,
    0.5:PM=PM+1:GOTO 910
XD 655 SND=1:TRAP 670:SOUND 1,5ND,4.3
    :POSITION XX,YY,?:? "#####":POSITION C
    X,13:? CHR$(CH):RETURN
PC 670 CA=0:RETURN
HT 900 IF PH2<1 THEN POSITION 22,5,?: "
    :GOTO 1100
QT 901 GOTO 373
GU 910 POSITION 4+PM1,5,?:? "### "
RH 911 IF PH1<1 THEN POSITION 4,5,?: " "
    :GOTO 1000
SF 912 GOTO 655
MM 1000 SOUND 0,0,0,0:SOUND 1,0,0,0:POSIT
    ION 14,8,?: "F?G6 Hie0":POKE 53279,0
FB 1005 FOR PAUSE=1 TO 500:NEXT PAUSE
OH 1010 IF PEEK(53279)=6 OR STRIG(0)=0 TH
    EN CLR:GOTO 30
UF 1015 POSITION 1,22,?:? " Q<AEL
    LLM>AM "
NN 1020 GOTO 1010
DQ 1100 POSITION 16,8,?: "JKGG&ANN"
ZG 1110 FOR Z=1 TO 20:POKE 712,PEEK(53770)
    :GOTO 1120
CN 1120 FOR D=1 TO 255 STEP 20:SOUND 0,0,
    0,15:SOUND 1,0,2,10,15:NEXT D:NEXT Z
BQ 1130 FOR Z=1 TO 15:FOR D=15 TO 0 STEP
    -0.5:SETCOLOR 2,0,D:SOUND 0,20,0,D:SET
    COLOR 1,0,D:NEXT D:NEXT Z
RF 1140 POKE 712,0:POKE 709,202:POKE 700,
    40:POKE 710,148:SOUND 0,0,0,0:SOUND 1,
    0,0,0
NS 1150 GOTO 1010

```

LISTING 2

```

NM 10 REM KUNG FU MASTER, LISTING 2
XC 20 REM BY GERMAN GONZALES
GD 30 REM (C) 1985,1988 ANTIC PUBLISHING
EU 40 REM <LINES 10-250 MAY BE USED WITH
    OTHER BASIC LOADERS IN THIS ISSUE.
IJ 50 REM CHANGE LINE 70 AS NECESSARY.>

```

```

PR 60 DIM FNS(20),TEMPS(20),ARS(93):DPL=P
    EEK(10592):POKE 10592,255
WO 70 FNS="D:LINES-LST":REM THIS IS THE N
    A ME OF THE DISK FILE TO BE CREATED
RD 80 ? "Disk or Cassette?":POKE 764,25
    5
PY 80 IF NOT (PEEK(764)=18 OR PEEK(764)=
    58) THEN 90
TH 100 IF PEEK(764)=18 THEN FNS="C:"
    UB 110 POKE 764,255:GRAPHICS 0,? " AN
    TIC'S GENERIC BASIC LOADER"
    120 ? "BY CHARLES JACKSON"
KY 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? "Creating ";FNS;" ...plea
    se stand by."
LW 150 RESTORE:READ LN:LN=LN:DIM A$(LN):
    C=1
AR 0 AR$(C)="READ AR"
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
    2,255
DM 180 LN=LN+1:POSITION 10,10,?: "Counto
    wn...T"INT(CLN*10):? " "
BK 190 A$(C,C)=CHR$(VAL(AR$(X,X*2)))
    1:NE 1:GOTO 180
MM 200 IF PEEK(195)=5 THEN ? :? "GT00
    MANY DATA LINES!":? "CANNOT CREATE FIL
    E!":END
CM 210 IF CLN+1 THEN ? "GT00 FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
UQ 220 IF FNS="C:" THEN ? :? "Prepare c
    as
    ssette, press RETURN"
AR 230 OPEN #1,0,0,FNS
PU 240 POKE 766,1,?: #1:ARS:POKE 766,0
    AL 250 CLOSE #1:GRAPHICS 0,?:? "#####
    #####
IC 1000 DATA 506
IZ 1010 DATA 0500320650360400490410610342
    54254254170232923293170015053052201005
    402106106240000064000064160
UE 1020 DATA 164165064709632522520030030
    031612412520630632521923274070963252
    252240040240161241252063032
GJ 1030 DATA 01501201500006032132090850213
    4204200019206400006400367127018018028
    063060063003015252240192000
SQ 1040 DATA 0000000000000000000000000011
    219425503415051032065036040057055041
    0503400025208701085004168
QD 1050 DATA 160063015000000000000000031
    321322122402402400000192001050001005001
    021087710640000320800064004
QN 1060 DATA 0850810150210230211701600160
    80240084084084170010004005001005065069
    065085085021064000003081065
YZ 1070 DATA 0850850840000060195060000000
    00000015013004053061060004155052032065
    036040049057051041061034170
OH 1080 DATA 1911911911911911911911701281281
    28128128128128128000000168168168128128
    00000000018128128168000
HQ 1090 DATA 0000001681361361681360000000
    0013613616803203200000000168128168128
    160000000000168136160136136
CE 1100 DATA 00000000001681361601361600000
    00001361361361680000000168128128
    1281680000000000136136168136
YQ 1110 DATA 1360000034155083020650360400
    500560570410610340000000168128168136168
    000000001361681361361360000
PQ 1120 DATA 0000001681361361361680000000
    0013613613616800000000016812813613616
    17000000000013613613613636
SJ 1130 DATA 000000001681281680001680001
    0000016803203203200000000032032032
    000032000000000136136160136
DU 1140 DATA 1360000000001681281681281200
    000000000000000000000034155054032
    065036040051056052041061034
SH 1150 DATA 000000000000000000000000000341
    550490400320650610085003082040065060002
    0003410410433204104133203
KB 1160 DATA 104133206104332051622521600
    0017203145205200208249230204203206232
    208240096034041044053085051
YQ 1170 DATA 05205204040490520510510540411
    55

```

THE PHYSICS OF MOTION

HOW TO PROGRAM REALISTIC-LOOKING MOVEMENTS

LISTING 1

Don't type the
TYPO II Codes!

```
Z0 10 REM PROGRAM LISTING #1
UD 130 REM UNIFORM MOTION
TR 30 REM BY CHARLES CLARK
LK 35 REM (c)1990, ANTIC PUBLISHING, INC.

VJ 40 DIM T$(10)
WA 100 GRAPHICS 7
OA 110 SETCOLOR 4,0,0:SETCOLOR 2,3,12
SA 120 SETCOLOR 1,0,0:SETCOLOR 0,0,0
EM 130 COLOR 3:PLOT 0,40
FJ 200 TRAP 200:PRINT CHR$(125):POKE 764,
255
PJ 210 PRINT "Initial Position (ft): ";
OT 220 INPUT X0
VU 230 PRINT "Initial Velocity (ft/sec): ";
" ";
OB 240 INPUT U0
CK 300 PRINT CHR$(125):POKE 752,1
IN 310 T=0:X=X0
ZM 320 POKE 657,2:POKE 656,0:PRINT "UNIFO
RM MOTION: X=X0+U0*T";
JK 330 POKE 657,2:POKE 656,2:PRINT "X0=";
X0;" ft";
HF 340 POKE 657,2:POKE 656,3:PRINT "U0=";
U0;" ft/sec";
BP 350 POKE 657,30:POKE 656,2:PRINT "ft";
" ";
NH 360 POKE 657,30:POKE 656,3:PRINT "sec";
" ";
YJ 370 T=T+0.1:X=X0+U0*T
HB 380 XL=XP:XP=XP+U0*0.1
WY 390 IF XP>159 THEN XP=XP-159:GOTO 390
NW 400 COLOR 0:PLOT XL,40
SD 410 COLOR 3:PLOT XP,40
KB 420 POKE 657,20:POKE 656,2:PRINT "X=";
INT(X*10)/10;
HQ 430 T$=STR$(T):IF INT(T)=T THEN T$=LEN
(T$)+1,LEN(T$)+2)="."
UB 440 POKE 657,20:POKE 656,3:PRINT "T=";
T$;
EH 460 IF PEEK(764)=255 THEN 340
KU 470 XP=0:GOTO 100
```

LISTING 2

```
Z2 1000 REM PROGRAM LISTING #2
BZ 1010 REM FREELY FALLING BODY
JR 1020 REM BY CHARLES CLARK
QI 1025 REM (c)1990, ANTIC PUBLISHING, IN
C.
MU 1030 G=32
EJ 1040 OPEN #1,4,0,"K:"
EW 1100 GRAPHICS 7
UZ 1110 SETCOLOR 4,12,6:SETCOLOR 2,3,12
SZ 1120 SETCOLOR 1,0,0:SETCOLOR 0,0,0
T5 1130 COLOR 1:PLOT 0,79:DRAWTO 159,79
1140 FOR I=0 TO 78 STEP 10:PLOT 0,I:DR
AWTO 60,I:PLOT 98,I:DRAWTO 159,I:NEXT
I
PB 1150 PLOT 0,8:DRAWTO 0,79:PLOT 159,8:D
RAWTO 159,79
HR 1160 COLOR 1:PLOT 80,78
QV 1200 TRAP 1200:PRINT CHR$(125):POKE 75
2,1
UT 1210 PRINT "Initial Velocity (ft/sec): ";
" ";INPUT U0
FL 1220 PRINT "Initial Height (ft): ";IN
PUT Y0
SH 1230 TRAP 1300:COLOR 0:PLOT 80,78:COLO
R 1:PLOT 80,78-Y0:FOR DELAY=0 TO 200:N
EXT DELAY:YL=Y0
GG 1300 T=0.1
```

```
GD 1310 Y=Y0+U0*T-G*T*T/2
FM 1320 COLOR 0:TRAP 1340:PLOT 80,78-YL
KC 1340 IF Y<=0 THEN T=T-0.1:GOTO 1380
HA 1350 COLOR 2:TRAP 1360:PLOT 80,78-Y
L5 1360 FOR DELAY=0 TO 20:NEXT DELAY
GK 1370 YL=Y:T=T+0.1:GOTO 1310
IN 1380 COLOR 2:PLOT 80,78
DM 1400 TRAP 4000:PRINT CHR$(125):POKE 7
52,1
HP 1410 YMAX=INT((U0*U0/2/G+Y0)*100)/100
UC 1420 TMAX=INT((U0/G*100)/100
OF 1430 UTERM=INT((-SQRT(U0*U0+2*G*Y0))*10
0)/100
WE 1440 TTERM=INT((UTERM-U0)/-G*100)/100
IM 1450 PRINT "Max. Alt.: ";YMAX;" ft at
";TMAX;" sec"
YN 1460 PRINT "Terminal Velocity: ";UTERM
;" ft/sec"
BU 1470 PRINT "Time of Flight: ";TTERM;"
sec";" (RETURN)";
VT 1480 POKE 752,1:GET #1,R:PRINT CHR$(12
5)
IF 1490 PRINT I:PRINT "Again? (Y/N) "
KL 1500 GET #1,R
Z5 1510 IF CHR$(R)="Y" THEN 1160
LQ 1520 IF CHR$(R)="N" THEN GRAPHICS 0:CL
OSE #1:END
PP 1530 GOTO 1500
```

LISTING 3

```
BB 2000 REM PROGRAM LISTING #3
B1 2010 REM PROJECTILE TRAJECTORY
J5 2020 REM BY CHARLES CLARK
QJ 2025 REM (c)1990, ANTIC PUBLISHING, IN
C.
UX 2030 G=32:X0=0
DH 2040 DEG
FD 2050 OPEN #1,4,0,"K:"
FN 2060 GRAPHICS 7
FJ 2070 SETCOLOR 4,0,0:SETCOLOR 2,3,6
KT 2080 SETCOLOR 1,12,2:SETCOLOR 0,0,12
V0 2090 COLOR 2:FOR I=0 TO 78 STEP 10:PLO
T 0,I:DRAWTO 159,I:NEXT I:PLOT 0,79:DR
AWTO 159,79
DM 2095 FOR I=0 TO 159 STEP 10:PLOT I,8:D
RAWTO I,78:NEXT I:PLOT 159,8:DRAWTO 15
9,78
TV 2100 TRAP 2100:PRINT CHR$(125):POKE 75
2,1:PRINT "Initial Velocity (ft/sec): ";
" ";INPUT U0
FH 2110 PRINT "Initial Height (ft): ";IN
PUT Y0
BC 2120 PRINT "Angle of Departure (deg): ";
" ";INPUT D:TRAP 4000
ZH 2130 S=5*IN(D):C=COS(D)
NT 2140 COLOR 1:TRAP 2200:PLOT X0,78-Y0:T
RAP 4000
CQ 2200 T=0.15
BM 2210 X=X0+U0*M*C*T
NJ 2220 Y=Y0+U0*M*S*T-G*T*T/2
TE 2250 TRAP 2275
AL 2260 IF Y<=0 THEN T=T-0.15:GOTO 2400
UC 2270 PLOT X,78
PZ 2275 FOR DELAY=0 TO 15:NEXT DELAY
HY 2280 T=T+0.15:GOTO 2210
DM 2400 TRAP 4000:PRINT CHR$(125):POKE 7
52,1
WF 2410 TMAX=U0*M*G
NU 2420 YMAX=Y0+U0*M*S-TMAX-G*TMAX*TMAX/2
IE 2430 TTERM=C-U0*M-SQR(U0*U0*M*S+2*G*Y0
))/-G
```


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```

FO 1410 REM [REVERSE]
KL 1420 IF A=86 THEN ? "----Measure #":B+2
56#C:----
DZ 1430 IF A=84 THEN X$="":GOTO 1060
LD 1440 IF A=89 THEN ? "Lyric Advance":GOTO
10 1330
OL 1450 IF A=88 THEN ? "Tempo=":B+35
ID 1460 GOTO 1330
TG 1470 REM [REVERSE]
ZZ 1480 ? "Note ":B:":B:":B:":C-12:GOTO
1330
GB 1490 REM [REVERSE]
HT 1500 CLOSE #1
FD 1510 ? "Press Any Key to continue"
LF 1520 OPEN #1,4,0,"K:":
GK 1530 POKE 764,255
CK 1540 GET #1,A
RY 1550 RETURN
    
```

```

TH 100 IF PEEK(764)=18 THEN FNS="C:"
UD 110 POKE 764,255:GRAPHICS 0: ? " " AN
VIC:5 GENERIC BASIC LOADER"
MY 120 ? "BY CHARLES JACKSON"
KD 130 POKE 10592,DPL:TRAP 200
PU 140 ? : ? "Creating ":FNS: ? "...plea
se stand by."
LW 150 RESTORE:READ LN:LN=LN:DIM A$[LN]:
C=1
BQ 160 A$="":READ A$
YC 170 FOR X=1 TO LEN(A$) STEP 3:POKE 75
2,255
BQ LN=LN+1:POSITION 10,10: ? "Countd
wn -T":INT[LN/10]:A$
DK 180 A$C,C3=CHR$VAL(A$C,X+2):C=C+
1:NEXT X:GOTO 160
MH 200 IF PEEK(195)=5 THEN ? : ? "GTOO
MANY DATA LINES!": ? "CANNOT CREATE FIL
E"
CM 210 IF C[LN+1] THEN ? : ? "GTOO FEW DATA
LINES!": ? "CANNOT CREATE FILE!":END
UQ 220 IF FNS="C:" THEN ? : ? "Prepare ca
ssette, press RETURN"
AR 230 OPEN #1,8,0,FNS
ZD 240 POKE 766,1: ? #1,A$:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0: ? "PROGRAMME END
"
MC 1000 DATA 79
HT 1010 DATA 0490510480320770710690804360
61034162016104104157069003104157068003
104457073003104157072003104
PE 1020 DATA 104457066003032086220060341
5504509530480932060040660760360081034192
096048024012006003144072036
JN 1030 DATA 018009004168080402021010280
64032016008004002034155
    
```

LISTING 2

```

SX 10 REM ANALYZE, LISTING 2
MA 20 REM BY STEVEN LASHOVER
GD 30 REM C: 1985, 1988 ANTIC PUBLISHING
E0 40 REM C LINES 1-250 MAY BE USED WITH
THE BASIC LOADERS IN THIS ISSUE
J 50 REM CHANGE LINE 70 AS NECESSARY.
PR 60 DIM FNS(20),TEMP$(20),A$(93):DPL=P
EEK(10592):POKE 10592,255
HD 70 FNS="D:":LINES=LIST:REM THIS IS THE N
AME OF THE DISK FILE TO BE CREATED
RD 80 ? "Disk or Cassette?":POKE 764,25
5
PY 90 IF NOT (PEEK(764)=18 OR PEEK(764)=
58) THEN 90
    
```

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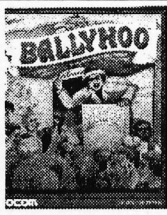
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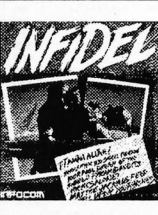
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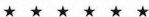
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