Windowed Turbo DataBASE XL/XE: $5.95 Disk Bonus, page 13

U.S.A. $3.95
CANADA $4.95

Antic®

The ATARI® Resource

MAY 1988 VOLUME 7, NUMBER 1

Sixth Anniversary

SPECIAL COLLECTOR'S ISSUE

5 EXCEPTIONAL Type-ins

Featuring (8-bit): Printer Spooler

3rd Annual Antic Awards

For Atari Achievement

14 NEW Reviews

(8-bit/ST) Including: WordPerfect ST

0 74470 12728 05

DotPlotter available now!

Drafix 1. Turn your ST into a powerful CAD tool for just $195.

The first serious CAD package for the ST.

Drafix 1 is loaded with drawing, designing and editing functions that Atari users have never seen before.

— Unlimited zooms and pans for extremely detailed work.
— Draw lines, arcs, circles, pointmarkers, polygons and ellipses. Select any of 16 pens, 256 layers, 8 line types, 32 point marker types, 14 cross hatch patterns and solid fill for tremendous design versatility.
— Flexible automatic dimensioning of lines, angles and arcs in the alignment that's best adapted to your workstyle.
— Draw in English or metric units.
— Automatic calculation of areas and perimeters.
— Precise positioning using snap modes.
— Use ortho lock to draw vertical, horizontal or normal lines.
— Keyboard input optional in absolute, relative and polar coordinates allows you to draw to the precision of .0000001 accuracy.
— Powerful editing function that lets you stretch, shorten, trim, bevel, round and fillet, erase, unerase and more.
— Transform and copy commands allow copying, moving, rotating and alignment of items. Mirror objects about any axis and merge drawings together for true computerized cut and paste.
— Plus many more features that can usually be found only on sophisticated packages costing $2,000-$3,000.

Yet with all of its power, Drafix is one of the easiest software packages you'll ever use.

A breakthrough in screen design and user interface.

Drafix 1 features a second generation user interface — the Dynamic Screen Menuing System. This means all of the menus are visible at all times — there's no need to memorize menu hierarchies.

A "roll down" menu automatically appears to display all of the available options and a single keystroke or pointer device let's you make your selection "on the fly."

Its powerful features and ease of use makes Drafix 1 ideal for everyone from the hobbyist or student designing a simple room layout to the top design engineers at NASA.

New options available now!

- DotPlotter
  — Provides hi-resolution output to dot matrix and laser printers
- General Symbols Library
- Professional Symbols Libraries

Proven CAD software for only $195.

Although Drafix 1 is newly available for the Atari ST it's been around long enough to be described by PC Magazine and others as "The best CAD buy in town" with "Incredible performance for the price."

Turn your ST into a powerful CAD tool. Use our toll-free number to order Drafix today.

Pointer prompts display current mouse or digitizer button functions for ease of use.

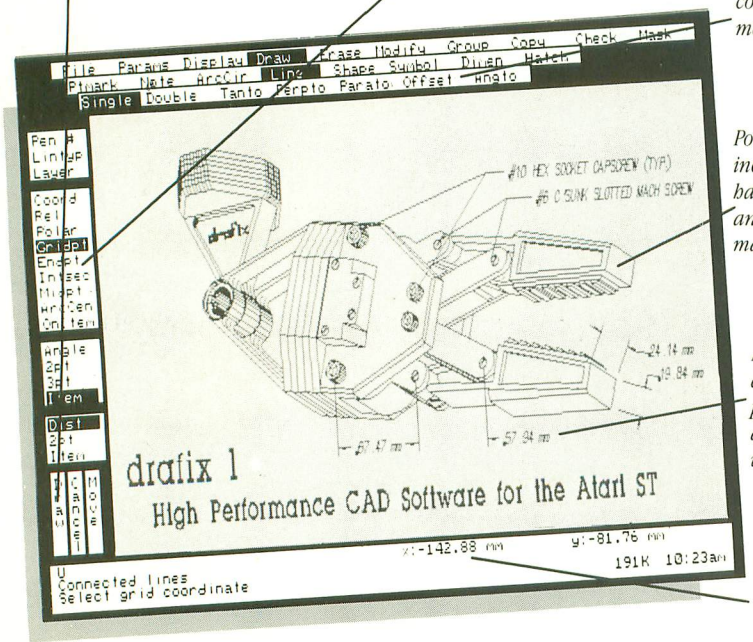
Item attributes, component and grid snaps can be selected "on the fly" for speed and accuracy.

Menus remain visible continuously to eliminate memorization.

Powerful drawing functions include arcs, ellipses, cross-batching, solid fill, parallel and perpendicular lines and many others.

Flexible, automatic dimensioning system is powerful, easy-to-use and adaptable to your work style.

Message center displays step-by-step instructions and other useful status information.



DRAFIX 1 CAD ONLY $195

Call for the name of your local Drafix dealer or place your toll-free order today.

1-800-231-8574

Visa, MasterCard or American Express welcome. **ext. 950**

30-day money back guarantee if you're not completely satisfied.

FORESIGHT RESOURCES CORP.
932 Massachusetts
Lawrence, KS 66044
913/841/1121

Dealers, contact us direct or call one of these distributors:

Horizon Computers/Denver, CO/ 1-800-223-2487 ext. 133
IMSI/San Rafael, CA/1-800-222-4723 (In Calif. call 1-800-562-4723)
Kenfil Distribution/Van Nuys, CA/ 1-800-662-0505
Micro-D/Santa Ana, CA/1-800-MICROD1

American Techna-Vision

For Orders Only - 1-800-551-9995
CA. Orders / Information 415-352-3787

"Providing 8 Bit support with one of the Worlds largest inventories of Atari replacement parts"

- No surcharge for VISA/MasterCard
- Your card is not charged *until we ship*

800 4 PIECE BOARD SET

Includes Main Board, Power Supply Assembly, CPU Module and 10K Revision B Operating System Module. All boards are new, tested and complete with all components. $28.50

1050 MECHANISM

Factory fresh TANDON mechs. make difficult repairs a snap. Units are complete with Head, Stepper, Spindle motor etc. Just plug in, no difficult alignments or adjustments required. $47.50

2400 BAUD MODEM

Mitak Hayes compatible. Auto dial, auto answer. 0-300/1200/2400 baud Internal speaker. Auto baud rate and format adjustment. Touch tone and pulse dialing. Auto busy redial.
Works with All Atari's 8 bit requires interface. ST Cable sold seperately. $159.95

POWER PACKS

Exact replacement transformer for 800/400, 1050, 810, 1200XL, 850 and 1020 units. Replaces older "weaker" units. Atari part #CO17945. $14.50

400 3 PIECE BOARD SET

Includes Main Board, Power Supply Assembly and CPU Module. All boards are new, tested and complete with all components. $19.50

JOYSTICK

Works with all Atari Computers
ORIGINAL STYLE $7.00

ATARIWRITER CARTRIDGE

Popular cartridge version turns any 8 bit Atari into a powerful word processor. Written by Atari. Disk drive supported but not required.
For all Atari's except ST $29.95

600XL 64K UPGRADE

Easy to install internal modification allows you to hook up a disk drive and run all 800XL software. Kit includes all parts and detailed instructions. Soldering required to install 3 jumpers. $29.95

800 10K "B" O.S. Module

Older 800 units need the revision "B" Operating system to run newer software. Type the following peek in BASIC to see which revision you have. PRINT PEEK(58383).

If the result is 56 order now! $9.50

PILOT PROGRAMMING LANGUAGE PACKAGE

Includes PILOT cart. with "Turtle Graphics", Pilot Primer and Student Pilot manuals. PILOT is an excellent learning or teaching tool.
Works with all Atari's except ST. $17.50

PADDLE CONTROLLERS

(Pair). Required for numerous 8 bit programs and applications. Use these to add two changeable variables to your BASIC or machine language programs. $6.50

SERIAL I/O CABLE

High quality 13 pin cable used to connect 8 bit Atari's to disk drives, interfaces, etc.
New low price $5.95

800/400 MODULES

NEW PARTS COMPLETE WITH IC'S

$9.50 EACH

- 800 Main Board
- 800/400 CPU with GTIA
- 800 10K "B" O.S. Module
- 400 Main Board
- 800 Power Supply Board
- 400 Power Supply Board

16K Ram Module $14.50

INTEGRATED CIRCUITS

$4.50 EACH

CPU	CO14806
POKEY	CO12294
PIA	CO14795
GTIA	CO14805
ANTIC	CO12296
CPU	CO10745
PIA	CO10750
CPU	CO14377
DELAY	CO60472

MORE IC'S

CO60302 XL BASIC ROM	$13.50
1050 O.S. ROM	$13.50
2793 1050 FDC	$19.50
CO10444 2600 TIA	$4.50
1771 810 FDC	$10.00
1050 5713 STEP DRIVER	$5.25

REPAIR MANUALS

SAMS Service Manuals for the following units contain schematics, parts listings, labelled photographs showing the location of checkpoints and more! A special section gives oscilloscope and logic probe readings allowing you to narrow the malfunction down to a specific chip or transistor!
800, 800XL, 130XE, 400, 1025 and 1050 ..... $19.50 each
520ST Service Manual. $37.50

MISC. HARDWARE

1050 Track 0 Sensor	$6.50
1050 Stepper Motor	$14.50
1030 Power Pack	$9.50
Fastchip for 800/400	$15.50
Atari Joystick	$7.00
850 or PR Modem Cable	$14.50
850 or PR Printer Cable	$12.50
P:R: Connection	$59.95
Printer Interface	$39.95
I/O 13 Pin PC mount	$4.50
I/O 13 Pin Plug Kit	$4.50
ST 6' Drive Cable	$14.00
820 Printer Mechanics	$9.50
Joystick Extension Cable.	$5.00
EPROM Eraser	$34.95
810 Door Latch Assy.	$15.00
Serial I/O Cable	$5.95
1027 Transformer	CALL
ICD Multi I/O	CALL
810 Tandon Drive Mech.	$49.95

GORF SPACE GAME

Well done cart. vers. of famous arcarde game. 800/400 only. $4.00

COMPUTER BOOKS

Inside Atari Basic	$5.00
Atari Basic Ref. manual.	$5.00
Assembly Language Guide	$19.95
XE Users Handbook	$17.95
XL Users Handbook	$17.95
Advanced Programming	$19.50

ATARI 850 INTERFACE

Bare PC Board with parts list and crystal allows you to build your own serial/parallel interface for attaching modems and printers to all 8 bit Atari computers. $7.50
Bare Board & all plug in IC's $39.50

ATARI XM301 MODEM

Direct connect 300 Baud modem works with all 8 bit Atari's. No seperate interface required. $44.95

P:R: CONNECTION

Serial & Parallel interface allows you to attach standard modems and printers. For all 8 bit. (1200XL requires modification). $59.95

BASIC CARTRIDGE

Basic Rev. "A" Cart. works with all Atari Computers except ST. 800XL Owners Note! Use this cartridge while programming to eliminate the severe errors in the built in "B" Basic. $10.00

ADDITIONAL SOFTWARE

Pac-Man cartridge	$4.00
Deluxe Invaders Cart.	$4.00
Journey to the Planets	$4.00
Edt/Asm cart. w/o man.	$10.00
Q*bert cartridge	$10.00
Donkey Kong cart.	$5.00
Eastern Front Cart.	$5.00
Springer Cart.	$5.00
Hard Hat Mack disk	$5.00
D-Bug childware disk.	$5.00
Home filing manager	$7.50
Musical Pilot Ed. Disk	$5.00
Big Math Attack Disk	$5.00
Pathfinder disk.	$5.00
O.S.S. Action Cart.	$57.50
O.S.S. Mac-65 Cart.	$57.50
O.S.S. Basic XE Cart.	$57.50
O.S.S. Basic XL Cart.	$47.50

SERVICE RATES

Flat Service Rates below include Parts & Labor, 60 Day Warranty.

800 Computer	$39.50
850 Interface	$39.50
810 Disk Drive	$69.50
1050 Disk Drive	$75.00
800 Keyboard only.	$25.00

Include $7.00 return shipping and insurance. Include $4.00 shipping for 800 keyboard repair only.

CALL TOLL FREE
1-800-551-9995
IN CALIF. OR OUTSIDE U.S.
CALL 415-352-3787

AMERICAN TECHNA-VISION

Mail Order: 15338 Inverness St., San Leandro, Ca. 94579
Repair Center: 2098 Pike Ave., San Leandro, Ca. 94577

Terms: NO MINIMUM ORDER. We accept money orders, personal checks or C.O.D.s. VISA, Master/Card okay. Credit cards restricted to orders over $20.00. No personal checks on C.O.D. - Shipping: $4.00 shipping and handling on orders under $150.00. Add $2.25 for C.O.D. orders. In Canada total $6.00 for shipping and handling. Foreign shipping extra. Calif. residents include 7% sales tax. All items guaranteed 30 days from date of delivery. No refunds or exchanges.

Prices subject to change without notice. Send SASE for free price list. Atari is a reg. trademark of Atari Corp.

CIRCLE 003 ON READER SERVICE CARD

Lyco Computer

Marketing & Consultants

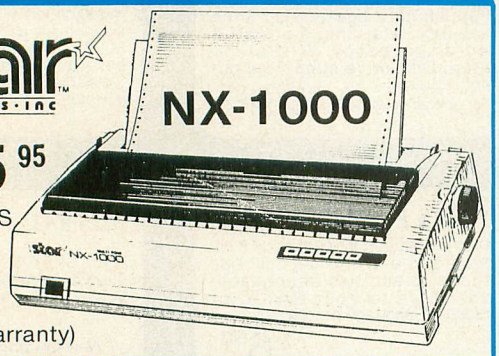
Since 1981

Order processed within 24 hours.

New for '88

star micronics · inc

NX-1000



$165.95

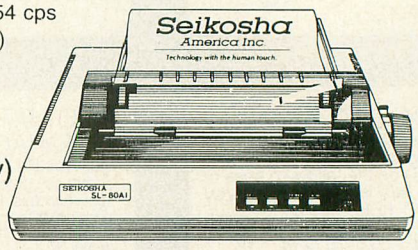
- 144 CPS Draft
- NLQ Mode

(1-Year Warranty)

Great Performance Great Price

SEIKOSHA SL-80Ai

- Letter quality 54 cps
- Quiet (52 dBA)
- Automatic paper loading
- 16 K buffer



(2-year warranty)

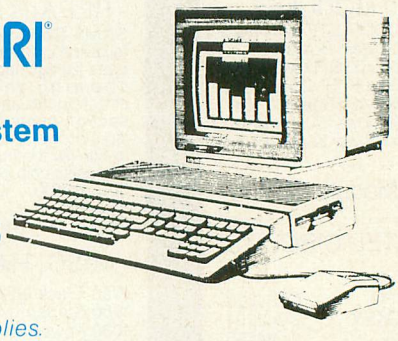
$299.95

ATARI 520 ST Computer

- Built-in Drive
- Thomson 4120 Monitor

$769.95

ATARI 1040 ST Color System



$975.95

☆ *Full mfg. warranty applies.*

PRICE GUARANTEE

Since 1981, we have led the industry by continuing to offer the lowest national prices while providing quality service. Many companies have come and gone trying to imitate our quality and service. If by some oversight we do not have the lowest prices advertised on the products you desire, then we would appreciate the opportunity to rectify this oversight.

SKC T120 VHS VIDEO TAPE

Each..... $3.99
3 Pack $10.95
10 Pack..... $35.95

TO ORDER, CALL TOLL-FREE: 1-800-233-8760
New PA Wats: 1-800-233-8760
Outside Continental US Call: **1-717-494-1030**

Hours: 9AM to 8PM, Mon. - Thurs.
9AM to 6PM, Friday — 10AM to 6PM, Saturday

For Customer Service, call 1-717-494-1670,
9AM to 5PM, Mon. - Fri.
Or write: Lyco Computer, Inc.
P.O. Box 5088, Jersey Shore, PA 17740

See our 2-page ad elsewhere in this Magazine

Risk Free Policy

In-stock items shipped within 24 hrs. of order. NO deposit on C.O.D. orders. Free shipping on prepaid cash orders over $50 with the Continental U.S. Volume discounts available. PA residents add sales tax. APO, FPO and international orders add $5.00 plus 3% for priority mail. Advertised prices show 4% discount for cash, add 4% for MasterCard and VISA. Personal checks require 4 weeks clearance before shipping. We cannot guarantee compatibility. We only ship factory fresh merchandise. Ask about USP Blue and Red Label shipping. All merchandise carried under manufacturers' warranty. Return restriction applicable. Return authorization required. We check for stolen credit cards. We accept purchase orders from educational institutions. All items subject to change without notice. prepaid orders under $50 add $3.00

1-800-233-8760

CIRCLE 020 ON READER SERVICE CARD

Antic®
The ATARI Resource

Database Deluxe
$5.95
Disk-Only Bonus

MAY 1988, VOL. 7, NO. 1

FEATURES

34 SUPER SORTERS: PART II by Kevin Peck
Mixed Numbers Sorting Routine *Type-In Software*

37 I/O TICKET FROM POLAND TO USA by Tadeusz Menert
The most unusual story **Antic** has ever published

41 THIRD ANNUAL ANTIC AWARDS by Gregg Pearlman
Outstanding Atarian Achievements of 1987-88

Antic's Third Annual Awards for Outstanding Service to the Atari Community—page 41

DEPARTMENTS

SUPER DISK BONUS

13 ANTIC DATA-X by Jeffrey Summers, M.D.
Database deluxe in Turbo BASIC

FEATURE APPLICATION

22 ANTIC SPOOLER by Glenn Smith
Keep on computing while you print! *Type-In Software*

PRODUCT REVIEWS

24 Phantasie II, Guild of Thieves

ONLINE

26 CHOOSING YOUR MODEM by Matthew Ratcliff
Plus—Patriot 2400E Modem Review

GAME OF THE MONTH

30 PERFECTED PONG by Bob Ayik
New challenges from an old favorite *Type-In Software*

BONUS GAME

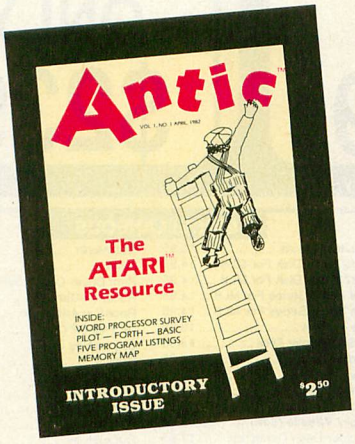
33 RECALL by Barry Kolbe
BASIC Concentration memory game *Type-In Software*

EDITORIAL

39 EVER-CHANGING ATARI MARKETPLACE by Nat Friedland
Six high-flying Antic Years. . .

TECH TIPS

80 High Score, Append, Correlations



Ever-Changing Atari Marketplace. Page 39

SOFTWARE LIBRARY

63 TYPE-IN LISTINGS SECTION

ST RESOURCE

51 CRAZY CHICKEN BARRAGE by Stephen Everman and Paul Pratt
Dodge eggs, grenades and knives! *Type-In Software*

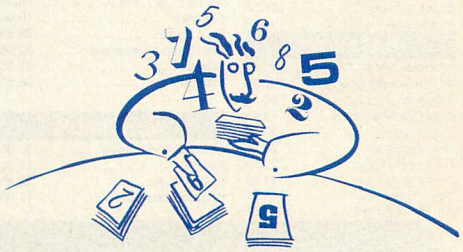
53 ST GRAPHICS TABLETS by Frank Hayes
If you dislike "drawing with a bar of soap . . ."

56 ST NEW PRODUCTS

57 ST TOOLBOX
Make It Move, Payroll Master

59 WORDPERECT ST by Gregg Pearlman
Proving why it's the IBM PC bestseller

61 NEW ST ENTERTAINMENTS
From dungeons to outer space



Super Sorters: Part II. Page 34

Our Cover This Month:
Neon Photo by Tony Carlson
Covers Photo by Curtis Anderson
Neon Star by Neon Neon

6 MASTHEAD
6 IO BOARD
18 NEW PRODUCTS
24 PRODUCT REVIEWS
39 EDITORIAL
77 SHOPPERS MARKET
78 CLASSIFIED ADS
79 ADVERTISERS LIST

Mon - Fri 9 am - 9 pm CST
Sat 11 am - 5 pm

800-558-0003

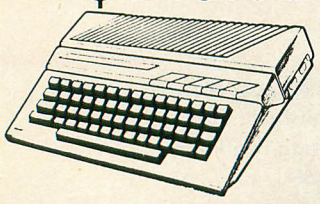
Your ATARI 8-BIT STORE that's as close as YOUR PHONE

ComputAbility

Mon - Fri 9 am - 9 pm CST
Sat 11 am - 5 pm

800-558-0003

130XE COMPUTER
$149.00



XF551 DISK DRIVE DOUBLE DENSITY
$179 NEW

80 COLUMN WORD PROCESSING PACKAGE
FOR XE/XL COMPUTERS
XET-80 COLUMN & ATARI WRITER 80
BOTH FOR
$109 NEW

XDM-121 Letter Quality Printer
W Built in Interface
12 CPS-Daisy Wheel
$199

AVATEX 1200 HC MODEM & P. R. CONNECTION
With ATARI Modem Cable
$169

MISCELLANEOUS HARDWARE

PR Connection	62.95
US Doubler	49.95
Animation Station	59.95
Atari XM 301 Modem	CALL
Supra 1150 Interface	CALL
850 Interface	CALL
Graphic AT Interface	39.95
Avatex 1200HC	CALL
Avatex 1200E	CALL
Avatex 2400 HC	CALL

star micronics

NEW NX-1000 PRINTER
•144 CPS-Draft •30CPS-NLQ
•NLQ in 10 & 12 Pitch
•6 Built-in Fonts
ONLY
$169

Panasonic Office Automation

NEW 1080i - II PRINTER
Now at 144 CPS
ONLY
$179

Panasonic Office Automation

NEW 1091i - II PRINTER
Now at 192 CPS
ONLY
$199

star micronics

NEW NX-1000 RAINBOW
New Low Cost COLOR Printer
ONLY
$239

ACCESSORIES

Anti-Glare Screen	19.95
Blank Disks	CALL
Disk Notcher	5.95
Dust Covers	CALL
6 Way Surge Protector	19.95
Monitor Cable	9.95
Printer Stand	14.95
Swivel/Tilt Monitor Stand	19.95
Teakwood Disk Holders	19.95
Printer Ribbons	CALL
Modem Cable	14.95
Printer Cable	14.95
1000 Sheet Printer Paper	19.95

MICROPROSE

Crusade in Europe	25.95
Conflict in Vietnam	25.95
Decision in Desert	25.95
F-15 Strike Eagle	22.95
Kennedy Approach	16.95
Silent Service	22.95
Top Gunner	16.95

DATASOFT

Alternate Reality/City	20.95
Alt. Reality/Dungeon	26.95
Bismarck	20.95
Data Disk/Mercenary	11.95
Gunslinger	20.95
The Mercenary	20.95
Theatre Europe	23.95
Tomahawk	21.95
Video Title Shop	23.95
221 Baker Street	20.95

ELECTRONIC ARTS

Age of Adventure	10.95
Archon	10.95
Archon II	10.95
Chessmaster 2000	25.95
Chickaumauga	23.95
Financial Cookbook	10.95
Mail Order Monsters	10.95
Mavis Beacon	26.95
Movie Maker	10.95
Music Construction	10.95
Lords of Conquest	22.95
Pinball Construction	10.95
Ogre	25.95
One on One	10.95
Racing Destruction	10.95
Rommel/Toburk	26.95
Starfleet 1	33.95
Super Boulder Dash	10.95
Touchdown Football	10.95
7 Cities of Gold	10.95

BRODERBUND

AutoDuel (64K)	34.95
Bank Street Writer	32.95
Graphic Lib 1,2,or 3	16.95
Karateka	19.95
Print Shop	28.95
Print Shop Companion	22.95
Ultima III	31.95
Ultima IV	38.95

ACTIVISION

Cross Country Race	11.95
Hacker	11.95
Music Studio	22.95
Ghostbusters	11.95

INFOCOM

Ballyhoo	25.95
Hitchiker	17.95
Hollywood Hijinx	22.95
Leather Goddess	22.95
Lurking Horror	22.95
Moonmist	22.95
Station Fall	22.95
Wishbringer	11.95
Zork Trilogy	29.95

XLENT SOFTWARE

Megafont II	16.95
Xlent Word Processor	18.95
Page Designer	18.95
Megafiler	18.95
Picture Disk	14.95
PS Interface	18.95
Rubber Stamp	18.95
Typesetter	21.95

SSI

Battle of Antietam	32.95
Battlecruiser	39.95
Broadsides	27.95
Carrier Force	39.95
Computer Ambush	39.95
Eternal Dagger	25.95
Fighter Command	39.95
Field of Fire	25.95
Gettyburg	39.95
Imperium Galacticum	25.95
Kampgruppe	39.95
Phantasie 1 or 2	25.95
Panzer Grenider	25.95
Rebel Charge	32.95
Shiloh	25.95
USAAF	39.95
Wargame Constr. Set	19.95
Warship	39.95
Wizard's Crown	25.95

We Carry Hundreds of Programs for the ATARI 400/800/XE/XL If You Don't See it Here CALL

MISCELLANEOUS

10 Little Robots	18.95
1986 Team Disk For MLB	14.95
1987 Team Disk For MLB	14.95
60's World Series For MLB	14.95
70's World Series For MLB	14.95
Ace of Aces	18.95
All Star Roster Disk	14.95
Apshai Trilogy	14.95
Atariwriter Plus	29.95
Award Ware	10.95
Blazing Paddles	22.95
Bop'n' Wrestle (64K)	19.95
Boulder Dash Const. Kit	17.95
Champ. Loderunner	19.95
Cycle Knight	16.95
Demon Attack/Pitfall	10.95
Electronic Checkbook	14.95
Electronic Data Manager	14.95
Fleet System 2	39.95
Fight Night	10.95
Flight Simulator 2	33.95
Fraction Action	18.95
Gauntlet (64K)	22.95
General Mgr. MLB	19.95
Guitar Wizard	18.95
Hardball	18.95
Home Planetarium	27.95
Infiltrator	19.95
Jupiter Mission 1999	32.95
Leaderboard DuoPak	10.95
Linkword German	29.95
Linkword Italian	29.95
Linkword Spanish	29.95
Love Note Maker	10.95
Mastertype	25.95
Math Blaster	32.95
Micro League Baseball	25.95
MLB Boxcore/Stat	14.95
Net Worth	25.95
Pitfall	10.95
Print Driver Const. Set	16.95
RTlime 8 Cart	54.95
Race Car Arithmetic	18.95
SPY vs SPY 1&2	10.95
Spy vs Spy 3	17.95
Spell It	32.95
Spinnaker	CALL
Spitfire 40	23.95
Spitfire Ace	19.95
Strip Poker	21.95
SuperHuey	16.95
Summer Games	14.95
Syncalc	32.95
Synfile	32.95
The Pawn	25.95
Triple Pak	14.95
Trailblazer	19.95
Universe	32.95
Video Vegas	20.95
Word Attack	32.95

JOYSTICKS

(NOTE: Prices good when with any other purchase)

Wico Super 3-Way	19.95
Unite Joystick	5.95
Starfighter	8.95
Tac 3	10.95
Slik Stick	7.95
Epyx 500XJ	12.95

OPTIMIZED SYSTEM

Action	CALL
Basic Xe	CALL
Basic XL	CALL
Mac 65 XL	CALL

Mon-Fri 9am-9pm CST
Sat 11am-5pm

Order Call Toll Free
800-558-0003

SINCE 1982

ComputAbility
Consumer Electronics

P.O. BOX 17882, MILWAUKEE, WI 53217
ORDER LINES OPEN
Mon.-Fri. 9AM-9PM CST Sat. 11AM-5PM. CST
TELEX NUMBER 9102406440
(ANSERBACK = COMPUT MILW UQ)

No surcharge for MasterCard or Visa

MasterCard Visa

Inquiries, or for Wisc. Orders
414-357-8181

Mon - Fri 9 am - 9 pm CST
Sat 11 am - 5 pm

800-558-0003

Your ST STORE that's as close as YOUR PHONE
SINCE 1982

ComputAbility

Mon - Fri 9 am - 9 pm CST
Sat 11 am - 5 pm

800-558-0003

ATARI 520ST SYSTEM FM PACKAGE

- RGB Monitor or Monchrome Monitor
- Built in 3 1/2" SS Double Density Drive
- Basic
- TOS on ROM
- RF Modulator
- Full Manufacter's Warranty

CALL FOR LOWEST PRICE

ATARI ST

NOTE: Substitute Thomson 4120 RGB Monitor
&
$ave

ATARI 1040ST SYSTEM PACKAGE

- RGB Monitor or Monochrome Monitor
- Built in 3 1/2" DS Double Density Drive
- Basic
- TOS on ROM
- Full Manufacter's Warranty

CALL FOR LOWEST PRICE

ST HOST

CONTROLLER ADAPTOR

CALL FOR PRICES

PANASONIC

PANASONIC 1080i - II	179
PANASONIC 1091i - II	199
PANASONIC 1092i	399
PANASONIC 3131	309
PANASONIC 3151	479
PANASONIC 1524	579
PANASONIC 1592	409
PANASONIC 1595	469

Thomson 4120 RGB Monitor

- 560H x 240V Resolution
- ST RGB Cable

$245

STAR MICRONICS

NX-1000	169
NX-1000 Rainbow	239
NX-15	309
ND-15	399
NR-15	479
NB-24/10	439
NB-24/15 (24 wire)	639

WORD PERFECT

ONLY

$199

With Any ST Purchase

ATARI SF 314 DISK DRIVE

DOUBLE SIDED/ 1 MEGABYTE STORAGE

CALL

OKIMATE 20 COLOR PRINTER & ST PLUG N' PRINT

CALL

SUPRA 20 MEG HARD DRIVE ONLY

$539

PC Ditto Package

Includes

- PC Ditto
- MS DOS
- ST / PC 5 1/4" Disk Drive

$309

ST MODEM PACKAGE

- AVATEX 1200HC MODEM
- ST MODEM CABLE
- FLASH TELECOM PACKAGE

$135

MICHTRON

BBS 2.0	49.95
Business Tool	32.95
Cards	25.95
Calendar	19.95
Cornerman	32.95
DOS Shell	25.95
Echo	25.95
Eight Ball	19.95
Financial Future	25.95
Fright Run	25.95
GFA Artist	49.95
GFA Basic	49.95
GFA Book	27.95
GFA Companion	32.95
GFA Compiler	49.95
GFA Draft	64.95
GFA Object	67.95
GFA Vector	32.95
Goldrunner2	25.95
Hard Disk Backup	25.95
International Soccer	25.95
Juggler Utility	32.95
Karate Kid II	25.95
Major Motion	25.95
Make It Move	46.95
Match-point	25.95
M-Disk+	25.95
M-Cache	25.95
Mi-Term	32.95
Mighty Mail	32.95
Michtron Utilities	39.95
Omega Run	25.95
Personal Money Mgr	32.95
Pinball Factory	25.95
Realtizer	150.95
Score Writer	25.95
Shuttle 2	25.95
Slaygon	25.95
Tanglewood	25.95
The Animator	25.95
Time Bandits	25.95
Trimbase	64.95
Tune Up	32.95

MUSIC

Bach Song Bach	19.95
Copyist 1.5	149.95
CZ Droid	64.95
CZ Patch	69.95
Digi-Drum	24.95
Dr. Drum	19.95
Dr. Keys	19.95
Dr. Patches	34.95
Easy Score	67.95
EZ Track	39.95
Fingers	34.95
Keyboard Contr Sequencer	149.95
Middiplay	32.95
Midi Maze	25.95
Music Construction Set	33.95
Music Studio	32.95
Pro Sound Designs	89.95
ST Replay	114.95

CASIO KEYBOARDS.....CALL

ST TELECOMM

QMI BBS ST	31.95
BBS Express	56.95
Deluxe Minicom	39.95
I.S Talk	33.95
Minicom	25.95
ST Talk Ver 2.0	CALL

ST ADVENTURES

Alternate Reality	26.95
Apshai Trilogy	14.95
Autoduel	32.95
B-24	25.95
Balance of Power	32.95
Bard's Tale	33.95
Beyond Zork	32.95
Black Cauldron	25.95
Breech	25.95
Colonial Conquest	25.95
Empire	36.95
Dark Castle	29.95
Defender of Crown	32.95
Deja Vu	32.95
Dungeonmaster	24.95
Hacker	17.95
Hacker II	25.95
Golden Path	29.95
Guild of Thieves	29.95
Leisure Suit Larry	32.95
Lurking Horror	25.95
Moebius ST	38.95
Kings Quest 1,2 or 3	32.95
Mercenary	26.95
Ogre	25.95
President Elect '88	17.95
Phantasie 1,2 or 3	25.95
Plundered Hearts	25.95
Police Quest	32.95
Portal	32.95
Rings of Zilfin	25.95
Roadwar 2000	25.95
Roadwar Europa	29.95
S.D.I.	32.95
Shadowgate	32.95
Sinbad	32.95
Space Quest	32.95
StationFall	25.95
Starglider	29.95
Sundog	24.95
The Pawn	29.95
Tass Times	25.95
Thexdar	22.95
Tracker	29.95
Universe II	32.95
Uninvited	32.95
Ultima III or IV	38.95
Wizard's Crown	25.95
221 Baker Street	26.95

DISKETTES

Fuji 3.5 SS/DD (10 PK) 11.95
Fuji 3.5 DS/DD (10 PK) 15.95
Note: Buy Diskettes at these low prices when added to any other order.

ST BUSINESS

A-Calc Prime	39.95
Dollars and Sense	64.95
Financial Cookbook	14.95
Isgur Portfolio	124.95
Inventory Master	67.95
Logistix Jr.	57.95
Logistix Sr.	89.95
Payroll Master	49.95
Micro Lawyer	39.95
Swiftcalc ST	48.95
Sylvia Porter	48.95
Tax Advantage	48.95
VIP Professional	94.95

ST EDUCATIONAL

AB - Zoo	19.95
Adv. of Sinbad	31.95
Animal Kingdom	24.95
All About America	36.95
Algebra 1 or 2	34.95
Arakis (each)	16.95
Arithmetic	34.95
Aesop Fables	31.95
Buzzword	27.95
Calculus	34.95
Decimal Dungeon	24.95
First Shapes	33.95
Fraction Action	24.95
Invasion	19.95
Kid Talk	33.95
Kinderama	24.95
Math Wizard	24.95
Math Talk	33.95
Math Talk Fractions	33.95
Mathematicians Tool Kit	32.95
Magical Myths	31.95
Mavis Beacon Typing	26.95
Mother Goose	19.95
Probability	34.95
Read & Rhyme	24.95
Read-A-Rama	31.95
Space Math	25.95
Speller Bee	33.95
Trigonometry	34.95
True Stat	34.95
Winnie the Pooh	16.95
1st Letters and Words	33.95

ADVANCED ORDERS

Arabian Nights	31.95
Discreet Math	34.95
Ghostly Grammers	31.95
Lands of the Unicorn	21.95
Logic Master	31.95
Planetarium	44.95

ST DATABASES

Data Manager ST	48.95
DB Man 4.0	96.95
Regent Base 1.1	79.95
Superbase Gem	94.95
The Informer	67.95

DESKTOP PUBLISHING

Publish It	84.95
Publishing Partner	64.95
Publishing Partner Pro	127.95
Partner Fonts 1 or 2	19.95
Parnter Forms	19.95

ST ACCESSORIES

Anti-Glare Screen	19.95
Dustcovers	CALL
Flip'n' File II- Micro	19.95
3.5 Drive Clean Kit	16.95
6 Way Surge Protector	19.95
6 FT SF 354/314 Cable	19.95
Mouse Pad	8.95
Mouse House	6.95

ABACUS

Abacus Books	CALL
Assempro	39.95
Chart Pak St	32.95
Datatrieve	32.95
Electra - spell	25.95
Forth MT.	32.95
Paintpro	32.95
Powerplan	49.95
Textpro	32.95

ANTIC

A-Calc Prime	39.95
A-Chart	25.95
Architecural Design Disk	19.95
Base Two	39.95
Crystal	17.95
Cyber Control	39.95
Cyber Paint	44.95
Datamaps	17.95
Flash 1.5	19.95
Future Design Disk	19.95
G.I.S.T.	22.95
Genesis	49.95
Human Design Disk	19.95
LCS Wanderer	25.95
Maps and Legends	22.95
PHA$ar	64.95
Quicktran	22.95
Spectrum 512	49.95
Stereotek 3D Glasses	149.95
Stereo CAD 3-D	67.95
Shoot the Moon	25.95
The Cyber Studio	64.95
The Navigator	32.95
3D Developer's Disk	19.95
3D Font Package	17.95
3D Plotter & Printer Driver	17.95

ST GRAPHICS

Advanced Art Studio	29.95
Aegis Animator	48.95
Athena II	67.95
Degas Elite	38.95
Desktop Publishing Lib/ Graphic Artist	49.95
Graphic Artist	124.95
Easy Draw	64.95
Font Paki for Easy Draw	25.95
Font Pak for Graphic Artist	32.95
Font Editor for Graphic Editor	49.95
Neochrome	34.95
Paintworks	25.95
Personal Draw Art I	19.95
Pro Sprite Designer	39.95
ST Sprite Factory	25.95
ST Art Director	48.95
Technical Draw Art I	19.95
1st Cadd	31.95
3-D Graphics	34.95

ST WORD PROCESSORS

Microsoft Write	89.95
Regent Word II	48.95
Thunder	26.95
ST Becker Text ST	67.95
Word Perfect	229.95
Wordwriter ST	48.95
1st Word-Plus	57.95

INFOCOM ST

Infocom Invisiclues	CALL
Bureaucracy	25.95
Enchanter	19.95
Hitchiker	19.95
Hollywood Hijinxs	25.95
Leather Goddess	25.95
Lurking Horror	25.95
Moonmist	25.95
Stationfall	25.95
Trinity	25.95
Wishbringer	11.95
Zork I	25.95
Zork II or III	28.95

ST ARCADE GAMES

Airball	25.95
Aitball Construction Kit	17.95
Alien Fires	26.95
Arena	14.95
Atari Plane Tarium	29.95
Arctic Fox	26.95
Awesome Action Pack	33.95
Battledroidz	23.95
Brattacus	32.95
Bridge 5.0	22.95
Barbarian	25.95
Boulder Dash Cons Kit	17.95
Bubble Ghost	14.95
Breech Scenario Disk	17.95
Card Sharks	CALL
Champ Baseball '86	25.95
Champ. Wrestling	14.95
Chessmaster 2000	29.95
Death Sword	17.95
Deep Space	19.95
Dive Bomber	25.95
F-15 Strike Eagle	27.95
Flight Simulator II	33.95
Female Data Strip Poker	16.95
Famous Course Disk 1 or 2	14.95
Gen Mgr/for MLB	19.95
Gone Fishing	26.95
Gauntlet	32.95
Gato	24.95
GFL Football	25.95
Global Cmmdr.	26.95
Gridiron Football	33.95
Guardians of Infinity	22.95
Hardball	24.95
Harrier Combat Simulater	32.95
Hunt for Red October	33.95
Indoor Sports	32.95
Into the Eagle's Nest	25.95

ST UTILITIES

Back Pak	64.95
Desk Cart	72.95
Electro Calendar	35.95
Fast	31.95
Flashback	79.95
Labelmaster Elite	27.95
K-Switch	25.95
Micro Cookbook	32.95
Partner ST	32.95
PC Ditto 3.0	69.95
Smooth Talker	33.95
St Doctor	24.95
Tempus	32.95
Time Link	33.95
Video Wizard	39.95
Write 90	18.95

ST LANGUAGES

Alice Pascal	49.95
Cambridge Lisp	139.95
Fast Basic (Philon)	48.95
ISO Pascal	69.95
Lattice C	99.95
LDW Basic 2.0	54.95
Mark Williams C..	114.95
Macroassembler	49.95
Modula II	67.95
Metacommco Make	49.95
Micro C shell	34.95
Modula II Developer	Call
MT C Shell	84.95
Personal Pascal 2.0	64.95
True Basic	49.95
True Basic Dev. Kit	34.95
True Basic Run Time	69.95

ST ARCADE GAMES (continued)

Karateka	25.95
Leader Board	25.95
Marble Madnss	24.95
Master Ninja	22.95
Mean 18	27.95
Metrocross	12.95
Metropolis 2000 st	22.95
Micro League Baseball	39.95
Night on the Town	22.95
Mortville Manor	22.95
Obliterator	00.00
Paper Boy	32.95
PinBallWizard	21.95
Plutos	19.95
RPV	24.95
Road Wars	20.95
Roadrunner	32.95
Rockford	20.95
Rogue	24.95
Q-Ball	19.95
Sentry	29.95
Scabble	26.95
Scruples	26.95
Silent Service	25.95
Skyfox	14.95
Super Cycle	14.95
Sub Battle Simulator	25.95
Super Bike Challenge	19.95
Super Star Hockey	32.95
Spy vs Spy 3	17.95
Star Raiders	20.95
Star Fleet 1	38.95
Star Fleet II	38.95
Stray Cats	12.95
Strip Poker	25.95
ST Comes Alive	19.95
ST Karate	22.95
ST Wars	24.95
Tenth Frame	25.95
Temple of Doom	32.95
Test Drive	24.95
The Wanderer	25.95
Terrorpods	24.95
Tonic Tile	CAll
Tracker	29.95
Trailblazer	32.95
Two on Two Basketball	25.95
Uridium	25.95
Vegas Gambler	21.95
Vegas Craps	21.95
Video Vegas	24.95
Wargames Constuction Kit	22.95
Winter Games	14.95
Wiz ball	14.95
World Games	24.95
WWF Micro Wrestling	39.95
Xevious	19.95
3-D Helicopter	32.95
'86 Team K For MLBB	16.95

ST PRINT UTILITIES

Art Gallery 1 or 2	18.95
Award Maker	24.95
Certificate Maker	25.95
Fonts & Borders/P.M.	21.95
Library 1/Certificate Maker	21.95
Megafont ST	24.95
PM Interface	18.95
Print Shop	31.95
Printmaster Plus	24.95
Rubber Stamp	18.95
Typesetter Elite	31.95
220 ST	32.95

No surcharge for MasterCard

To Order Call Free
800-558-0003

P.O. BOX 17882,MILWAUKEE,WI 53217
ORDER LINES OPEN
Mon-Fri 9am-9pm CST Sat 11am-5pm

SINCE 1982
ComputAbility Consumer Electronics

Telex Number 9102406440
(ANSERBACK = COMPUT MILW UO)

No surcharge for Visa

For Technical Info, Order Inquiries, or for Wisc. Orders
414-357-8181

ORDERING INFORMATION: Please **specify system.** For fast delivery send cashier's check or money order. Personal and company checks allow 14 business days to clear. School P.O.'s welcome. **C.O.D. charges are $3.00.** In Continental USA include $3.00 for software orders 5% shipping for hardware minimum $5.00. MasterCard and Visa orders please include card #, expiration date and signature. WI residents please include 5% sales tax. HI, AK, FPO, APO, Puerto Rico and Canadian orders, please add 6% shipping **minimum $6.00.** All other **foreign orders add 15% shipping, minimum $15.00.** All order shipped outside the Continental U.S.A are shipped first class insured U.S. mail. If foreign shipping charges exceed the minimum amount, you will be charged the additional amount to get your package to you quickly and safely. All goods are new and include factory warranty. Due to our low prices all sales are final. All defective returns must have a return authorization number. Please call (414)357-8181 to obtain an RA# or your return will not be accepted Prices and availability subject to change without notice.

Antic
The ATARI Resource

Publisher
James Capparell

Editorial
Nat Friedland, Editor; Charles Jackson, Technical and Online Editor; Gregg Pearlman, Assistant Editor; Heidi Brumbaugh, Programs Editor; Carolyn Cushman, Editorial Assistant.

Contributing Writers
Charles Cherry, Jack Durre, Stephen Everman, Marian Lorenz, Bill Marquardt, Lt. Cmdr. Rich Moore, Allan Moose, Steve Panak, Jim Pierson-Perry, David Plotkin, Paul Pratt, Matthew Ratcliff, Stephen Roquemore, Jeffrey Summers MD, Rick Teverbaugh.

Art
David Hebenstreit, Director of Creative Services; Gregory Silva, Assistant Art Director; Jim Warner, Design/Production Assistant; Katherine Murphy, Ad Production Coordinator; Julianne Ososke, Collateral Printing Coordinator; Mary Rhomberg Peloquin, Contributing Artist; Terrific Graphics, Typesetting.

Circulation
Les Torok, Director; Dixie Nicholas, Subscription Coordinator; Dennis Swan, Distribution Coordinator.

Antic Publishing, Inc.
James Capparell, President and Chairman of the Board; Donald F. Richard and Richard D. Capparella, Directors; Lee Isgur, Advisor to the Board; John Cady, Controller; John Taggart, Advertising Sales; Gary Yost, Marketing; Jack Powell, Product Development; Lisa Wehrer, Catalog Sales; Tom Chandler, Ken Warner, Retail Sales; Scot Tumlin, Technical Support; Pamela Grady, Customer Service; Lorene Kaatz, Credit and Collections Manager; Evelyn Heinzman, Accounts Payable; Brenda Oliver, Accounts Receivable; Juliah Cook, Administrative Assistant.

Advertising Sales
John Taggart, Director
Karen Gordon, Advertising Sales Coordinator
(For Area Sales Representatives, see page 79.)

General Offices
(415) 957-0886
***Antic**, 544 Second Street*
San Francisco, CA 94107

Credit Card Subscriptions & Catalog Orders
(800) 234-7001
Visa or MasterCard only!

Subscription Customer Service
(614) 383-3141
***Antic**, P.O. Box 1919, Marion, OH 43306*

May, 1988, Volume 7, Number 1

Antic—The Atari Resource is published monthly by Antic Publishing. Editorial offices are located at 544 Second Street, San Francisco, CA 94107. ISSN 0745-2527. Second Class Postage paid at San Francisco, California and additional mailing offices. POSTMASTER: Send address change to **Antic**, The Atari Resource, P.O. Box 1919, Marion, OH 43306.

Subscriptions: One year (12 issues) $28. Canada and Mexico add $8, other foreign add $12. Disk Edition (12 issues with disks) $79.95, all foreign add $25. (California residents add 6½% sales tax for disk subscriptions.

Editorial submissions should include text and program listings on disk and paper. Submissions will be returned if stamped, self-addressed mailer is supplied. **Antic** assumes no responsibility for unsolicited editorial material.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher.

Antic is a registered trademark
of Antic Publishing, Inc.
An Information Technology Company

Copyright ©1988 by Antic Publishing.
All Rights Reserved. Printed in USA.

I/O Board

ICD/OSS

*As this **Antic** issue went to press, it was announced that ICD is taking over the complete OSS product line, including MAC/65, ACTION!, BASIC XE and ST Personal Pascal. For ordering and support, contact ICD/OSS at 1220 Rock Street, Rockford, IL 61101. (815) 968-2228.*

TRIVIAL PURSUIT

Is there a program for the ST that lets you create questions with multiple selection of answers and give you a score at the end of the test, along with a printout of questions and answers? Also, where can I obtain a new ST mouse?

Larry Doss
Chicago, IL

*Pursuit of the Graf STrivial (**Antic**, September 1987), written in GFA BASIC, does exactly that. If you don't have GFA or don't want to type in the listing, you can order the disk from Antic's Disk Desk.*

Also, you should be able to purchase a new mouse for your ST from Atari Corp. at 1196 Borregas Avenue, Sunnyvale, CA 94086. (408) 745-2000.—ANTIC ED

I/O OR 1/0?

I'm a retired data processing manager and I never have let my programmers use the letters I, O, S or Z as variable names. I'm sure you can see the similarities between those letters and 1, 0, 5 and 2. I even steer clear of Q, U and V—Q looks like 0, and U and V look alike.

Avoiding those variable names would make type-in listings much more likely to work the first time.

Jerome Fraenkel
Franklin Square, NY

LIGHTSPEED RELOCATES

Here's the new address for the makers of Lightspeed C (New Products, December 1987). Clearstar Softechnologies (Division of Omegasoft), P.O. Box 140, Harrells, NC 28444. (919) 532-2359.

XMM801 SOFTWARE

Regarding William Tilley's XMM801 Woes letter (February 1988), Starfleet Software has three XMM801 utility disks available for $10 each. These utilities enable the Atari XMM801 to print screen dumps in five different sizes, print near letter quality, mix NLQ text with graphics on the same page, plus much more. Starfleet is at 1037 W. Leafland Avenue, Decatur IL, 62522. (217) 423-6820.

Terry Ortman
Starfleet Software

REAL SIERPINSKI AUTHOR

The Sierpinski Curves program reprinted from Page 6 Magazine in your February 1988 issue was originally written by me for the July 1984 Creative Computing. The programs are identical, right down to the variables and line numbers. I would appreciate a note in **Antic** that I am the author.

David Ahl
Publisher,
Atari Explorer

***Antic** sincerely regrets this Transatlantic foulup. Page 6 credits for this short fractals program in their May/June 1987 issue simply stated that the "nice little demo. . .was sent in some time ago by Alan Sharpe on behalf of the Brighton Users Group."*—ANTIC ED

SCHEDULE SAVER

I work for a leading child mental health center and one of our biggest problems is room-scheduling for appointments. We decided to use an Atari 130XE to make this easier. Because the scheduling office is a high-turnover, low-computer-literacy place, one of the significant features of our system, written in Advan BASIC, is that it's user-friendly. No training time is required.

I should point out that we selected Advan BASIC because of a good review in **Antic** (June 1987). It's an excellent product, and customer support has been excellent, too.

Katherine Wilson
Brookline, MA

INDUS AID

Please tell Victor Decarlo Jr. (Indus Compatibility, February 1987) to disconnect and reconnect the I/O cables between his disk drive and computer several times to improve the contacts and make sure they're firmly in place. This often-neglected precaution fixed my own problem with Flight Simulator II on my Indus drive after a couple of infuriating months of troubleshooting.

Richard Barkley
Eugene, OR

ALL I NEED

My little Atari 800 has run a large real estate company in Daly City, California, for over two years, fulfilling all data processing needs—reports, word processing, mailing labels, etc. The original investment, excluding the printer, cost about $600. It's a sad situation for anyone to spend more than $400 (plus the printer cost) to get into computing. Atari is the one computer that more than fulfills this need.

John Mohr
Daly City, CA

CAN'T HOOK UP

Your article *Laptop-to-Atari Connection* influenced me to buy a Tandy 200 laptop to use at work. My intention was to transfer files to my Atari for storage. However, I haven't been able to get them to communicate. I've tried every combination of modems, cables, hookups and software I could think of. Can you help?

Michael Lettini
Mercer Island, WA

Go into the built-in communications program on your Tandy and make sure it's set up (parity, baud rate, stop bit, etc.) the same way as the terminal program you're using on the Atari. And make sure your Atari program can transfer ASCII files—if it can transfer only ATASCII files, you're using the wrong program.—ANTIC ED

continued on next page

THE BEST-SELLER YOU'VE BEEN ASKING FOR–

The Newsroom® is now available for your 8-bit Atari®

The Newsroom includes everything you need to create great looking newsletters: Choose from over 600 pieces of clip art • Modify clip art or create your own with powerful drawing tools • Use the built-in word processor to write in any of five fonts • Change your page easily—text automatically wraps around pictures to simplify layout and editing • Add Clip Art Collection™ Volumes for truly professional results!

Over 350,000 families, schools and businesses are using The Newsroom to tell their story. Now it's your turn.

Mix text and graphics in two-column layouts with dramatic full-width banners!

SAVE up to $70 (over 50%!) on The Newsroom and Clip Art Collection™ Volumes.

- **Clip Art Collection Volume 1:** Over 600 pieces of all occasion art.
- **Clip Art Collection Volume 2:** Over 800 pieces of business art.
- **Clip Art Collection Volume 3:** Over 600 pieces of sports and recreation art.

Product(s)	Suggested Retail	Special Offer	You Save
The Newsroom	~~$ 49.95~~	**$39.95**	$10.00
The Newsroom + any 1 Clip Art Vol.	~~79.90~~	**$49.90**	30.00
The Newsroom + any 2 Clip Art Vols.	~~109.85~~	**$59.85**	50.00
The Newsroom + all 3 Clip Art Vols.	~~139.80~~	**$69.80**	70.00

Each Clip Art Collection Volume has a suggested retail value of $29.95. The Newsroom and Clip Art Collections are available for these Atari 8-bit computers: 800XL,™ 130XE,™ 65XE.™ Atari 1050™ or compatible disk drive required.

To order by phone, call toll-free:

1-800-445-4780, ext. 3003

Phone orders accepted 24 hours (VISA/Mastercard only). Ask for "The Newsroom Atari Offer." *30-day money-back guarantee!* This is an exclusive offer directly from Springboard. This offer ends July 31, 1988.

TO ORDER BY MAIL
Complete the order form and mail it with payment to:
Springboard Software
P.O. Box 141079
Minneapolis, MN 55414-6079

FORM NO. 3003 Offer expires July 31, 1988

Name _____
Address (No P.O. Box) _____
City _____ State _____ Zip _____
Phone (_____) _____

Check the Atari 8-Bit offer you want	Check the volume(s) you want: Clip Art Vol. 1 C1011	Clip Art Vol. 2 C1012	Clip Art Vol. 3 C1013	You pay only	Write in your price
☐ The Newsroom only N1010	------	------	------	$39.95	
☐ The Newsroom + 1 Clip Art				$49.90	
☐ The Newsroom + 2 Clip Arts				$59.85	
☐ The Newsroom + 3 Clip Arts				$69.80	
				SUBTOTAL	
				MN residents add 6% sales tax	
				Shipping fee per order	$5.00
				Grand total in U.S. Dollars	

Please check one:
☐ Check/Money Order (Payable to Springboard) ☐ VISA ☐ MasterCard ☐ School P.O. Attached

Card No. _____ Exp. Date _____

Signature (required) _____

IMPORTANT INFORMATION: Springboard will accept orders by phone or mail within the U.S. and U.S. Dollars only. No cash, C.O.D. or P.O. boxes accepted. Please allow 2 to 3 weeks for delivery.
Please copy this form for additional orders.
Springboard. The Newsroom and Clip Art Collection are trademarks or registered trademarks of Springboard Software, Inc. Atari 800XL, 1050, 65XE and 130XE are trademarks or registered trademarks of Atari Corporation. The Newsroom Atari does not include The Wire Service feature.

SPRINGBOARD™

CIRCLE **023** ON READER SERVICE CARD

PRACTICAL PATCH

Bibliography Master (**Antic**, November 1987) is a terrific program—a victory over those pedantic little rules that drive most of us crazy.

However, the program prints a line space between each printed line, and that presents a problem. Most form books and pedagogues require that each entry in a bibliography be single-spaced and that a blank line be used only (if at all) to separate the individual references.

The program can be changed easily to double-space only between reference sources (which looks nice) by inserting or revising the following lines:

```
681 DBSP=F0
691 IF DBSP=F1
THEN ? #F3:LIN=LIN+F1
1040 ? #F3:LIN=LIN+F1:DBSP=F1
```

If you just want single-spaced printouts, forget about lines 681 and 691 and revise line 1040 as follows:

```
1040 ? #F3:LIN=LIN+F1
```

Now, if someone would convert *Bibliography Master* into a program to format end notes, we'd have most of the maddening technicalities of writing academic papers just about licked.

Dwight Collin
Pittsford, NY

FAMILY ANTIC

Thanks for the programs in the January 1988 issue of **Antic**. My kids enjoyed *Rassilon's Triple-Header* and have been printing *BASIC Biorhythms* charts for their schoolmates. *Mighty Mailer* and *Antic SuperCopy* are both good programs, but I'd like to send special thanks to Rich Moore for the *SSI Joystick Commander.* (You can add Kampfgruppe to the list of games the "daring method" works with.)

Robert Smith
Reedsport, OR

WANTS ISSUE #1

The only issue of **Antic** that I don't have is issue #1. How can I get a copy?

Evan Engelkes
Council Bluffs, IA

Sounds like a job for ***Antic*** *Classified Ads.*—ANTIC ED

DOUBLE DEUTSCH

My brother bought a 1040STM in Germany and was told that he couldn't read the single-sided disks from my 520ST because of the new double-sided drives. This isn't right, is it? Also, is there a program for the ST that would help me learn French?

Gerd Knaak
Spring, TX

Double-sided drives can read single- or double-sided disks. If your brother wants

ATARI

COMPUTER SOFTWARE SERVICES
P.O. BOX 17660, ROCHESTER, N.Y. 14617
PHONE (716) 467-9326

THE
$69.95 "SUPER ARCHIVER"!®
(for ATARI 1050 drives)

NOW "BEST BUY" RATED!

The new **SUPER ARCHIVER,** obsoletes **all copying devices** currently available for the **ATARI 1050!** It **eliminates** the need for Patches, **PDB files,** Computer Hardware, etc. Copies are **exact duplicates** of originals and **will run on any drive;** without exaggeration, the **SUPER ARCHIVER** is the **most powerful PROGRAMMING/COPYING** device available for the 1050! Installation consists of a plug-in chip and 6 **simple** solder connections. Softwares included. Features are:

- **TRUE DOUBLE DENSITY**
- **ULTRA-SPEED** read/write
- **FULLY AUTOMATIC COPYING**
- **SUPPORTS EXTRA MEMORY**
- **SCREEN DUMP** to printer
- **TOGGLE HEX/DEC DISPLAY**
- **SECTOR** or **TRACK TRACING**
- **AUTOMATIC DIAGNOSTICS**
- **DISPLAYS HIDDEN PROTECTION**
- **ADJUSTABLE/CUSTOM SKEWING**
- **AUTOMATIC SPEED COMPENSATION**
- **AUTOMATIC/PROGRAMMABLE PHANTOM SECTOR MAKER**
- **ARCHIVER/HAPPY ARCHIVER COMPATIBLE**
- **BUILT-IN EDITOR**-reads, writes, displays upto 35 sectors/track (short)
- **BUILT-IN CUSTOM FORMATTER** - upto 40 sectors/track
- **BUILT-IN DISASSEMBLER**
- **BUILT-IN MAPPER** - upto 42 sectors/track
- **DISPLAYS/COPIES** Double Density **HEADERS**
- **AUTOMATIC FORMAT LENGTH CORRECTION**
- **SIMPLE INSTALLATION**

The **SUPER ARCHIVER** is so **POWERFUL** that the only programs we know of that can't be copied are the newer **ELECTRONIC ARTS** and **SYNFILE/SYNCALC** (34 **FULL** sectors/track). If you want it **ALL** . . . . buy the **"BIT—WRITER"!** also. . . . then you'll **be able to copy** even these programs!

$79.95 THE SUPER ARCHIVER "BIT-WRITER"! $79.95

The Super Archiver **"BIT-WRITER"!** is capable of **duplicating even** the "uncopyable" **EA** and **SYN** series which employ 34 **FULL** sectors/track. **"BIT-WRITER"!** is capable of reproducing these and **FUTURE** protection schemes of non physically damaged disks. **PLUG-IN** circuit board and 4 **simple** solder connections. The **SUPER ARCHIVER** with **"BIT-WRITER"!** is the ultimate **PROGRAMMING/COPYING** device for Atari 1050's **EXACT DUPLICATES** of originals are made! Copies run on **ANY** drive.

CIRCLE **005** ON READER SERVICE CARD

DEALER/DISTRIBUTOR/USER GROUP Discounts available call for info.
Phone Orders - MASTER CARD, VISA
Mail - Money Orders, Check

ATARI

$69.95 "ULTRA SPEED PLUS!" $69.95

Imagine a universal XL/XE Operating System so easy to use that anyone can operate it instantly, yet so versatile and powerful that every Hacker, Programer and Ramdisk owner will wonder how they ever got along without it! Ultra Speed Plus puts unbelievable speed and convenience at your fingertips. Use **ANY DOS** to place an **ULTRA SPEED** format on your disks, boot any drive (1-9) upon power-up, format your **RAMDISK** in Double Density, activate a built-in **400/800 OS** for software compatibility, plus dozens of other features to numerous to mention! Below are just a **FEW** features you'll find in the amazing **OS:**

- **ULTRA** Speed S10 for most modified drives
- **ULTRA** Speed is toggleable
- Boot directly from **RAMDISK**
- Special timer circuits not required for 1 or 2 Meg upgrades
- Background colors adjustable
- Reverse use of **OPTION** key
- Cold-start without memory loss
- Built in floppy disk configuration editor (1-9)
- Built in **RAMDISK** configuration editor (1-9)
- **RAMDISK** exactly duplicates floppy drive so sector copying and sector editing are now possible
- Built in **MINI** Sector Copier
- Toggle **SCREEN OFF** for up to 40% increase of processing speed
- Toggle internal **BASIC**
- Rom resident disk loader program **(MACH 10** menu)
- **DOUBLE DENSITY RAMDISK** capable
- Entire **MEMORY** test that pinpoints defective **RAM** chip
- Boot any drive (1-9) upon power-up or cold-start
- Supports memory upgrades up to **TWO MEGABYTES**
- **THREE** Operating Systems in one **(XL/XE, 400/800, ULTRA SPEED PLUS)**

$29.95 RAMDISK "WRITE-PROTECTOR!" $29.95

Hackers, Programers, or BBS users. . . if you own a **RAMDISK** (memory upgrades for your XL or XE computer), think about this: Every disk drive ever manufactured has **WRITE-PROTECT** capabilities. . . except your **RAMDISK.** Without it, your valuable stored data/program lie naked, awaiting that one mistake that will wipe out hours, maybe weeks of precious programming efforts. End the fears of accidental formatting or overwriting by installing our universal **RAMDISK** "Write-Protector!" Works on all memory upgrades up to 2 megabytes. Simple installation. Only $29.95.

$29.95 "XF551 ENHANCER!" $29.95

The XF551 Atari drive is a fine product with one major flaw. . . it writes to side **TWO** of your floppy disks **BACKWARDS.** This causes read/write incompatibility problems with all other single sided drives made for Atari such as Indus, Trak, Rana, Percom, Astra, Atari 1050, Atari 810, etc. Add the **XF551 ENHANCER** to the new XF551 drive and your problems are over! This device will restore 100% compatibility between all drives while retaining all of the original design qualities of Ataris' super new drive. The **XF551 ENHANCER** is a **MUST** for all XF551 owners. Installation is simple. Only $29.95.

to send a disk to you, he should format it as single-sided.

The Linkword Languages *from Artworx Software (reviewed in* **Antic***, October 1987) include a French edition and are available for the ST.*—ANTIC ED

DESIGNER MAILER

Thanks for the fine programs in your magazine. We especially like the *Designer Label* program (**Antic**, April 1987). We're using it *without* any mailer program: we compose our list on a word processor and save it to disk. Then we RUN Designer Labels and LOAD our text file. The results are perfect. The only thing to keep in mind is to press [RETURN] after each line and another [RETURN] after each address—exactly as specified when using Mighty Mailer (**Antic**, September 1987).

Charles and
David Smith
Girard, OH

DISK DESK PRAISE

I am very pleased with the Antic Disk Desk. I called in an order late one Wednesday night and received my merchandise in Saturday's mail. I might also add that your new disk price and bonus programs have tempted me to renew my subscription, but with disks.

Gordon Toomey
Rancho Palos Verdes, CA

***Antic** welcomes your feedback, but we regret that the large volume of mail makes it impossible for the Editors to reply to everyone. Although we do respond to as much reader correspondence as time permits, our highest priority must be to publish I/O answers to questions that are meaningful to a substantial number of readers.*

Send letters to: Antic I/O Board, 544 Second Street, San Francisco, CA 94107.

ORGANIZE AND PROTECT YOUR COPIES OF ANTIC

Now there's an easy way to keep copies of your favorite magazine readily available for future reference.

Designed exclusively for Antic by Jesse Jones Industries, these custom-made titled cases and binders are sized to hold a year's issues. Reinforced board covered with durable leather-like material in maroon. Title is hot-stamped in gold. Free personalization foil included for indexing year. Cases are V-notched for easy access. Binders have special spring mechanism to hold individual rods which easily snap in.

ANTIC
Jesse Jones Industries, Dept. ATC
499 East Erie Avenue, Philadelphia, PA 19134

Please send _____ cases; _____ binders for ANTIC Magazine.

☐ Enclosed is $ _____ .

☐ Charge my: (Minimum $15)
☐ American Express ☐ Visa
☐ MasterCard ☐ Diners Club

Quantity	Cases	Binders
One	$ 7.95	$ 9.95
Three	$21.95	$27.95
Six	$39.95	$52.95

Add $1 per case/binder postage and handling. Outside USA $2.50 per case/binder. (U.S. Funds only.)

Card # _____ Exp. Date _____

Signature _____

Charge Orders: Call TOLL FREE 7 days, 24 hours #1-800-972-5858

Print Name _____

Address _____
No. P.O. Box Numbers Please

City/State/Zip _____

PA residents add 6% sales tax

SATISFACTION GUARANTEED

MOVING?

Don't Forget Us!

☐ **I am also a STart subscriber.**

New Address:
Name _____
Address _____
City _____
State _____
Zip _____

Place current address label here.

Fill in coupon and mail to:

Antic
P.O. Box 1919
Marion OH
43306

WHEN YOU'VE SOLD YOU MUST BE DOING

No Brag, Just Fact!

Over 1,800,000 programs sold to date—and each program includes:

- **Free Customer Technical Support (for all *registered* users)**
- **A Money Back Guarantee (if you can find a better program, we'll buy it for you)****
- **A very liberal Upgrade & Exchange Policy (which means you never have to worry about obsolete software)****

$69.95

PARTNER ST

Twelve instantly accessible, *memory-resident* desktop accessories.

Accessories At Your Command:

- **Instant Thesaurus:** Immediate access to over 60,000 synonyms—while you use your word processor, spreadsheet, or any other program.
- **Appointment Calendar and Datebook:** Keeps track of important dates and deadlines. View entire month on screen—marked with your messages—or produce handy calendar printouts.
- **Memo Pad and Mini-Word Processor**
- **Phone List and Auto Dialer***
- **Expense Account Manager**
- **Vital Statistics:** Instant access to statistical data such as metric equivalents, mileage between cities, toll-free numbers, and area codes.
- **Time Keeper:** Record how your time is spent for a particular day, week, month or year.
- **Full-Function and Financial Calculators**
- **Typewriter:** Use your computer like a traditional typewriter. Perfect for typing envelopes.
- **SwiftDOS:** Easy access to important DOS commands.

PARTNER ST also includes:

- **"Escape!":** A stress-relieving arcade game.
- **A Quick-Start Mini Manual:** Designed to get you up and running in *less than 40 minutes.*

WORD WRITER ST, DATA MANAGER ST AND SWIFTCALC ST INTERFACE TOGETHER FOR A COMPLETE PRODUCTIVITY SYSTEM

The Timeworks Desktop PUBLISHER

Where you once needed a typesetter, designer, and paste-up artist, you can do it all yourself with THE TIMEWORKS DESKTOP PUBLISHER. Includes everything you need to produce professional-quality printed documents on your ST computer!

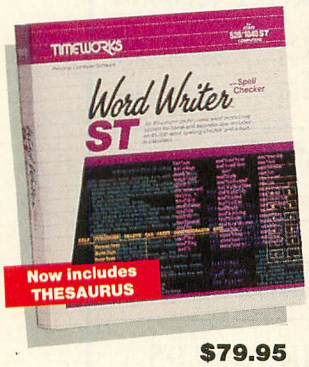
$129.95

Features:

- **Automatic Page Style Formatting:** Set up a page style only once. The computer follows it automatically, inserting rules, headers, and footers.
- **A Full-Featured Word Processor**
- **A Wide Variety of Font Styles**—in multiple sizes.
- **A Built-In Text Editor** that allows you to write headlines, taglines, and captions to fit any space.
- **High Resolution Graphics:** Imports illustrations and graphics from leading graphic programs.
- **Automatic Kerning:** Opens or tightens word and letter spacing.
- **A Wide Selection of Built-In Patterns, Textures, and Shades**
- **A Complete Set of Drawing Tools:** Draw lines, boxes, circles, and polygons automatically—or, draw free hand.
- **Use THE TIMEWORKS DESKTOP PUBLISHER to produce:** Newsletters, Brochures, Flyers, Forms, Reports, Bulletins, Menus, Certificates, Letterheads —*the possibilities are endless!*

*A phone *modem is required* for this feature.
**Details on every Timeworks package.
†Reg. Trademark of Atari Corp. © 1982 Timeworks, Inc. All Rights Reserved.

1,800,007 PROGRAMS, SOMETHING RIGHT.



$79.95

Word Writer ST

WORD WRITER ST has more features, more power, and is easier-to-use than any other ST word processor!

Features:

- **A Continuous, 90,000-Word Spell Checker** that automatically identifies misspelled words as you type your document.
- **An Integrated Thesaurus** with over 60,000 synonyms and alternatives.
- **On-Screen** Underlining, *italics* and **Boldface**, Lightface, Subscript and Superscript are displayed on your screen—as you write.
- **An Outline Processor** that quickly organizes notes, facts, and ideas in convenient outline format.
- **Form Letter Printout (Mail Merge):** Prints multiple copies of the same document while automatically inserting personalized information into the body of each document.
- **A Personal Dictionary:** Allows you to add thousands of your own words (e.g. proper names or technical terms) to WORD WRITER ST's built-in dictionary.

The Critic's Choice

"WORD WRITER ST could well become the word processor of choice among ST users…Highly recommended."
Compute

"A real breakthrough of affordable power and convenience in the ST market."
Antic

"First rate."
STart

"WORD WRITER ST is an excellent word processing program."
ST World

"If only more software publishers would meet the high standards for users' manuals set by Timeworks."
Atari Explorer

$79.95

Data Manager ST

A complete general information Storage and Retrieval System with report writing, business graphics, and label making capabilities.

Features:

- **Flexibility** that allows you to modify your data base structure by changing the size or position of fields of information—at any time.
- **A Complete Report Writer** that generates customized data reports. You specify the title, location, and sequence of each column.
- **An Extensive Business Graphics Package** with pie charts, bar charts, line plots, point plots, hi-lo-close stock price plots, and more.
- **Label Maker:** Prints your name and address file onto standard mailing labels, and transfers and prints text information onto labels and tags.

$79.95

SwiftCalc ST

A powerful, easy-to-use spreadsheet designed for home and business use.

Features:

- **Super Graphics:** Graphically displays and prints out business information using pie charts, bar charts, line plots, point plots, hi-lo-close stock price plots, and more.
- **Sideways:** Lets you print all columns on one continuous sheet…*sideways*.
- **8192 Rows and 256 Columns Provide Up To 2,097,152 Cells** (locations) in which to place information.
- **Windows:** Allow you to work on two sections of your spreadsheet simultaneously.
- **Help Screens:** Allows you to use the program—without referring to your manual.
- **Formatting:** Choice of formats—decimal (up to 15 places); graphics; exponential notation; $ sign and commas. Plus, eight user-defined formats.

These popular Atari 520/1040 ST† programs are available at your favorite dealer, or contact Timeworks today.

To Order Call: **1-312-948-9202**

For Update Information Call: **1-312-948-9206**

TIMEWORKS®

MORE POWER FOR YOUR DOLLAR

Timeworks, Inc. 444 Lake Cook Road
Deerfield, Illinois 60015 312-948-9200

CIRCLE **029** ON READER SERVICE CARD

B&C Computer Visions

3257 Kifer Road - Santa Clara, CA 95051
(408) 749-1003 Hours: TUE - FRI 10am-6pm SAT - 10am - 5pm

8-BIT INTEGRATED CIRCUITS

$3.50 EACH OR 3.00 IN QTY OF 10

ASSEN REV A	800 CPU 6502	RAM 6810	ASSEM REV B
BASIC REV A	810 ROM C	POKEY	XE GATE ARRAY
MPU 6507	800 ANTIC	PIA 6502	XL ANTIC
PIA 6532	OS ROMS (499B-599B)		VCS TIA 444
			BASIC REV C

$4.50 EACH OR 4.00 IN QTY OF 10

1771 FDC	XL CPU 14806	GTIA	850 ROM B
1050 ROM	XL/XE MMU	XL DELAY	FREDDIE
			XL/XE OS

$12.00 EACH

NEW PRINTED CIRCUIT BOARDS WITH PARTS

800 MAIN WITH CHIPS	10.00	400 MAIN	10.00
800 16K RAM	10.00	800 POWER	5.00
810 SIDE WITH D/S	15.00	CPU W/GTIA	10.00
810 ANALOG	10.00	810 POWER	15.00

JOYSTICKS

ATARI SPACE AGE	14.95	WICO 3-WAY	29.95
ATARI STANDARD (2)	12.00	WICO BAT HNDL	22.00
ATARI TRAK BALL	25.00	NUMERIC KEYPAD	19.95
PADDLE CONTROLLERS	7.50	ST MOUSE	45.00

800/810 POWER PACK	15.00	800 KEYBOARD	40.00
1027 POWER PACK	20.00	800XL KEYBOARD	25.00
1030 POWER PACK	10.00	130XE KEYBOARD	35.00
800XL/XE POWER PACK	20.00	520ST KEYBOARD	75.00
2600 POWER PACK	5.00	1040ST KEYBORD	85.00

HAPPY ENHANCEMENT VER. 7.1
810 OR 1050 - $99.95

DISK DRIVES

ATARI 810	140.00	(130.00)	ATARI XF551
ATARI 810 on Plate	100.00	(90.00)	225.00
ATARI 810 W/HAPPY	220.00	(210.00)	INDUS GT
B&C 810	140.00	(120.00)	225.00

PRICES IN BRACKETS DO NOT INCLUDE 1/0 OR POWER PACK

DE RE ATARI $10.00

FIELD SERVICE MANUALS

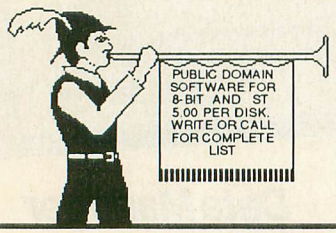
ATARI	400/800, 810	25.00 EACH
ATARI	800XL, 850, 1025, 1050	20.00 EACH
SAMS	800,800XL, 130XE,1050	19.95 EACH
SAMS	520ST	35.00

COMPUTERS & INTERFACE

ATARI 800	100.00	MPP-1150 INTERFACE	54.95
ATARI 800XL	129.95	MPP-1151 INTERFACE	74.95
ATARI 130XE	149.95	ATARI 850	125.00

DIAGNOSTICS

1050 DIAG. DISK	20.00	810/1050 DIAG. CART	25.00
SALT 800XL CART	25.00	SALT 400/800 CART	25.00
5-1/4" ALIGNMENT	40.00	3-1/2" SS ALIGNMENT	50.00



NEW !! 1050 SUPER ARCHIVER CHIP $69.95

ST INTEGRATED CIRCUITS

DISK CONTROLLER WD1772	25.00	DMA CONTROLLER	26.00
PHOTO COUPLER PC900	2.95	MMU	28.00
YAMAHA SOUND CHIP	10.00	VIDEO SHIFTER	26.00
6850 ACIA	3.95	GLUE CHIP	28.00
68000-8 CPU	27.00	68901 MPF	16.00
KEYBOARD CHIP	15.00		

MAC ROMS $39.95

TERMS Calif. Res. add 7% sales tax. No orders under $20. We ship UPS COD, Prepaid, Mastercard and Visa. Add shipping ($5.00 minimum) ALL SALES FINAL

CIRCLE **006** ON READER SERVICE CARD

MICROTYME

A DIVISION OF MICRO PERIPHERALS, INC.

P.O. BOX 369 • KETTERING, OHIO 45409

ATARI® VISA® MasterCard® ATARI®

ATARI

ST's Color or Mono	CALL
Supra 20, 30, 60 Meg	CALL
SH 204 20 Megabyte	CALL
130 XE	CALL
XF-551 Disk Drive	CALL
1020 Color Printer/Plotter	29
Power Supply 1050/551	19
Power Supply XE/XL	29
Power Supply for Indus GT	23
XEP-80 80 Column!	CALL

PRINTERS

PANASONIC:	
KX-P1080i, 120 cps	189
KX-P1091i, 160 cps	219
KX-P1092i, 240 cps	339
KX-P110 Ribbon, Blk	9
STAR:	
NX-1000	CALL
OTHERS	CALL
CITIZEN:	
MSP-10	CALL
EPSON:	
LX-86	CALL
FX-286E	CALL

MODEMS

SX-212 - 300/1200	CALL
AVATEX 1200 H.C.	114
AVATEX 2400 **NEW**	CALL
SUPRA 2400	CALL

INTERFACES

P:R: CONNECTION	69
SUPRA MICROSTUFFER (64K)	59
SUPRA/MPP 1150	CALL
XETEC Graphix AT	39
Microprint	39

MONITORS

NAP Green W/Audio	90
NAP Amber W/Audio	95
NAP Composite Color	199

ACCESSORIES

Disk File (holds 100!) 5¼	13
Power Strip, Spike & Surge	16
Epyx 500XJ Joystick	15
6' Atari Serial I/O Cable	9
U.S. DOUBLER w/DOS	49
U.S. DOUBLER no DOS	29

PRINTER SUPPLIES

MAILING LABELS, White, 500 pk.	4
PAPER, Micro Perfs 500 shts.	8

8-BIT SOFTWARE

WE CAN'T LIST 'EM ALL!

Action	46
Action Tool Kit	19
Alternate Reality	25
Atari Writer Plus	35
Atari Writer 80	36
Auto Duel	34
Award Ware	12
B-Graph	25
Basic XE	46
Basic XL	36
Basic XL Tool Kit	19
Bop 'n' Wrestle	21
Champ LodeRunner	18
Chessmaster 2000	27
F-15 Strike Eagle	21
Fight Night	20
Flight Simulator II	34
Scenery Disks	ea 15
Scenery Disk Set (#1-6)	74
Fraction Action	21
Gauntlet	23
Gemstone Warrior	12
Gettysburg	39
Gunslinger	17
Hardball	20
Hitchhiker's Guide	23
Home Accountant	27
Infiltrator	19
Karateka	18
Kickstart	7
Last V-8	7
Leader Board	11
Leather Goddesses	22
Loderunner	23
MAC/65	46
Mastertype	27
Mega Font II	16
Mercenary	20
Mercenary Data Disks	ea 12
Millionaire	21
Moon Mist	22
Movie Maker	11
M.U.L.E.	11
Music Const. Set	11
Music Studio	24
Never Ending Story	21
NINJA	7
Page Designer	20
Paper Clip w/Spell	38
Pawn	25
Phantassie I or II	25
Pinball Const. Set	11
Planetarium	23
PrintShop	28
PrintShop Companion	24
Graphics Libraries	16
PS Interface	18
R-Time-8 Cart	48
Racing Destruction	11
Rambo XL	28
Reforger 88	12
Rubber Stamp	20
Silent Service	24
Sixgun Shootout	27
Sparta DOS-X Cart	49
Speed King	7
Spy vs. Spy I & II	21
Star Fleet I	35
Star Raiders II	13
Strip Poker	19
Strip Poker Data Disks	ea 13
Super Boulderdash	11
Syn-Calc	31
Syn-File Plus	31
Timewise	3
Top Gunner	17
Touchdown Football	11
Trail Blazer	21
Triple Pack	14
Tycoon	21
Typesetter	22
Ultima III, IV	CALL
Video Poker	7
Video Vegas	21
Wargame Const. Set	19
Warship	39
Wizard's Crown	26
XLENT Word Processor	20
ZORK Trilogy	39

ST SOFTWARE

OVER 500 TITLES IN STOCK. LARGEST SELECTION IN THE COUNTRY!

HOURS: M-F 9 am-9 pm EST SAT 10 am-4 pm

TO ORDER, CALL TOLL FREE 1-800-255-5835

Ohio Residents, Order Status or Tech. Info, Call (513) 294-6236

TERMS AND CONDITIONS

• NO EXTRA CHARGES FOR CREDIT CARDS! • We do not bill until we ship • Minimum order $20 • C.O.D. - $3.00 Ship/Handl. must be prepaid • Ohio residents add 6% sales tax • Please allow 3 weeks for personal or company checks to clear • Shipping/Handling: (Call for Quote). Hardware, minimum $4; Software and most accessories, minimum $3 • Overnight shipment available at extra charge • We ship to Alaska, Hawaii, Puerto Rico (UPS Blue Label Only), APO, and FPO • Canadian orders, actual shipping plus 5%, minimum $5 • All defective products require a return authorization number to be accepted for repair or replacement • No free trials or credit • Returns subject to 15% re-stocking charge • Due to changing market conditions, call toll free for latest price and availability of product. FOR YOUR PROTECTION, WE CHECK ALL CREDIT CARD ORDERS FOR FRAUD.

CIRCLE **031** ON READER SERVICE CARD

Antic Data-X

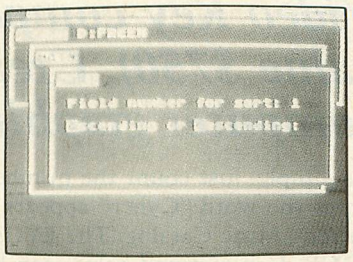
Database deluxe in Turbo BASIC

This month's Super Disk Bonus is Antic Data-X, a full-featured database program that rivals commercial software in power, versatility—and especially in ease of use. Windows automatically display all the information you'll need to operate Antic Data-X, so you don't need to learn complicated commands. The program works on Atari XL/XE computers with at least 64K memory and it also supports RAMdisks.

Antic Data-X makes it easier than ever to create, search and print out your own mailing lists, phone directories, household inventories, catalogs of your recordings, videotapes, software, magazines or books. Any kind of interactive data file will be at your command.

Antic Data-X can handle files with as many as 300 characters per field, 20 fields per record and 1,000 records per file. Besides the add, delete and update functions usually found in database software, Antic Data-X also performs additional mathematical manipulations across fields.

Antic Data-X is written in



speedy compiled Turbo BASIC, but you don't need to own that programming language in order to use this month's Super Disk Bonus. The Antic technical staff experimented with a standard Atari BASIC type-in translation of Data-X, but it did not run fast enough to provide much advantage over our *Topshelf* type-in program (January 1988). However, in the pseudo machine language of compiled Turbo BASIC, Antic Data-X performs large-scale sorts lightning-fast—especially when used with a RAMdisk.

The author of Antic Data-X is Jeffrey Summers, the Rochester, NY physician who won a November 1987 Antic Practical Applications Prize for *Your Best Route.* Antic Data-X is so fast and user-friendly that it offers clear advantages over the earlier Super Disk Bonus database which appeared in the August 1987 issue.

A complete 2,500-word manual on how to use Antic Data-X is contained on Side B of the May 1988 monthly disk. To read it or obtain a printout, select choice 5, HELP.BAS, from the Side B menu.

Your May 1988 Antic Disk—featuring Antic Data-X as well plus every type-in program from this issue—will be shipped to you within 24 hours after receiving your order. Just phone Toll-Free to the Antic Disk Desk at (800) 234-7001. The monthly disk is only $5.95 (plus $2 for shipping and handling) on your Visa or MasterCard. Or mail a $5.95 check (plus $2 shipping and handling) to Antic Disk Desk, 544 Second Street, San Francisco, CA 94107.

Programmers: Antic wants to see your most ambitious programs, even those too large or complex for printing as a type-in listing. High-quality programs in any language that has a runtime version are now eligible for consideration as a Super Disk Bonus. ■

New Super Bonus Disk

only $5.95 on the Antic Monthly Disk!

CONTEST!

COUNT THE & WIN

Win this SONY 8mm VCR and a Video Key composite converter (total value $750). Create your own computer graphics videos!

It's simple: just count the number of times the word "Cyber" appears in the current Antic Catalog. The EVC8U SONY deck pictured below can be yours. Controlled by Tom Hudson's new CYBER VCR program, it will automatically assemble, on tape, your best Cyber animations (created with the Cyber products displayed on the next page). Watch our next Catalog for details on CYBER VCR and other new Cyber products.

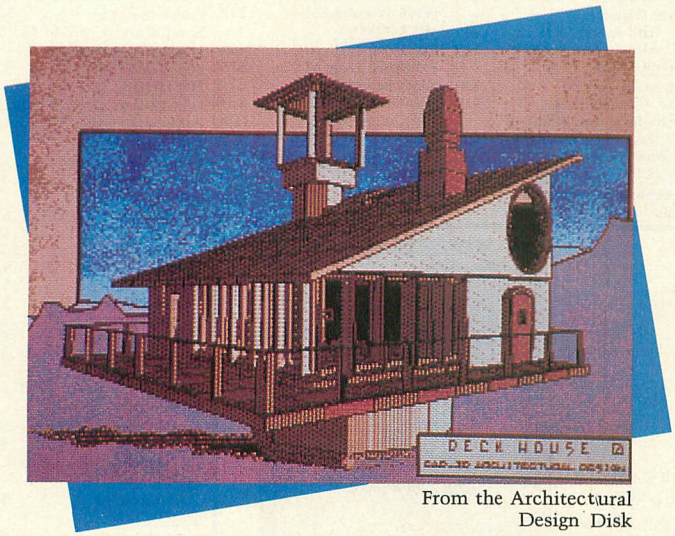
Contest Rules

Count the total number of times the word "cyber" appears from cover to cover in the Antic Catalog (issue pictured on this page). Uppercase or lowercase, as part of another word, or separate, whenever the letters c-y-b-e-r appear in sequence, they count as one "cyber." Send your total count, along with your name, address, and phone number to: CYBER COUNT, Antic Software, 544 Second Street, San Francisco, CA 94107. DEADLINE: April 30, 1988. ENTRY LIMITED TO ONE PER CUSTOMER. In case of ties, a drawing will be held to determine the winner. Contest void where prohibited.

Don't have our last Catalog? Need more info? Call our toll-free 800 line for assistance. Mention the "CYBER COUNT CONTEST."

CYBERS A VCR!

"Antic's Cyber family . . . turns the Mega ST into a desktop video animation workstation . . . little short of amazing."
— Jerry Pournelle **Byte Magazine**



From the Architectural Design Disk

CYBER STUDIO™

Featuring CAD-3D 2.0, the foundation of the Cyber system — create 3D solid models then animate them!

REQUIRES: one-megabyte RAM

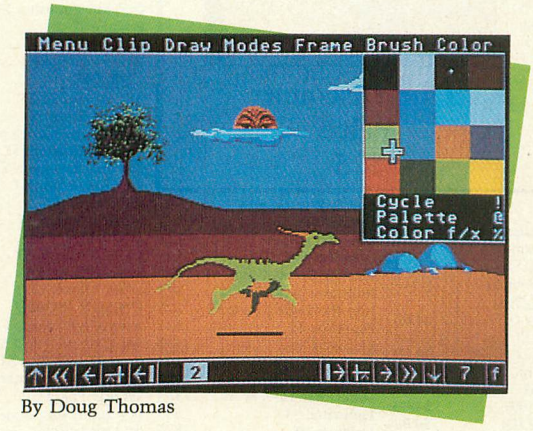
ST0236 $89.95

CYBER CONTROL™

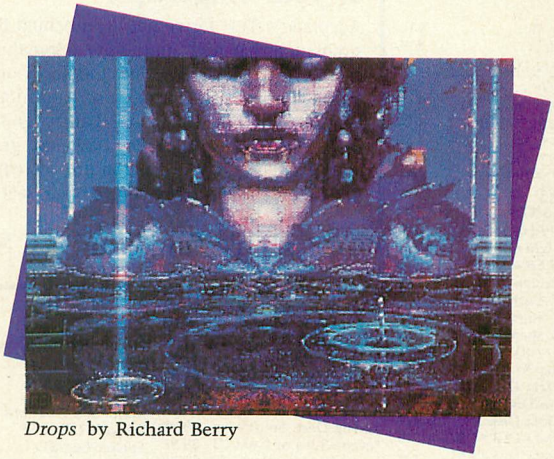
Powerful, BASIC-like language controls CAD-3D 2.0 to create fantastic 3D animations!

REQUIRES: CYBER STUDIO

ST0250 $59.95



By Doug Thomas



Drops by Richard Berry

". . . a masterpiece of technical engineering."
— Steve Marshall **N.W.P.A.C.**

CYBER PAINT™

The most powerful animation system on the ST: cellular, dimensional, ADO, compositing — it's all here!

REQUIRES: Color system, one-megabyte RAM

ST0251 $69.95

SPECTRUM 512™

The most advance paint program available. An amazing 512 colors anywhere on screen at once!

REQUIRES: Color system

ST0249 $69.95

SATISFACTION GUARANTEED OR YOUR MONEY BACK. ORDER TOLL FREE.

(800) 234-7001

SOFTWARE DISCOUNTERS OF AMERICA

S.D. of A.

For Orders Only — 1-800-225-7638
PA Orders — 1-800-223-7784
Customer Service 412-361-5291

- Free shipping on orders over $100 in continental USA
- No Surcharge for VISA/MasterCard
- Your card is not charged until we ship

ABACUS BOOKS
ST Disk Drives.....$19
ST Gem Prog. Ref.....$15
ST Graphics & Sound....$15
ST Internals.....$15
ST Midi Programming....$15
ST Peeks & Pokes.....$13
ST 3-D Graphics.....$19
ST Tricks & Tips.....$15

ACADEMY
Typing Tutor ST.....$23

ACCESS
Leader Board Golf ST....$25
L.B. Tourn. Disk #1 ST...$14
Leader Board Golf & Tourn. Disk(D).....$9.88
Tenth Frame ST.....$25
Triple Pack: BH1, BH2, Raid Over Moscow (D).....$14

ACCOLADE
Ace of Aces (D).....$19
Bubble Ghost ST.....$23
Fight Night (D).....$9.88
Hardball (D).....$19
Hardball ST (D).....$25
Mean 18 Golf ST (D)....$25
Mean 18 Famous Course Disk #2 ST.....$14
Pinball Wizard ST.....$23
Test Drive ST.....$25

ACTIVISION
Cross Country Road Race (D).....$9.88
Ghostbusters (D).....$9.88
Music Studio ST.....$33
Music Studio (D).....$23
Pitfall/Demon Attack (D) $9.88

AEGIS
Animator ST.....$44
Art Pak#1 ST.....$19

AMERICAN EDUCATION
Biology (D).....$12
Grammar (D).....$12
U.S. Geography (D).....$12
U.S. History (D).....$12
Vocabulary (D).....$12
World History (D).....$12

ARTWORX
Bridge 5.0 ST.....$23
Centerfold Squares ST...Call
Cycle Knight (D).....$14
Linkword French (D).....$16
Linkword French ST.....$19
Linkword German (D)....$16
Linkword Spanish (D)....$16
Linkword Spanish ST.....$19
Strip Poker (D).....$21
Strip Poker ST.....$25
Female Data Disk 1(D)...$14
Male Data Disk 2(D).....$14
Female Data Disk 3(D)...$14
Female Data Disk#4 ST...$14
Female Data Disk#5 ST...$14

AVALON HILL
Gulf Strike (D).....$19
Spitfire '40 (D).....$23
Spitfire '40 ST.....Call

AVANTAGE
Spy vs. Spy 1 & 2 (D)...$9.88

AVANTE GARDE
PC Ditto ST.....Call

BATTERIES INCLUDED
Degas Elite ST.....$39

BAUDVILLE
Blazing Paddles (D).....$23
Rainy Day Games (D)....$19
Video Vegas ST.....$23
Video Vegas (D).....$19

BRODERBUND
Karateka (D).....$9.88
Loderunner (D).....$9.88
Print Shop (D).....$26
Print Shop Graphics Library#1, #2, #3 (D) $16. Ea.
P.S. Companion 64K (D)..$23
Super Bike Challenge ST..$14

CENTRAL POINT
Copy 2 ST.....$23

DATASOFT
Alternate Reality: City ST .$26
Alternate Reality: Dungeon (D).....$26
Tomahawk (D).....$21

DAVIDSON
Math Blaster (D).....$32
Spell It (D).....$32
Word Attack (D).....$32

ELECTRONIC ARTS
Software Classic Series:
Age of Adventure (D)...$9.88
Archon 1 or 2 (D)..$9.88 Ea.
Financial Cookbook (D) .$9.88
Lords of Conquest (D)..$9.88
Mail Order Monsters (D) $9.88
Movie Maker (D).....$9.88
M.U.L.E. (D).....$9.88
Music Const. Set (D)...$9.88
One-on-One (D).....$9.88
Pinball Const. Set (D)..$9.88
Racing Dest. Set (D)....$9.88
Seven Cities of Gold (D) $9.88
Super Boulder Dash (D) .$9.88
Touchdown Football (D) .$9.88

ELECTRONIC ARTS
Arcticfox ST.....$29
Bard's Tale ST.....$32
Chessmaster 2000(D)....$26
Chessmaster 2000 ST....$29
Deluxe Print 2 ST.....Call
Empire ST.....$32
Financial Cookbook ST...$14
Gone Fishin' ST.....$26
Gridiron ST.....$32
Hunt for Red October ST .$32
Marble Madness ST.....$26
Musical Const. Set ST....$32
Quizam! ST.....$23
Scrabble ST.....Call
Scruples ST.....$26
Star Fleet 1 ST.....$35

EPYX
Boulder Dash Const. Kit (D) or ST.....$16
Champ. Wrestling ST.....$14
Dragonriders Pern (D)..$6.88
Gateway to Apshai (D)..$6.88
Pitstop 1 or 2(D)...$6.88 Ea.
Rogue ST.....$23
Sub Battle Simulator ST..$23
Summer Games (D).....$14
Super Cycle ST.....$14
Temple of Apshai (D)...$6.88
Temple Apshai Trilogy (D) .$14
Temple Apshai Trilogy ST .$14
Winter Games ST.....$14
World Games ST.....$23

FIREBIRD
Golden Path ST.....$29
Guild of Thieves ST.....$29
Guild of Thieves 64K (D) .$25
Knight Orc ST.....$29
The Pawn 64K(D).....$25
The Pawn ST.....$29
Big Bird's Spc. Delivery (D)$6.88
Ernie's Magic Shapes (D)..$6.88
Print Power (D).....$9.88
Sesame St. Print Kit (D) .$9.88
The Computer Club (D) .$9.88
*All Hi-Tech req. 64K!

ICD
BBS Express ST.....$57
MIO (256K).....$179
MIO (1 meg).....$299
XE Adapter for MIO.....$19
PR Connection.....$59
Rambo XL.....$29
US Doubler: with Sparta DOS.....$49 without Sparta DOS...$29

INFOCOM
Beyond Zork ST.....$33
Leather Goddesses ST...$25
Sherlock: The Riddle of the Crown Jewels ST...$25
Zork Trilogy ST.....$33

INTRACORP
Bumper Sticker Maker ST .$39
Business Card Maker ST..$39
Goldrunner ST.....$25
International Soccer ST..$25
Karate Kid 2 ST.....$25
Slaygon ST.....$25
Space Shuttle 2 ST.....$25
Tanglewood ST.....$25
Time Bandit ST.....$25

MICROLEAGUE
Baseball (D).....$26
Baseball 2 ST.....$39
Box Score Stats (D).....$16
General Manager (D) or ST .$19
1987 Team Data (D) or ST $14
WWF Wrestling ST.....$33

MICROPROSE
F15 Strike Eagle (D).....$23
F15 Strike Eagle ST.....$25
Silent Service (D).....$23
Silent Service ST.....$25
Top Gunner (D).....$16

MILES COMPUTING
Harrier Strike Mission ST .$25
ST Wars.....$25

MINDSCAPE
Balance of Power ST.....$33
Bop & Wrestle 64K.....$19
DeJaVu ST.....$33
Gauntlet ST.....$33
Gauntlet 64K (D).....$23
Harrier Combat Sim. ST..$33
Infiltrator 64K (D).....$23
Into the Eagle's Nest ST..$25
Paperboy ST.....$33
Plutos ST.....$19
Q-Ball ST.....$19
Shadowgate ST.....$33
Super Star Hockey ST....$33
Uninvited ST.....$33
Uridium ST.....$25
Xevious ST.....$19

MINDSCAPE CINEMAWARE
Defender of Crown ST...$33
S.D.I. ST.....$33
Sinbad ST.....Call

OMNITREND
Breach ST.....$25
Universe (D).....$33
Universe 2 ST.....$33

ORIGIN
Autoduel (D) or ST.....$33
Moebius ST.....$39
Ultima 3 (D) or ST.....$25
Ultima 4 (D) or ST.....$39

PSYGNOSIS
Barbarian ST.....$25
Terrorpods ST.....$25

QMI
Desk Cart ST.....$69

SIERRA
Black Cauldron ST.....$25
King's Quest 1, 2, or 3 ST.....$33 Ea.
Leisure Suit Larry ST.....$25
Mixed-Up Mother Goose ST$19
Police Quest ST.....$33
Space Quest 1 or 2 ST $33 Ea.

SIMON & SCHUSTER
Star Trek ST.....$25

SOFTLOGIC
Font Disk #1 or #2 ST..$19 Ea.
Publishing Partner ST....$59

SPRINGBOARD
Certificate Maker ST.....$25
C.M. Library#1 ST.....$19

SSI
Colonial Conquest ST....$25
Gettysburg (D).....$37
Phantasie 1 or 2 (D)..$25 Ea.
Phantasie 1, 2 or 3 ST...$25
Rings of Zilfin ST.....$25
Roadwar Europa ST.....$29
Roadwar 2000 ST.....$25
Shiloh: Grant's Trial (D)..$25
War Game Const. Set (D) .$19
War Game Const. Set ST .$23
Wizard's Crown (D) or ST $25

SUBLOGIC
Flight Simulator 2 (D)....$32
Flight Simulator 2 ST....$33
F.S. Scenery Disks.....Call

THREE SIXTY
Dark Castle ST.....$25

TIMEWORKS
Data Manager ST.....$49
Desktop Publisher ST....$87
Partner ST.....$33
Swiftcalc ST.....$49
Word Writer ST.....$49

UNICORN
Adv. of Sinbad ST.....$29
Aesop's Fables ST.....$29
All About America ST....$39
Animal Kingdom ST.....$23
Decimal Dungeon ST....$23
Fraction Action ST.....$23
Kinderama ST.....$23
Magical Myths ST.....$29
Math Wizard ST.....$23
Read & Rhyme ST.....$23
Read-A-Rama ST.....$29
Word Master ST.....$29

UNISON WORLD
Art Gallery: Fantasy ST...$19
Art Gallery 1 or 2 ST .$19 Ea.
Print Master Plus ST.....$25
P.M. Fonts & Borders ST..$23

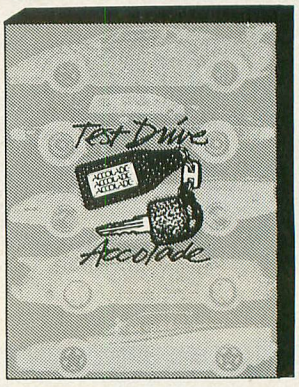
WORD PERFECT
WP Word Processor.....Call

ACCESSORIES
Bonus 5¼ SS, DD ..$4.99 BX
Bonus 5¼ DS, DD ..$5.99 BX
Compuserve Starter Kit...$19
Disk Case (40-3½).....$6.99
Disk Case (75-5¼).....$6.88
Disk Drive Cleaner-3½ .$6.88
Disk Drive Cleaner-5¼ .$6.88
Epyx 500XJ Joystick.....$14
Supra 20 Meg Drive ST..Call
Wico Bat Handle.....$17
Wico Ergostick J.S.....$19
Xetec Printer Int.....$39

ACCOLADE

Test Drive™ by Accolade™
The world's most exotic cars at your fingertips.

Accolade's Test Drive puts you behind the wheel in a driving simulation that will ignite your adrenaline. Hit warp speed in a Ferrari Testarosa, blow the doors off with a Lotus Turbo Esprit, corner until the tires scream in a Porsche 911 Turbo, bring your oil to a boil in a Lamborghini Countach and dust the fuzz in a Corvette. The authentic graphics, sterling sound and life-like animation are so realistic, you'll swear the G-force has pinned you to your seat!



Test Drive for Atari ST Series Only!

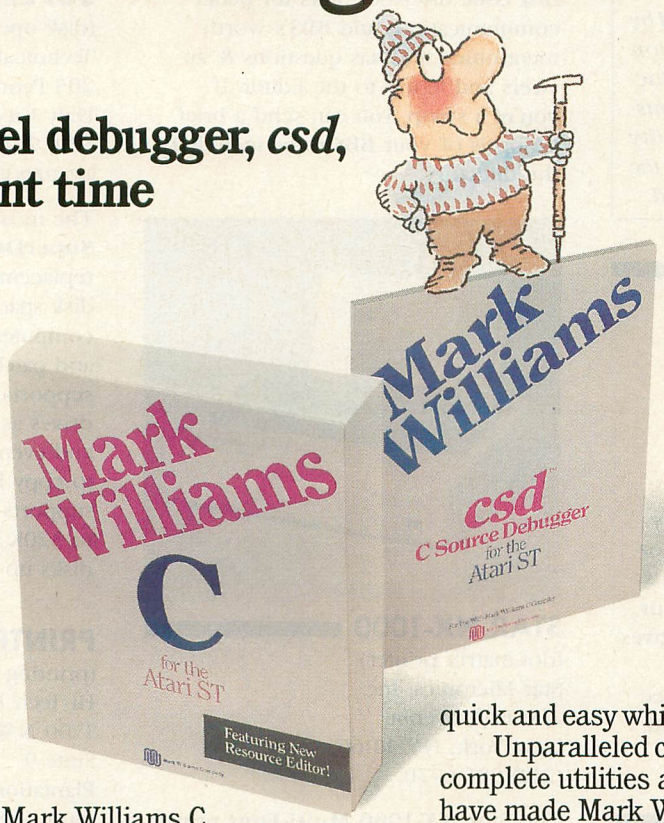
Our Discount Price $25

P.O. BOX 111327 — DEPT. AT — BLAWNOX, PA 15238

*Please Read The Following Ordering Terms & Conditions Carefully Before Placing Your Order: Orders with cashiers check or money order shipped immediately on in stock items! Personal & Company checks, allow 3 weeks clearance. No C.O.D.'s! Shipping: Continental U.S.A.-Orders under $100 add $3; free shipping on orders over $100. AK, HI, FPO, APO-add $5 on all orders. Canada & Puerto Rico-add $10 on all orders. Sorry, no other International orders accepted! PA residents add 6% sales tax on the total amount of order including shipping charges. CUSTOMER SERVICE HOURS: Mon.-Fri. 9 AM-5:30 PM Eastern Time. REASONS FOR CALLING CUSTOMER SERVICE—412-361-5291 (1)Status of order or back order (2)if any merchandise purchased within 60 days from S.D.of A. is defective, please call for a return authorization number. We will not process a return without a return auth. #! Defective merchandise will be replaced with the same merchandise only. Other returns subject to a 15% restocking charge! After 60 days from your purchase date, please refer to the warranty included with the product purchased & return directly to the manufacturer. Customer service will not accept collect calls or calls on S.D.of A.'s 800# order lines! ORDER LINE HOURS: Mon.-Fri. 9 AM-5:30 PM, SAT 10 AM-4 PM EASTERN TIME. Because this ad had to be written 2-3 mos. before it was published, prices & availability are subject to change! New titles are arriving daily! Please call for more information.

Mark Williams Raises C Programming To A New Level.

New source level debugger, *csd*, cuts development time in half!



Now, on top of the world's best C compiler, Mark Williams brings you *csd*, the world's only source level debugger for the Atari ST!

With *csd*, you actually debug in C. Forget about trying to find bugs in clunky assembler and struggling with long dumps. *csd* gives you the interactive advantages of an interpreter plus the speed of a compiler. An indispensable companion for Mark Williams C.

Reviewers have been raving about the IBM version of *csd* for years:

"csd *is close to the ideal debugging environment... a definite aid to learning C and an indispensable tool for program development.*"

–William G. Wong, *BYTE*

"This is a powerful and sophisticated debugger built on a well-designed, 'serious' compiler."

–Jonathan Sachs, *Micro/Systems Journal*

FEATURES

NEW VERSION 3.0!

Mark Williams C For the Atari ST

- ★ New! Resource Editor includes compiler/decompiler for direct access to resource text
- ★ New! Peephole optimization–faster compile times and faster code
- Full access to AES/VDI libraries with complete documentation and examples
- Source and object code for RAM disk cuts compile time in half
- Integrated edit/compile cycle: editor automatically points to errors.
- MicroEMACS full-screen editor with commented source code
- Full K & R plus ANSI extensions
- Microshell Command Processor, a powerful UNIX style shell
- Complete symbolic debugger and assembler
- Powerful utilities: make, linker, archiver, egrep, sort, diff and more
- Over 600 pages of documentation with more than 100 sample programs

New! *csd* C SOURCE DEBUGGER:

- Cuts development time in half!
- Debug in C source code not assembler
- Provides separate source, evaluation, program and history windows
- Ability to set trace points and monitor variables
- Can interactively evaluate any C expression
- Can execute any C function in your program
- Trace back function
- On-line help screens

MARK WILLIAMS C FOR THE ATARI ST: $179.95
csd* C SOURCE DEBUGGER: $69.95
60 DAY MONEY BACK GUARANTEE

*Introductory price–good through May 31, 1988

WE'VE UPPED COMPILER PERFORMANCE, TOO!

Our new **Resource Editor** makes creating window driven interfaces with icons, alerts, pull down menus and dialogue boxes a snap. And its exclusive compiler/decompiler lets you directly access resources, making changes quick and easy while simplifying project management.

Unparalleled compiler speed, fast, compact code, complete utilities and outstanding documentation have made Mark Williams C the preferred compiler for the Atari ST. Reviewers enthusiastically agree:

"Mark Williams C may be the best implementation of C on the Atari ST to date... not only for the experienced, professional developer, but also for the weekend programmer."
–George Miller, *COMPUTE!'S Atari ST Disk and Magazine*

"... the all-around best choice for serious software development on the ST."

–Douglas Weir, *Analog Computing*

COUNT ON AN UPSTANDING REPUTATION.

Mark Williams has been producing and improving quality programming tools since 1976. A good reason why the Mark Williams C compiler is the one chosen by Atari. And just one more reason you should choose Mark Williams, too.

SPECIAL UPDATE OFFER AVAILABLE NOW!

If you already own Mark Williams C, a special update offer is available for version 3.0 and *csd* by calling Mark Williams. If not, there's never been a better time to ask your Atari dealer about Mark Williams C and *csd*. Or you can order by calling **1-800-MWC-1700.**

(In Illinois, 1-312-472-6659)

Mark Williams Company

1430 W. Wrightwood, Chicago, IL 60614

© 1988 Mark Williams Company

New Products notices are compiled by the ***Antic*** *staff from information provided by the products' manufacturers. Antic welcomes such submissions, but assumes no responsibility for the accuracy of these notices or the performance of the products listed.*

MAPPER, QUIK-PICS

(utility program)
Michael Holloway
3308 Rucker Avenue
Paducah, KY 42001
(502) 442-2121
48K disk
CIRCLE **168** ON READER SERVICE CARD

Mapper ($14.95) lets you display and print more than 20 predrawn orthographic or cylindrical projections on Epson-compatible printers in four sizes and inverse. A reference file gives pertinent data for all parts of the world. **Quik-Pics** ($9.95) is a collection of Graphics 9 pictures digitized with Computereyes.

QUICKCODE

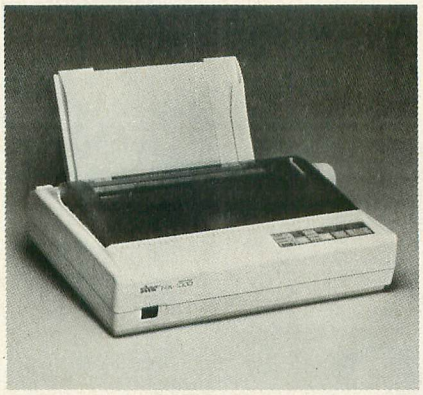
(programming utilities)
Stardust Software
P.O. Box 33192
Indianapolis, IN 46203
(317) 788-7403
$34.99
CIRCLE **182** ON READER SERVICE CARD

QuickCode, the Programmer's Library is a collection of macros for the MAC/65 assembly language cartridge from Optimized Systems Software. These powerful routines should make your programming a lot easier and more effective.

BBS NEWSLETTER

(publication)
National Bulletin Board Newsletter
P.O. Box 1831
Boerne, TX 78006
(512) 537-4663
$24 yearly
CIRCLE **181** ON READER SERVICE CARD

The **National Bulletin Board Newsletter** is a listing of all known BBS's in the United States. Currently bimonthly, it soon is planned to go monthly. The first issue discusses hints for better communications and BBS's worth mentioning and has questions & answers and letters to the Editor. If you're a sysop, you can send a brief synopsis of your BBS to be included in the directory.



STAR NX-1000

(dot-matrix printer)
Star Micronics, Inc.
200 Park Avenue
New York, NY 10166
(212) 986-6770

The **Star NX-1000 Multi-Font** printer ($289) has 12-characters-per-inch print speeds of 144 characters per second (cps) in draft and 36 cps in Near Letter Quality (NLQ). It has a parallel interface, four internal fonts, a 4K buffer and a paper-parking feature that lets you use single-sheet paper without removing tractor-feed paper.

DAISY-DOT II

(printing software)
Roy Goldman
2440 S. Jasmine
Denver, CO 80222
$10, 48K disk
CIRCLE **179** ON READER SERVICE CARD

If your 8-bit system includes an printer that's compatible with Epson or Gemini, **Daisy-Dot II** greatly improves its printing capability with a simulated Near Letter Quality printing system. The $10 price includes a Daisy-Dot-compatible version of Billboard (reviewed in **Antic**, February 1988). However, the Daisy Dot II program and documentation are in the public domain and are available online.

SUPERDOS

(disk operating system)
Technical Support
205 Peoria Street
Daly City, CA 94014
$20, 24K disk
CIRCLE **177** ON READER SERVICE CARD

The most popular DOS in Australia, **SuperDOS** is an easy-to-use, powerful replacement for DOS 2.5 and uses less disk space. It works with all Atari 8-bit computers and can store deleted files and patch damaged ones. SuperDOS supports Atari 1050 and 810 disk drives as well as double-density drives, and even with only one drive it's easy to copy between densities. SuperDOS supports XE-compatible RAMdisks up to 320K and Axlon-compatible RAMdisks up to 288K.

PRINTPOWER

(printing software)
Hi Tech Expressions
1700 N.W. 65th Avenue
Suite 9
Plantation, FL 33313
(800) 848-9273—National
(305) 584-6386—Florida
$14.95, 64K disk
CIRCLE **178** ON READER SERVICE CARD

PrintPower creates personalized greeting cards, invitations, banners, signs, posters, stationery, letterhead and more. An onscreen template lets you visualize the work as you create it. Other features include a line-by-line text editor, seven variations of six fonts, horizontal and vertical formats, 40 border designs, 60 graphic designs with free-form positioning, and full compatibility with Hi Tech's AwardWare (reviewed in **Antic**, December 1987).

Return the favor. When you call a manufacturer or supplier about a product you've seen advertised or otherwise mentioned in ANTIC, please tell them so. This will help us to continue to bring you the latest information about products that will make your Atari computer an even more valuable investment in the future.
—ANTIC ED

The West Coast Computer Faire announces the first Computer Matchmaking Service.

You won't have to depend on fate at the 13th West Coast Computer Faire to find the products and services that are the perfect match for your needs.

We start you out on your path to high-tech bliss with Vertical Market Matching. We bring in the companies selling quality computers, software, peripherals, and add-ons—companies that meet the needs of people involved in specific business segments such as finance, medicine, manufacturing, law, education, engineering, and construction.

And our Product Matching makes it easy for you to find the software, add-ons and upgrades for the Commodore Amiga, Apple II or Macintosh, IBM PC/MS-DOS, IBM PS/2, Atari, Lotus and more, that will keep you happily gazing into your current system's eyes. Plus, we counsel you on the latest techniques and insights in our outstanding Conference sessions.

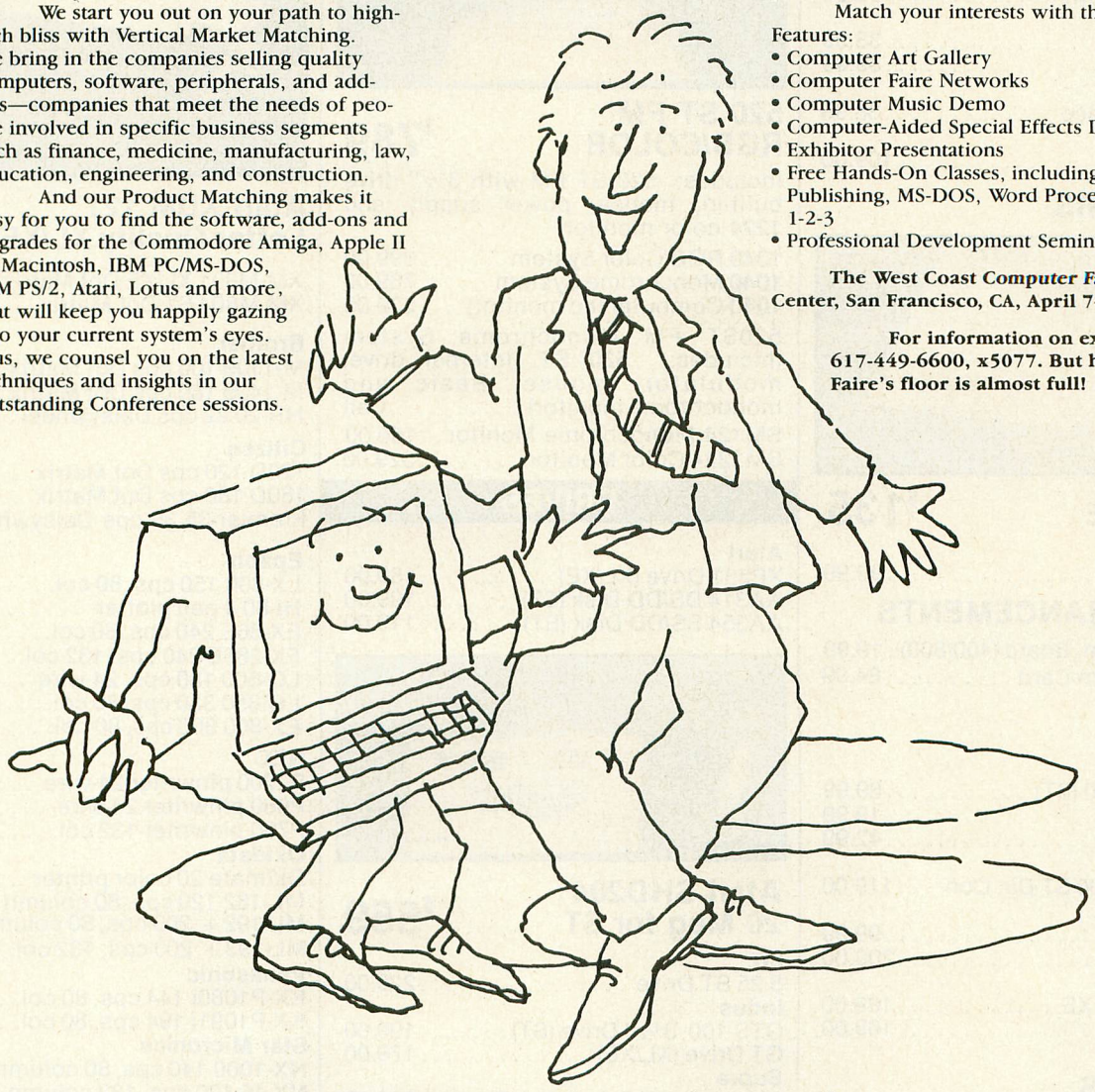
The West Coast Computer Faire has made and will make more matches than any another computer show. It's time we made the perfect match for you.

Match your interests with these Faire Features:

- Computer Art Gallery
- Computer Faire Networks
- Computer Music Demo
- Computer-Aided Special Effects Demo
- Exhibitor Presentations
- Free Hands-On Classes, including Desktop Publishing, MS-DOS, Word Processing, Lotus 1-2-3
- Professional Development Seminars

The West Coast Computer Faire, Moscone Center, San Francisco, CA, April 7-10, 1988

For information on exhibiting, call 617-449-6600, x5077. But hurry — the Faire's floor is almost full!



Register early and save $5!

Fill out this coupon and mail with your check(s), for $15.00 for each registrant, postmarked by March 17th, 1988. Include the names and addresses of registrants for whom you are enclosing a check. (Photocopy coupon for additional registrants.)

Name _____ Title _____

Company _____

Address _____

City _____ State _____ Zip _____

Phone (_____)_____

Four day conference and exhibits $15.00 in advance. $20.00 at the door. Make check payable to "The West Coast Computer Faire." Mail to: Attendee Registration Department, The West Coast Computer Faire, 300 First Avenue, Needham, MA 02194. Advanced registrations accepted only with full payment and each registrant's name and address. Tickets will be mailed to each individual registrant separately.

THE 13TH WEST COAST COMPUTER FAIRE

April 7–10, 1988, Moscone Center, San Francisco, CA

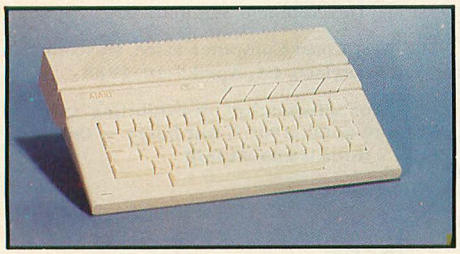
When you want to talk Atari

XL/XE HARDWARE

INTERFACES

ICD
P:R Connection 58.99
Printer Connection 39.99
Supra
1150 . . . . . 38.99
1151 (1200 XL) 39.99
Xetec
Graphix Interface 38.99
Atari
850 Interface 109.00

COMPUTERS



Atari 130XE $135

Atari
65 XE 99.99

XL/XE ENHANCEMENTS

Axion 32K Mem. Board (400/800) . 19.99
Atari 80 Column Card 84.99

MODEMS

Atari
SX212 300/1200 (ST) 89.99
835 . . . . . 19.99
XMM301 . . . . . 42.99
Anchor
VM520 300/1200 ST Dir. Con . . . 119.00
Avatex
1200 HC 99.99
2400 . . . . . 209.00
Supra
2400 Baud XL, XE 169.00
2400 Baud ST 169.00

MONITORS

Magnavox
CM8502 13" Comp. & Cables . . . 169.00

ST HARDWARE

520 ST FM RGB/COLOR $789

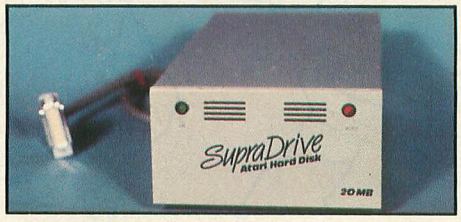
Includes: 520 ST FM with 3½" drive built-in, mouse, power supply and 1224 color monitor.

1040 RGB/Color System 899.00
1040 Monchrome System 769.00
1040 Computer (no monitor) . . . 639.00

520ST FM Monochrome System (Includes: 520 ST, internal drive, modulator, mouse, Basic and monochrome monitor) . . . . . Call
SM124 Monochrome Monitor . . 159.00
SM1224 Color Monitor 329.00

DRIVES

Atari
XF551 Drive (XL/XE) 189.00
AA314 DS/DD Disk (ST) 199.00
AA354 SS/DD Disk (ST) 119.00

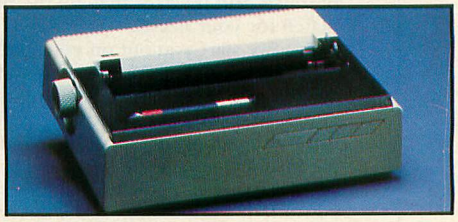


Atari SHD204 20 Meg for ST $559

I.B.
5.25 ST Drive 229.00
Indus
GTS 100 3½" Drive (ST) 199.00
GT Drive (XL/XE) 179.00
Supra
20 Meg Hard Drive (XL/XE) 639.00
20 Meg Hard Drive (ST) 539.00
30 Meg Hard Drive (ST) 689.00

PRINTERS

Atari
1020 XL/XE Plotter 31.99



Atari XDM 121 Letter Quality XL/XE $149

XM-M801 XL/XE Dot Matrix 189.00
XM-M804 ST Dot Matrix 179.00

Brother
M-1109 100 cps Dot Matrix 199.00
M-1409 180 cps Dot Matrix 309.00
HR-20 22 cps Daisywheel 339.00

Citizen
120D 120 cps Dot Matrix 149.00
180D 180 cps Dot Matrix 169.00
Premier-35 35 cps Daisywheel . 479.00

Epson
LX-800 150 cps, 80 col. 179.00
Hi-80 4 pen plotter 249.00
FX-86E 240 cps, 80 col. . . . . Call
FX-286E 240 cps, 132 col. . . . . Call
LQ-500 180 cps, 24-wire . . . . . Call
LQ-850 330 cps, 80 col. . . . . Call
EX-800 300 cps, 80 col. . . . . Call

NEC
P2200 pinwriter 24-wire 379.00
P660 pinwriter 24-wire 459.00
P760 pinwriter 132 col. 669.00

Okidata
Okimate 20 color printer 129.00
ML-182 120 cps, 80 column 229.00
ML-192 + 200 cps, 80 column . . 359.00
ML-193 + 200 cps, 132 col. 469.00

Panasonic
KX-P1080i 144 cps, 80 col. 189.00
KX-P1091i 194 cps, 80 col. 199.00

Star Micronics
NX-1000 140 cps, 80 column . . . 169.00
NX-15 120 cps, 132 column 319.00

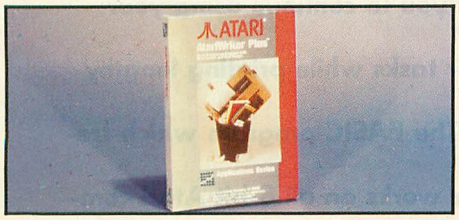
Toshiba
P321-SL 216 cps, 24-wire 539.00

COMPUTER MAIL ORDER

.....you want to talk to us.

XL/XE SOFTWARE

Access
Leaderboard Golf .....(pk.) 15.99
Tournament Disk 13.99
Accolade
Hardball 19.99
Atari
Filemanager 11.99
Music Painter 11.99



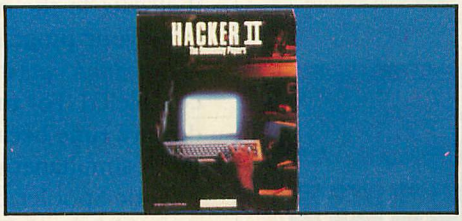
Atariwriter Plus $35.99

Atari Program Exchange
Misc. Programs (cassettes) ....at 1.99
Batteries Included
Home Pack 18.99
Broderbund
Printshop 25.99
Karateka 12.99
Cygnus
Starfleet I 32.99
Datasoft
221 Baker St. 21.99
Electronic Arts
Touchdown Football 11.99
Pinball Construction 9.99
Microprose
Top Gunner 15.99
F-15 Eagle Strike 21.99
Silent Service 21.99
Origin Systems
Ultima 4 .....36.99
Roklyn SPECIAL
Gorf/Wizard of Wor/AT Deluxe/
Anti-Sub/Journey to Planet ..(ea.) 3.99
Strategic Simulations
Gemstone Warrior 11.99
Sublogic
Flight Simulator II 31.99
Scenery FL, NC, SC 14.99
X-Lent
Typesetter 22.99
Printshop Interface 21.99

ACCESSORIES

Maxell
MD1-M SS/DD 5¼" 7.99
MD2-DM DS/DD 5¼" 8.99
MF-1DDM SS/DD 3½" 12.49
MF2-DDM DS/DD 3½" 18.49
Sony
MD1D SS/DD 5¼" 7.99
MD2D DS/DD 5¼" 9.49
MFD-1DD SS/DD 3½" 12.49
MFD-2DD DS/DD 3½" 19.49
Allsop Disk Holders
Disk File 60-5¼" 9.99
Disk File 30-3½" 9.99
Curtis
Emerald 39.99
Safe Strip 19.99
Universal Printer Stand 14.99
Tool Kit 22.99
ICD (XL/XE)
Sparta DOS Construction Set ...28.99
US Doubler/Sparta DOS 47.99
Real Time Clock 48.99
Rambo XL 28.00
Multi I/O Board 256K 169.00
Multi I/O Board 1 Meg 299.00

ST SOFTWARE



Activision
Hacker II Doomsday $29.99

Access
Leaderboard Golf 22.99
Antic
Stereo CAD 3-D 54.99
Atari
Algebra I Vol II GRD 7-9 .....16.99
Avant Garde
PC Ditto 69.99
Batteries Included
Degas Elite 39.99

ST SOFTWARE

Cygnus
Starfleet I 33.99
DAC
Payroll 44.99
Electronic Arts
Gridiron Fooball/Auto Duel .(ea.) 30.99
Firebird
Guild of Thieves 25.99
Infocom
Beyond Zork 37.99
Michtron
Major Motion 25.99
Microprose
Silent Service 24.99
F-15 Strike Eagle 24.99
Miles Software
ST Wars 28.99
Mark Williams
C 119.00
Paradox
Wanderer (3D) 25.99
War Zone/Fireblaster 26.99
Psygnosis
Barbarian/Deep Space .....(ea.) 26.99
Strategic Simulations
Rings of Zilfin 23.99
Sublogic
Flight Simulator II 32.99
Timeworks
Swiftcalc/Wordwriter .....(ea.) 47.99
Partner ST 41.99

DAC
Easy Accounting $59.99

Unison World
Printmaster Plus 25.99
Word Perfect Corp
Word Perfect 4.1 .....239.00

In the U.S.A. and in Canada

Call toll-free: 1-800-233-8950

Outside the U.S.A. call 717-327-9575, Fax 717-327-1217

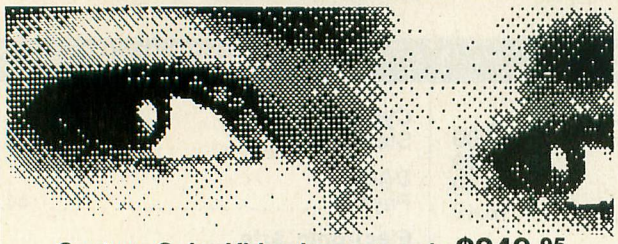
Educational, Governmental and Corporate Organizations call toll-free 1-800-221-4283

CMO. 477 East Third Street, Dept. B6, Williamsport, PA 17701

ALL MAJOR CREDIT CARDS ACCEPTED

POLICY: Add 3% (minimum $7.00) shipping and handling. Larger shipments may require additional charges. Personal and company checks require 3 weeks to clear. For faster delivery, use your credit card or send cashier's check or bank money order. Credit cards are not charged until we ship. Pennsylvania residents add 6% sales tax. All prices are U.S.A. prices and are subject to change, and all items are subject to availability. Defective software will be replaced with the same item only. Hardware will be replaced or repaired at our discretion within the terms and limits of the manufacturer's warranty. We cannot guarantee compatibility. All sales are final and returned shipments are subject to a restocking fee.

COMPUTEREYES™



Capture Color Video Images: only $249.95

Capture B/W Images: only $149.95

Now you can easily and inexpensively acquire images from any standard video source – videotape, camera, disk – for display on your ST. Capture time is less than six seconds, and you have complete control of displayed color levels (or gray scales in monochrome).

ComputerEyes has everything you need: Interface hardware, complete easy-to-use software support on disk, and owner's manual. It fully supports all ST graphics modes and a variety of image formats and is compatible with virtually all popular graphics programs. Think of the possibilities!

ComputerEyes is backed by a one year warranty and the success of over 10,000 systems sold. Satisfaction guaranteed or return it within ten days for full refund. Demo disk available, $3. See your dealer or order direct. For more information call 617-329-5400.

To order call 800-346-0090
or mail your order to: Digital Vision, Inc.
66 Eastern Avenue, Dedham, MA 02026
VISA, M/C, or COD accepted.
S&H: $4 for ComputerEyes.
Mass. residents
add 5% sales tax.

DIGITAL VISION

CIRCLE 012 ON READER SERVICE CARD

Now you don't have to be a great musician to sound like one . . .

Lay Down Great Tracks With . . .

MIDI MAX™

THE *AFFORDABLE* MIDI INTERFACE
For your 8-bit ATARI computer

● Compatible with all existing MIDI software for the Atari 8-bit computer. ●

MIDIMAX comes supplied with:
- M.M.S. software with powerful editor
- A.M.S. to M.M.S. file converter program
- Easy to understand instruction manual
- Sample song files
- Two six-foot MIDI cables

MIDIMAX has a full 1 year warranty against defects in material and workmanship.

MIDIMAX allows you to control up to 16 MIDI instruments (synthesizers, drum machines, etc.) all at the same time!

MIDIMAX Incorporates MIDI MUSIC SYSTEM software developed by Synthetic Software
Written by Lee Actor - Programmer of the renowned ADVANCED MUSIC SYSTEM

Requires minimum 48K and one disk drive

Proudly made in the U.S.A.

Musical Educators . . . This could be the low-cost teaching tool you've been looking for!

The ONLY MIDI Interface for the Atari with a built-in I/O port for daisy-chaining

ONLY $225.00

NY RES. ADD SALES TAX

For more details see your local dealer.

Add $4.00 for shipping and handling
Payment by check or money order
US funds
CAT. NO. 8612001
Dealer inquiries welcome

ANOTHER QUALITY PRODUCT FROM

WIZZTRONICS
P.O. BOX 122 Port Jeff. Sta., NY 11776

ATARI is a registered trademark of Atari Corp., Sunnyvale, CA.

CIRCLE 025 ON READER SERVICE CARD

Feature Application *Type-In Software*

By GLENN SMITH

Antic Spooler

Keep on computing while you print!

Antic Spooler is a short machine language printer buffer that allows you to continue using your computer for other tasks while printing lengthy program listings. The BASIC program which creates Antic Spooler works on all 8-bit Atari computers of any memory size, with disk drive.

"Is your computer tired of waiting for your printer to finish?" You've seen ads for printer buffers (also called printer spoolers). These devices—which can be either hardware or software—temporarily store data sent to the printer by your computer program and send that data to the printer, one line at a time.

As your program sends more data to the printer, the buffer intercepts it and stores it until the first task has been completed. For many applications, printer buffers really do save time because the printer and the computer can work simultaneously.

Antic Spooler creates an 8K buffer in the memory of your 8-bit Atari. Text sent to the printer is intercepted by Antic Spooler, which returns control to your computer as soon as the characters have been stored in RAM. Antic Spooler then sends characters continuously from RAM to the printer while your main program keeps on running.

ANTIC SPOOLER CHALLENGE

The MAC/65 source code for Antic Spooler, SPOOLER.M65, is 118 sectors long and can be found on this month's Antic Disk. Assembly language programmers should not find it hard to enhance Antic Spooler. This magazine would be interested in publishing the best patches or add-ons to Antic Spooler.

For example, you might want to enlarge the buffer to 16K or so, modify it to use the RAM under the operating system, or create a 64K buffer using the extended memory in the 130XE and upgraded XL computers.

As written, Antic Spooler is useful mainly for making printouts of your own program listings while you continue to compute. Maybe you could even find ways to make Antic Spooler work with some disk-based commercial word processing software. (As is, the spooler should already work with commercial cartridge software such as the original version of Atariwriter.)

GETTING STARTED

Since Antic Spooler is a machine language program and cannot be typed-in and SAVEd, we'll use a simple BASIC "helper" program that will automatically recreate Antic Spooler and store it to a disk file.

Type in Listing 1, SPOOLMAK.BAS, check it with TYPO II and SAVE a copy before you RUN it. Listing 1 will create Antic Spooler, and store it to a disk file called SPOOLER.OBJ. Antic Disk users will find a copy of SPOOLER.OBJ on this month's disk.

Copy SPOOLER.OBJ to another disk and rename it as AUTORUN.SYS. Make sure this disk also has the DOS.SYS and DUP.SYS files, too. Now reboot your Atari with this disk. The AUTORUN.SYS file will install the spooler into low memory. Your free memory will be reduced by about 8K.

Let's test the spooler. LOAD any BASIC program, type LIST "P:" and Antic Spooler will capture text and begin printing it. After the program has been LISTed, BASIC's "READY" prompt will appear.

HOW IT WORKS

Multi-tasking? No, not really. Antic Spooler modifies the resident "P:" printer handler, specifically the PUT CHAR routine. Whenever you execute a statement that PRINTs to the printer (LPRINT, LIST "P:", PRINT #), the new P: handler will store text in the spooler and increment the character counter. Then every 1/60 of a second, during the Vertical Blank Interrupt, control passes to the VBI part of Antic Spooler.

The VBI routine first checks to see if the printer is busy. In this routine, PUT CHAR takes priority over printing, which means that the spooler would rather *store* characters in its buffer than print them.

When the printer is free, the priority flag is turned off (set to zero), and the spooler will try to print a character.

The priority flag is turned on by PUT CHAR whenever a character is stored in the buffer, waiting to be printed.

If the priority flag was off, the VBI routine checks the result of its last attempt to print a character. If there was some problem and that character was not printed, it is re-sent until the character *is* printed.

If, on the other hand, the character was printed successfully, Antic Spooler searches the buffer for the next character. If it finds one, Antic Spooler puts it into the resident print handler buffer and decrements the character counter.

When the resident buffer becomes full, it's printed using the standard SIO vector (the same vector normally used by your printer).

WARNINGS & DON'TS

Since Antic Spooler sends characters to the printer through the SIO vector, it's not affected by OPEN and CLOSE statements, or by the LPRINT and LIST "P:" commands. This means it will work with software that never executes a CLOSE command, which is why it works with commercial cartridge software like the original version of AtariWriter.

continued on page 26

AUTHORIZED ATARI ST/XL/XE — COMMODORE/AMIGA DEALERS

BUY, SELL OR TRADE!!!

All Hardware/Software & Accessories — Plus IBM Compatibles & Equipment

NEW Atari 520ST FM CPU Only $269
with trade-in of 1050 Drive, 130XE Computer, Gemini 10X Printer, 1802 Monitor. Add $129 for mono system or $275 for color system.

FREE BRAND NEW AVATEX 1200HC or AVATEX 2400HC Only $85
with trade-in of working Atari 800XL Computer and 1050 Disk Drive.

NEW ATARI ST 20MB HARD DRIVE Only $499 with trade-in of SF314 Disk Drive.

NEW Atari XF551 360K Drive Only $115
with trade-in of 1050 Drive or $149 with 800XL Computer.

NEW PRODUCT PRICES

— ST, PC, MORE —					
520ST Mono System	$679	SF314 Disk Drive	$229	SC1224 Color Monitor	$325
SH204 20MB ST Drive	$625	SF354 Disk Drive	$169	SM124 Mono Monitor	$159
— DRIVES & MORE —					
Indus GT 180K	$185	XF551 360K Drive	$199	1802C Color Monitor	$189
— UPGRADES —					
Happy Rev. 7.1	$99	256K XL RAM UG	$69	Printer Connection	$45
P:R:Connection	$59	US Doubler	$29	US Doubler w/DOS	$49
ICD DOS X	$59	R-Time 8 Cart	$49	256K 800 RAM UG	
ICD MIO 1 MEG	$299	ICD MIO 256K	$179	99% Axlon	$129

USED PRODUCT PRICES

520ST Mono System	$539	1040ST Mono System	$639	SM124 Mono Monitor	$125
SC1224 Color Monitor	$259	SF354 Disk Drive	$135	130XE Computer	$99
1200XL Computer	$59	800XL Computer	$64	800-48K Computer	$60
400-16K Computer	$29	810 Disk Drive	$92	Indus GT Drive	$145
Atari 1027LQ Printer	$79	Atari 1025 Printer	$79	Hundreds of software titles!	
Monitors from	$49	Printers from	$39	Joysticks from	$2

PRINTERS/MODEMS

— PRINTERS —
Star NX-1000, 144cps, 44cps NLQ, IBM/EPSON Compatible $199
Full Line of STAR Printers! Call Now for Prices!!

— MODEMS —

Avatex 1200E	$95	Avatex 2400hc	$199	Prac. Per. 2400hc	$189
SmartLink 2400hc	$189	Atari SX212	$109	XM301 Modem	$45

PC COMPATIBLES

IBM XT COMPATIBLE — Color (CGA)/Mono graphics card, 4.77/10 MHz. Turbo 8088. Phoenix BIOS. More than 2x as fast as the IBM XT. 640K RAM, 360K Drive. Printer/Modem/Game ports. Clock/Calendar. **Only $625***

IBM AT COMPATIBLE — HEGA/EGA/CGA/Mono graphics card, 8/12 MHz. Turbo 80286, Phoenix BIOS. 15x as fast as the IBM XT, 512K RAM O-wait, 1.2 MB drive, Printer/Modem ports. Clock/Calendar. **Only $1199***

*Options: Monochrome monitor **$99**, CGA color monitor **$249**, EGA color monitor **$439**. Hard Drives: Miniscribe 30MB w/XT cont. **$369**. 20MB w/XT cont. **$349** installed.

*IBM XT is a registered trademark of International Business Machines.

We pay cash for new, used and damaged equipment and accessories! CALL for an instant price quote on your equipment. Quantities of USED products vary. Please call before ordering. All used products are guaranteed to be in good working condition.

2017 13th Street, Suite A
Boulder, CO 80302

Computer Repeats, Inc.

(303) 939-8144
MAIL ORDER DIVISION

We Accept Master Card/VISA/American Express and C.O.D.

We want to trade for YOUR EQUIPMENT! If your equipment is not mentioned, give us a call. All references to trade-ins assume equipment to be in good working condition. Shipping/handling is based on actual weight of order and will be added to all prices.

Prices shown reflect a 4% discount for cash. Add 4% for credit card purchases. Prices shown are mail order prices only. (Item compatibility is not guaranteed.)

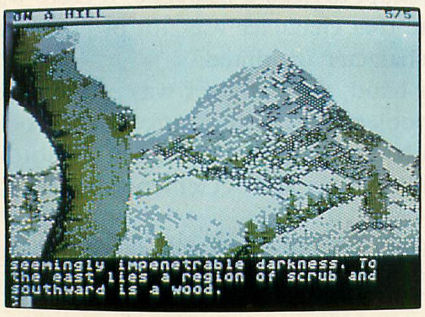
WE CHECK FOR STOLEN CREDIT CARDS

Authorized Dealers for COMMODORE/AMIGA and ATARI ST/XL/XE Computers and Accessories.

CIRCLE 009 ON READER SERVICE CARD

Product Reviews

Phantasie II, Guild of Thieves



PHANTASIE II

SSI has released an exciting 8-bit Atari version of **Phantasie II**, the second entry in their premier adventure series. And while 8-bit owners will miss out on the ST version's brilliant graphics, at least now all Atarians can go another round with the evil Nikademus.

Phantasie lovers can rejoice at the prospect of sending up to six adventurers to the island of Ferronrah, over which the Dark Lord Nikademus has cast a cloud of evil. Veterans can transfer their old characters, although by doing so they forfeit most of their accumulated wealth and power. Newcomers (and those who have lost faith in their current warriors) create characters by selecting race and occupation and then watching as the computer randomly generates values for attributes such as intelligence, strength and wisdom.

As you search the island for an enchanted orb, your party will encounter a variety of creatures, most of which will have to be dispatched by force. Castles and dungeons hold treasures and dangers beyond your wildest dreams, and most players can count on hours of play before this game is completed.

As you grow in power you will wield stronger and stronger spells, defeating enemies of ever-increasing strength. But Phantasie II is a game of brains as well as brawn, so success also depends on the intelligence of you and your character.

You can use either the keyboard or the joystick to keep the action moving, using ST-like menus. The graphic displays are well designed and help keep even the newcomer right on top of the action. A generous manual completely and concisely explains the game, adding plenty of tables and charts for quick and easy reference. All in all, Phantasie II is a fine addition to anyone's software library and a must for all adventurers. Its practically transparent user interface allows you to concentrate on playing the game—on living the adventure— and isn't that really what it's all about?—STEVE PANAK

$39.95, 48K disk. Strategic Simulations Inc., 1046 N. Rengstorff Avenue, Mountain View, CA 94043. (415) 964-1353.

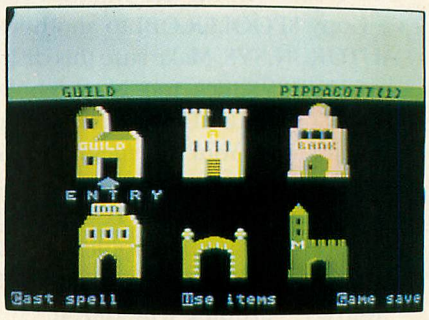
CIRCLE 174 ON READER SERVICE CARD

GUILD OF THIEVES

The 8-bit Atari version of **Guild of Thieves**, sequel to the popular game The Pawn, is a sophisticated graphic adventure that had me fully involved.

The Pawn transported you to the land of Kerovnia. You return to Kerovnia in The Guild of Thieves as an apprentice to a master thief. You are told to steal all the treasures in the area while being watched and judged closely.

The Pawn and Guild of Thieves are not directly connected, except that they are both set in Kerovnia and share small details. The monetary system is based on the ferg and Farthington's Ale is the local drink. As in The Pawn, commands are entered in full sentences. These include phrases such



as "Go north west and take the key." Multiple commands make things much easier for the prospective thief. To return to a location you've been through, just type in its name.

The game can be saved at different points and reloaded. This you want. A helpful feature of the command editor is the ability to take back a move by pressing the escape key. The graphics can be scrolled up or down by pressing [SELECT] or [START].

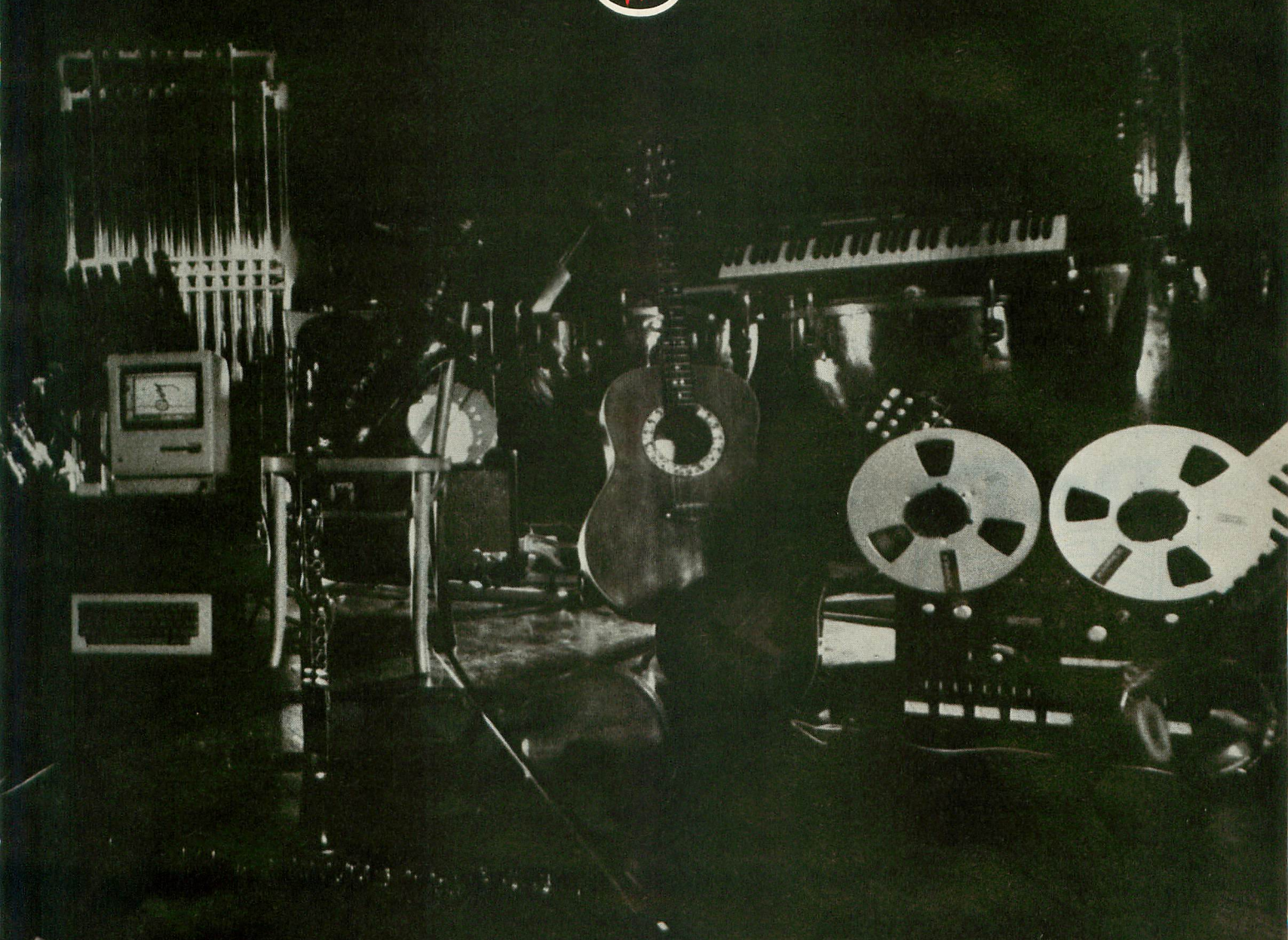
The outstanding graphics of The Pawn are matched by those in Guild of Thieves. High-resolution pictures transport you into a medieval world of thieves, castles and treasure. The only complaint I have about the Atari XE/XL version is that most of the detailed graphics had only shades of one or two colors.

The annoying copy protection scheme makes you enter a specific word from "What Burglar?" when reloading a saved game. The game also accesses the disk frequently, especially for the graphics. Fortunately you can speed things up by turning the graphics off. And if you liked The Pawn, you are sure to love this superior sequel.—JOHN MANOR ■

$39.95, 48K disk. Firebird Licensees. Distributed by Activision, P.O. Box 7286, Mountain View, CA 94039. (415) 960-0410.

CIRCLE 176 ON READER SERVICE CARD

THE HARD & SOFT OF IT.



MUSIC EXPO '88

APRIL 29–MAY 1, 1988

LONG BEACH CONVENTION CENTER

Long Beach, California

ANTIC SPOOLER
continued from page 23

To conserve memory for your main program, Antic Spooler relocates itself to the lowest memory location possible. The program pushes your Atari to its limit. The computer wasn't designed to do two things at once, so programs won't always be as fast as you'd expect. There may even be moments when the screen freezes briefly while Antic Spooler sends text to the printer or frees buffer space for incoming characters. And since printing affects the sound registers, programs that use sound will be affected.

You should also keep the following cautions in mind: If you try to LOAD a large BASIC program over the Antic Spooler or its buffer, your computer may lock up. **Antic** has successfully tested Antic Spooler with BASIC programs as large as the 94-sector *WYSIWYG Cassette Jackets* (November 1987).

You can't turn BASIC on or off while Antic Spooler is printing, but you *can* do so afterwards.

Finally, you shouldn't use the DOS command because the DUP.SYS file might load right over Antic Spooler. If you enter DOS, Antic Spooler will abort its printing, reset all modified memory pointers and exit to DOS. When you return to BASIC, Antic Spooler will be unavailable. ■

Glenn Smith is a Mesa College senior at Grand Junction, Colorado and has been programming for five years. This is his first publication in ***Antic****.*

FOR MORE ARTICLES LIKE THIS, CIRCLE **196** ON READER SERVICE CARD.

Listing on page 69

Online

By MATTHEW RATCLIFF

Choosing Your Modem

Strategy for online beginners

Your first significant investment before going online with your Atari will be a modem, the small box of electronic circuitry that actually interconnects your computer and the phone system.

You don't necessarily need to buy modem software when first getting started online. Usually you can acquire a good public domain terminal (or modem) program such as AMODEM 7.2 for the 8-bit Atari. And ST owners can start by using the VT-52 terminal emulator desk accessory that comes with their computers. Then after getting a bit of online experience, you'll have a better idea of what features you want to pay for in commercial modem software.

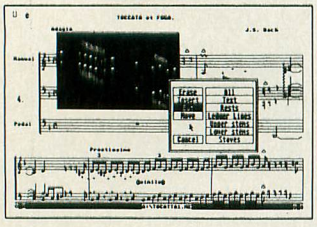
ATARI'S OWN MODEMS

Over the years, Atari Corp. has produced a series of widely used 300-baud modems that plug directly into the 8-bit Atari's non-standard SIO serial bus. You can still find either new or used XM301s, some older 1030 models, or

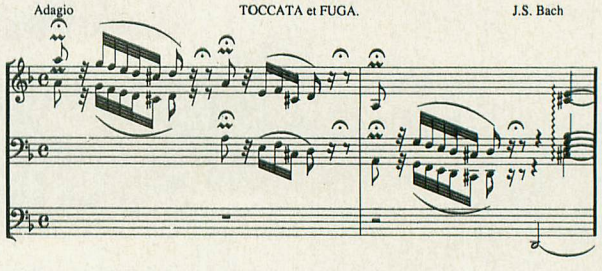
Dr.T's MUSIC • SOFTWARE

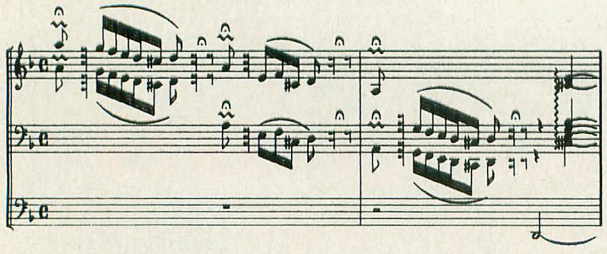
220 Boylston St.
Suite 306
Chestnut Hill, MA 02167
(617) 244-6954

The Copyist III™ V1.5

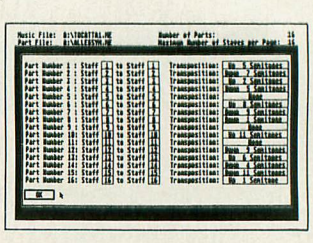


Postscript™ Laser Printer
(Adobe Sonata™ Fonts)



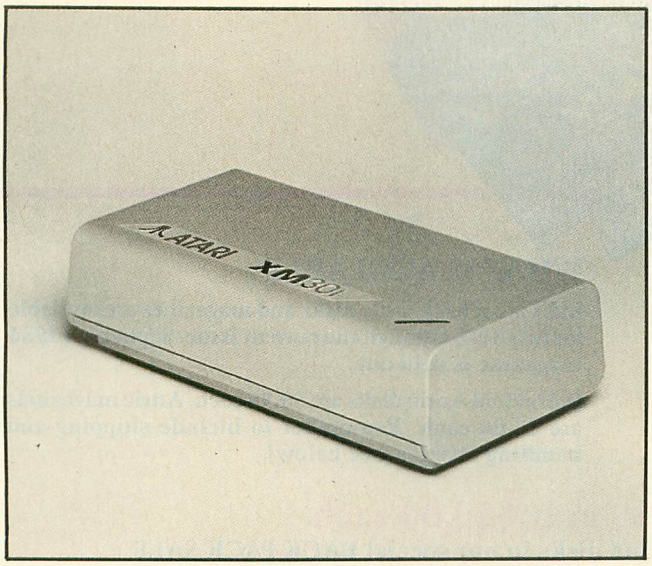


Panasonic 1092 Dot Matrix



CIRCLE **011** ON READER SERVICE CARD

The Copyist™ requires an Atari 520 or 1040 ST computer with color or monochrome monitors. Supports Epson, HP Lazerjet + and Postscript printers. Now supports standard MIDI files. Completely new documentation. Three levels of the Copyist now available. Level III comes bundled with Adobe Sonata™ fonts. Above screens and output from ST version. Amiga version coming soon.



even a few ancient 835s. These are all "direct connect" modems, which means they plug directly into a modular phone jack.

Most standard modems require the computer to have an RS-232 serial interface. The Atari ST models have this RS-232 port built in. To connect RS-232 peripherals to your 8-bit Atari you will need the ICD P:R: Connection or the discontinued Atari 850 interface.

The Atari XM301 modem comes with good communications software, complete with XMODEM file transfer protocol. Keith Ledbetter, one of the best-known names among Atari modem enthusiasts, has written a 1030/XM301 version of his Express! terminal software. His latest revision is 3.0, available free from most bulletin boards. It is "share-ware" which you download, use, and send the author some money if you like his efforts.

AMODEM Plus, version 7.3, is the most recent version of this long-established public domain terminal program for the 8-bit Atari. Many different authors have made revisions to support the 1030/835/XM301 modems and these can be found on lots of Atari BBS libraries.

The older Atari modems are inexpensive—$50 or less—and save you the cost of a special interface if you don't already own a P:R: Connection or 850. But at a speed of 300 baud they are slow by today's standards. And their non-standard SIO connection means that they can be used *only* on the 8-bit Atari.

NEW ATARI SX212

Atari's newest online product is the SX212 modem ($99.95), which swiftly sold out its entire first shipment last Christmas. At 1200 baud, the SX212 is four times faster than the older Atari modems. This speed can save you a lot of online time costs when you transfer files over a long-distance BBS connection or a time-charge system such as CompuServe.

The SX212 has both SIO and RS232 interfaces, so it can connect directly to the 8-bit Atari or the ST. Or you can use a P:R: Connection or 850 to hook it up to the 8-bit.

The SX212 is Hayes compatible when it operates via

continued on page 30

Product Review

PATRIOT 2400E MODEM

As modem prices continue to drop, combination 300/1200/2400 baud modems are fast becoming widely affordable. My **Patriot 2400E** is such a new model that my serial number is in the low 200s. The Patriot 2400E is a "Made in the USA" external smart modem made by Anchor. It comes with an external power supply, phone cord and input/output connector, owner's manual, two-year limited warranty, and subscription packages for CompuServe, The Source and GEnie worth up to $75. Owners of 8-bit Ataris will need an interface like ICD's P:R: Connection or the old Atari 850 to use the Patriot 2400E. However, ST owners can simply connect this modem to their RS-232 ports.

The Patriot 2400E utilizes the standard AT command set, which includes commands for controlling the internal "S" registers. You can modify operating parameters and store desired conditions in resident non-volatile memory, allowing automatic reconfiguration whenever you turn on the modem.

The modem circuitry is housed in an attractive tan and brown case with a speaker, volume control and a full complement of status lights. The speaker can be controlled with either the AT command or an external knob. The top panel reveals a set of DIP switches for making the modem work with your particular terminal program. I didn't have to change any DIP switches, but I did change one S register to make the modem work correctly with 850 Express!.

The modem supports U.S. and U.K. pulse dial timing, pulse and tone dial (even mixed pulse and tone), pause, wait for dial tone, wait for quiet answer, flash hook, stored number dialing, auto-answer, and autodial. Also included are English and numeric result codes that tell you what the modem is doing, and an Escape mode that lets you reconfigure the modem while online with another computer.

The 41-page owner's manual is comprehensive and thorough, and it includes a handy command reference sheet. The well-documented self-test operations make it easy to troubleshoot any problems. The only thing the manual lacks is a customer service phone number.

With prices that compete with the 1200 baud modems, plus many standard features, I highly recommend the Patriot 2400E.—GLENN SMITH

$189. Anchor Automation, Inc., 20675 Bahama Street, Chatsworth, CA 91311. (818) 998-6100.

CIRCLE 175 ON READER SERVICE CARD

THE INCREDIBLE BACK ISSUE SALE!

ANTIC Back Issues

HOW TO ORDER

Ordering individual magazines or disks is easy! AMS stands for Antic Magazine. ADS stands for Antic Disk. Follow these product codes with the month and year you want. For example, to order the March 1987 disk and magazine, write:

AMS0387
For Antic Magazine
March 1987

ADS0387
For Antic Magazine
March 1987

WHAT IS AVAILABLE

Individual back issue disks and magazines are available for July 1983 through the current issue. September 1984 magazine is sold out.

Individual Antic disks are $5.95 each, Antic magazines are $4.00 each. Remember to include shipping and handling charges (see below)

6 month back packs only $20.00 each

Get a complete set—order both magazines and disks in our special BACK PACK SALE

DISKS		MAGAZINES	
JULY THRU DECEMBER 1983 DBP8302	JULY THRU DECEMBER 1985 DBP8502	JULY THRU DECEMBER 1983 MBP8302	JULY THRU DECEMBER 1985 MBP8502
JANUARY THRU JUNE 1984 DBP8401	JANUARY THRU JUNE 1986 DBP8601	JANUARY THRU JUNE 1984 MBP8401	JANUARY THRU JUNE 1986 MBP8601
JULY THRU DECEMBER 1984 DBP8402	JULY THRU DECEMBER 1986 DBP8602	JULY THRU DECMEBER 1984 MBP8402	JULY THRU DECEMBER 1986 MBP8602
JANUARY THRU JUNE 1985 DBP8501	JANUARY THRU JUNE 1987 DBP8701	JANUARY THRU JUNE 1985 MBP8501	JANUARY THRU JUNE 1987 MBP8701

Available only in six month sets shown above.

START Back Issues

		MAGAZINES	DISKS
START #3	WINTER '86	SMS1286	SDS1286
START #4	SPRING '87	*SMS0387	SDS0387
START #5	SUMMER '87	SMS0687	SDS0687
START #6	FALL '87	SMS0987	SDS0987
START #7	WINTER '87	SMS1287	SDS1287

*SOLD OUT

Start magazines are $4.00 each. Start disks are $10.95 each. Remember to include shipping and handling charges (see below)

SHIPPING AND HANDLING INFORMATION
Please include $1.00 for each magazine ordered
Please include $3.00 for 1-10 disks
$6.00 for 10 or more disks

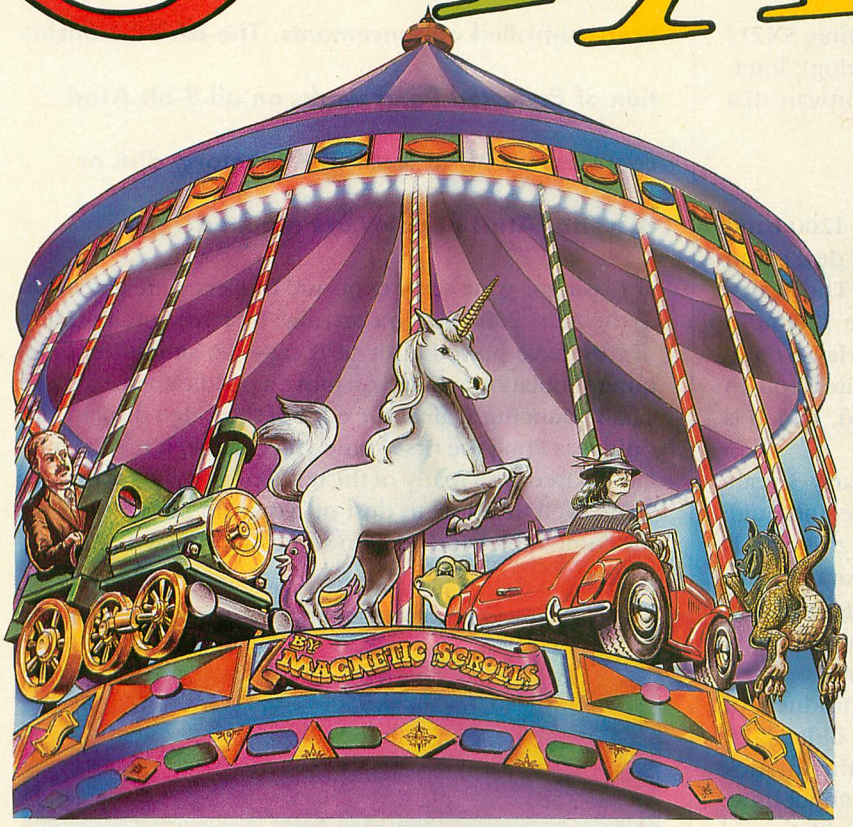
ST RESOURCE PROGRAMS (From Antic)

	ISSUE	DISK #
COMPENDIUM #1	8/85-1/86	SB0101
COMPENDIUM #2	2/86-5/86	SB0102
COMPENDIUM #3	6/86-9/86	SB0103
COMPENDIUM #4	10/86-2/87	SB0106
COMPENDIUM #5	3/87-7/87	SB0107

Compendium disks are $10.95 each.

VISA AND MASTERCARD HOLDERS
CALL TOLL FREE 800-234-7001
OR SEND YOUR CHECK OR MONEY ORDER TO
ANTIC PUBLISHING
BACK ISSUES
544 SECOND STREET
SAN FRANCISCO, CA 94107
Please indicate by product code which issues you would like. California residents add 6½% sales tax.

Jinxter



The funniest computer game since Hitch-hiker's Guide to the Galaxy.™

Enter the world of Jinxter, a challenging and hilarious graphic/text adventure from the folks who did The Pawn and Guild of Thieves. This time we decided to try something a bit different. A bit bizarre. Something to make people laugh while they tear their hair out. Sounds crazy, right? Good.

Bring a sense of humor to the task and we can promise you:

- ★ stunning graphics.
- ★ mind-bending puzzles and brain-tapping tests.
- ★ a perplexing, hilarious race against time and chance.
- ★ the state of the art in adventure game technology.
- ★ overall game quality you rarely see anymore.

Jinxter. You'll get widdled on. And love it.

Available now on Amiga, Atari ST, IBM, C64. Coming soon on MAC, Apple II*

*Text only.

™Hitch-hiker's Guide is a registered trademark of Infocom.

RAINBIRD

Rainbird and Rainbird Logo are registered trademarks of British Telecommunications PLC
Atari ST© Atari Corporation.
Mac© and Apple II© Apple Computers Inc.
IBM© International Business Machine Corporation.
Amiga© and C64© Commodore Business Machine Inc.

Magnetic Scrolls

Telecom Soft, P.O. Box 2227, Menlo Park, California 94026.

CIRCLE 030 ON READER SERVICE CARD

CHOOSING YOUR MODEM
continued from page 27

the RS-232 interface. Hayes commands are the standard by which all modems are measured. You'd be hard-pressed to find a better Atari 8-bit online package than the SX212 modem with RS-232 interface and Keith Ledbetter's 850 Express!, version 3.0.

The only problem with the SX212 is that 8-bit owners who don't want to buy an RS-232 connector won't have any commercial software available until Atari comes out with its promised add-on package featuring a new SX212 version of Ledbetter's Express! software. I'll be reviewing this entire SX212 Express! system for **Antic** as soon as it becomes available.

ST owners will find that the Hayes compatible SX212 works very nicely with Flash (from The Catalog), Interlink, ST Term, ST Talk, or any other terminal software that supports Hayes compatible modems.

AVATEX, ANCHOR, SUPRA

Avatex makes a popular line of low-priced 1200 baud standard modems. If you come across a good deal on an Avatex, take careful note of the model name. The Avatex 1200 is a good general-purpose unit, but the 1200hc is preferable because the "hc" stands for fully Hayes compatible. The basic Avatex 1200 model requires you to switch manually between 300 and 1200 baud, which is not acceptable for running a BBS.

I've been using an Anchor Mark XII for nearly 3 years without any problems. It is extremely reliable and quite Hayes compatible. My only complaint about this unit is that it doesn't have a built-in speaker. I like to use a modem speaker to listen to the sound of telephone signal tones. The current crop of Anchor modems, including their new Lightning 2400 baud series, all have speakers.

Supra, formerly MPP, has been a longtime producer of modems for the Atari. If you run across an older MPP modem that connects to the 8-bit Atari via the joystick port, I have heard a fair number of complaints about these discontinued models. (*We were quite happy with the old MPP we used at **Antic** for several years.*—ANTIC ED) But the newer Supra 1200 and 2400 baud modems are quite good and come at good prices.

2400-BAUD SPEEDSTERS

If you truly have "the need for speed" online, shop for a good 2400 baud modem. Prices are coming down to the $200 range. But I suggest avoiding mail order house brands because you don't know what you're getting and the quality can be uneven. I bought such a modem and it decided to hang up the phone every time my air conditioner kicked on. I didn't get my refund until after several months and about six long-distance phone calls.

Good, low cost "brand names" you can generally trust are US Robotics, Everex, Avatex, Supra and Anchor. If you come across a bargain brand you're not familiar with, find someone who owns one and has first-hand experience with it. ■

Game of the Month *Type-In Software*

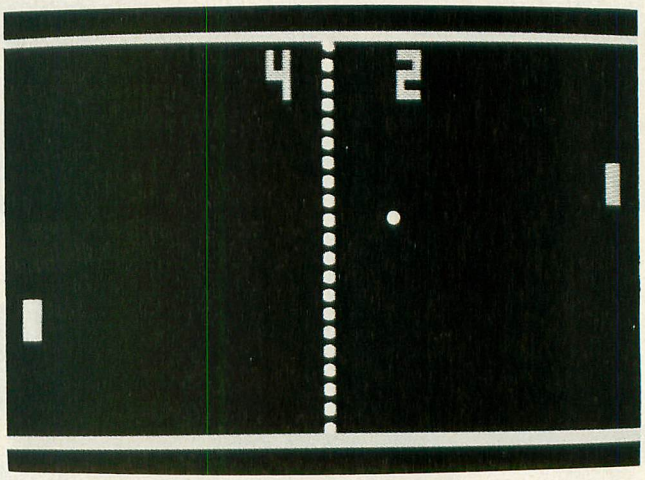
By BOB AYIK

Perfected Pong

New challenges from an old favorite

This short machine-language update of the very first Atari video game is jammed with powerful user-controlled enhancements. The BASIC translation of Perfected Pong works on all 8-bit Atari computers with at least 32K memory, disk or cassette. Atari paddles are required.

If you got your early exposure to electronic games on the Atari 2600 Video Cartridge System, you undoubtedly have played a lot of Pong—the simplified ping-pong simulation where you move a paddle cursor to keep a ball bouncing against the edge of the video display. Not only was Pong the first home video game, it has been included free with many of the millions of 2600s sold since 1977. Well, it's time to dust off your old Atari paddle set (or compatible) and take on some brand-new Pong challenges.



I began writing Perfected Pong after playing the classic game with 8-year-old Laura. We were playing at slow speed and she was killing me. But she wasn't having fun. She kept claiming that I was letting her win.

Now Laura beams as she wins, because Perfected Pong has six different skill levels that can be set independently for each player. Every skill level has a different starting and maximum ball speed.

Perfected Pong also has 20 different angles of ball rebound, which gives you a lot of subtlety in controlling

how the ball spins off your paddle.

You can master Perfected Pong in practice mode, where one or two players volley without any scorekeeping and the ball bounces right back into play after "falling off" the end of the screen. Just tap any key and the ball will slow down to its beginning speed for that level.

There are also some nice new audio-visual touches. Players can select any of 16 possible color combinations for the screen. I used 16-bit sound channeling to create the familiar click of the ball hitting the boundaries. There is also a new twangy sound for the ball hitting the paddles.

When a point is tallied, the score pulsates as it changes. And while waiting for a serve, a pulsation also marks the paddle of the player who is to serve next.

Perfected Pong is a short (about 3.5K) update of Pong. It's written in fast, smooth MAC/65 assembly language.

GETTING STARTED

PONG is a machine language program which would be difficult to type in original form. Listing 1, MAKEPONG.BAS, is an easy-to-type BASIC program that creates this machine language program for you.

Type in Listing 1, check it with TYPO II and SAVE a copy before you RUN it. When RUN, Listing 1 creates the machine language game for you, and writes it to a disk file called PONG.EXE. Antic Disk Owners will find PONG.EXE on this month's disk.

There are two ways to start the PONG program. Method 1: Type DOS, after making sure you're using DOS 2 or DOS 2.5. When the DOS menu appears, type L [RETURN] then type PONG.EXE [RETURN].

Method 2 will give you automatic loading: Format a blank disk, using DOS 2 or DOS 2.5. Next, type H [RETURN] to WRITE DOS FILES TO DISK. Now use DOS option C to copy PONG.EXE to this disk. Finally rename PONG.EXE to AUTORUN.SYS.

By now, you should have three files on your disk: DOS.SYS, DUP.SYS and AUTORUN.SYS. To play Pong, remove all cartridges from your computer, put this disk into drive 1, (XL/XE owners should hold down the [OPTION] key) and turn on your Atari. PONG will automatically load and begin.

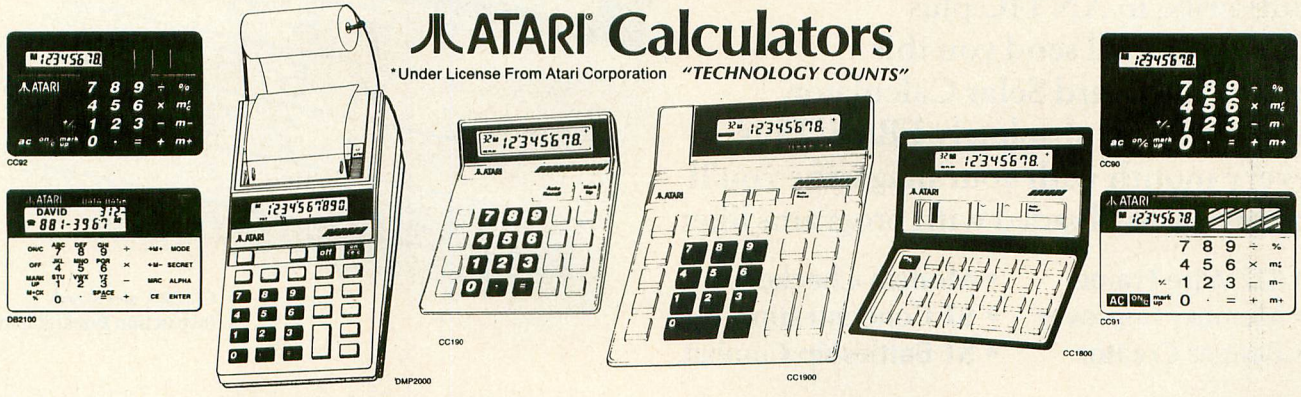
The first thing you'll see when you play Perfected Pong is a flashy title screen that lists the keys to press for selecting game options. You can quit a game anytime and return to the title screen by pressing [CONTROL] [Q]. When you complete a game, press either paddle button to start a new game at the current settings, or press any key to return to the title screen. ■

Bob Ayik of Maple Shade, New Jersey is an attorney practicing in the Philadelphia area. Perfected Pong is his first publication in **Antic**.

FOR MORE ARTICLES LIKE THIS, CIRCLE **192** ON READER SERVICE CARD. *Listing on page 67*

ATARI® Calculators

*Under License From Atari Corporation *"TECHNOLOGY COUNTS"*



Stock No.	Description	Unit	Quantity Ordered	Unit Cost	Total Cost
	ATARI CALCULATORS				
CC192	32 Step Memory Calculator	Ea		8.95	
CC1800	Compact Wallet Auto Recall Calculator w/Rubber Keyboard	Ea		11.95	
CC90R	Solar Powered Credit Card Calculator	Ea		5.95	
CC91R	Solar Powered Credit Card Calculator	Ea		5.95	
CC92	Solar Powered Credit Card Calculator	Ea		5.95	
CC90B	Solar Powered Credit Card Calculator	Ea		5.95	
CC91B	Solar Powered Credit Card Calculator	Ea		5.95	

Stock No.	Description	Unit	Quantity Ordered	Unit Cost	Total Cost
	ATARI CALCULATORS				
CC91G	Solar Powered Credit Card Calculator	Ea		5.95	
CC191	Compact Wallet Calculator—Battery Operated	Ea		7.95	
DMP2000	Handheld Printing Calculator—Battery Operated	Ea		24.95	
CC190	Junior Desk-Top Auto Recall Calculator—Battery Operated	Ea		9.95	
CC1900	Professional Desk-Top Auto Recall Calculator, Adjustable Display, Battery Operated	Ea		19.95	
DB2100	Data Bank Calculator/Telephone Numbers/Addresses/Dates/Appointments	Ea		21.00	
	ADD SHIPPING				5.00
	TOTAL				

hartech USA LTD.
Tel: 602 483-1991
FORWARD ALL ORDERS TO: 8341 East Evans Road
Suite 106
Scottsdale, AZ 85260

ALL STATEMENTS AND DESCRIPTIONS ON THIS PRICE LIST ARE BELIEVED TO BE CORRECT AT TIME OF PRINTING. MODEL AVAILABILITY AND PRICES ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

CIRCLE **016** ON READER SERVICE CARD

Limited Time Offer!

CHOOSE YOUR FREE GIFT!

Subscribe to ANTIC and get The Best of ANTIC Disk FREE!

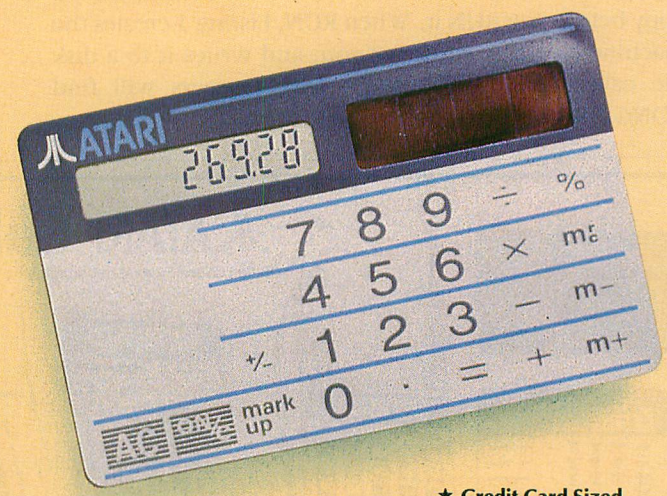
• Bannertizer-Print giant text posters • Diskio Plus–Turbo operating system • Rapid Graphics Converter–Translates ALL pictures • Fader II–Flashy desktop video • Son of Infobits–Easiest database • Plus many more of the most popular ANTIC programs–All on one Disk!

Every issue of ANTIC brings you news of software for Business, Personal Productivity, Graphic Arts, Programming Tools, Education and more…

OR…

Subscribe to ANTIC plus Disk and we'll send you this Atari Mini Card Solar Calculator, a $5.95 value, absolutely FREE! Plus every month with your magazine you'll receive a disk loaded with programs like:

- 3D Wire Frame
- Memory Improver
- Banner Creator
- Modem Checkers
- ST Concentration
- ST Battleship Combat



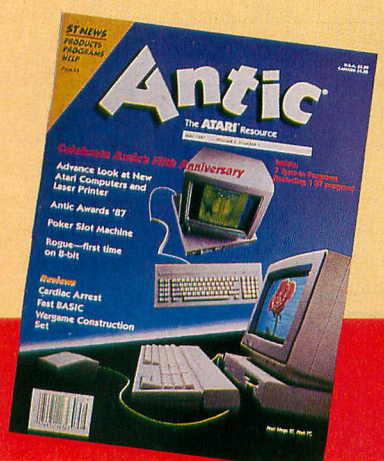
★ Credit Card Sized
★ Instruction Booklet Included

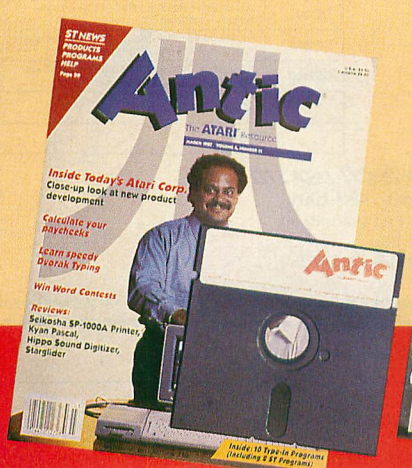
Only in ANTIC—

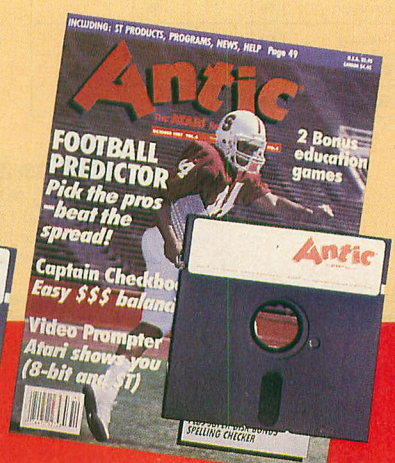
Your #1 ATARI Resource.

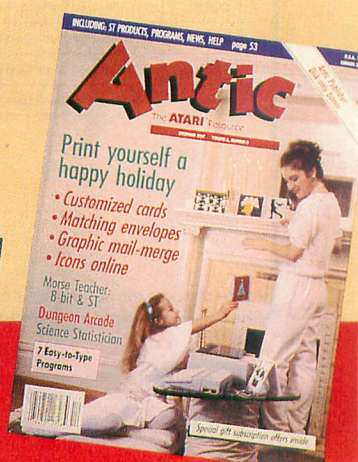
Subscribe by phone—Call 800-234-7001 (6am–6pm PST.)

MasterCard and VISA Only.









By BARRY KOLBE

Recall

BASIC Concentration 8-bit memory game

Recall is a flashy new 8-bit Atari BASIC version of the classic televison game, Concentration. (An ST Concentration game appeared in last month's Antic.) This fast, smooth BASIC program runs on Atari 8-bit computers with minimum 48K memory, disk or cassette.

"How has your memory been lately?"

"Ah. . . ah. . . I forget."

"You might try playing Recall on your 8-bit Atari. . ."

Pit your memory against a human or computer opponent with Recall, a colorful new 8-bit BASIC adaptation of TV's classic Concentration game. The Recall game board consists of 30 numbered positions with an object hidden behind each one. A player chooses two numbers, exposing both object icons. If there is a matching pair, two characters of a hidden message replace the objects. You have earned a point and can take another turn. If you fail to make a match, it's your opponent's turn.

As **Antic** explained in last month's *GFA BASIC Concentration* for ST computers, the game is won when the complete message is guessed correctly, or fully displayed after the final successful pairing. You make a guess at the beginning of a turn by pressing [CONTROL] [G] and if you're right, you get all the remaining points.

USING THE PROGRAM

To get started, type in Listing 1, RECALL.BAS, check it with TYPO II and SAVE a copy before you RUN it. If you have trouble typing in the special characters in lines 1650, 1680, 1720 and 1760, don't type them. Instead, type in Listing 2, check it with TYPO II and SAVE a copy. When you RUN Listing 2, it creates these hard-to-type lines and stores them in a file called LINES.LST.

To merge the two programs, disk users LOAD "D:RECALL.BAS" and then ENTER "D:LINES.LST". Cassette users: CLOAD Listing 1, then insert the separate cassette used for Listing 2 and ENTER "C:". Remember to SAVE the completed program before you RUN it.

Plug a joystick into port 1. In a two-player game, plug another one into port 2. When the game starts, press [SELECT] to choose between a one-player or two-player game. Press [START] to begin playing. In a one-player game, your computer opponent has an infallible memory, so watch out. But just to even the odds a little, your Atari makes the first move.

Recall comes with 10 messages starting at line 1900. These are randomly selected by the computer. You can change these or add to the list. Just make sure that the line numbers start at 1900 and are 10 apart. Also, change the variable I in line 1850 to reflect the number of statements you have. All messages must have fewer than 31 letters and you should avoid punctuation marks.

Now let's see. Was the boat under number 12, or was it 17? Or was the ring under 17 and the boat under 27?■

Barry Kolbe is a high school math teacher in Madison, Wisconsin and enjoys solving all kinds of puzzles. He co-wrote Antic Spelling Checker, *the October 1987 Super Disk Bonus.*

FOR MORE ARTICLES LIKE THIS, CIRCLE **194** ON READER SERVICE CARD. *Listing on page 70*

ProCopy ST BACKUP UTILITY

You can't backup your software because copy protection locks you out. **ProCopy** is the key!

- Protects against the accidental loss of expensive software
- Works with all Atari STs
- Copies both S/S & D/S disks
- Use with 1 or 2 disk drives
- Not copy protected
- **FREE** shipping and handling
- **TOLL-FREE** telephone number
- Updates are only $12 with return
- Orders shipped same day
- Disk analyze function included

Dealer Inquiries Welcome

VISA MasterCard and C.O.D. orders

Call (800) 843-1223

$34.95

Send check for $34.95 (overseas add $2.00 for air mail) to:

PROCO PRODUCTS

P.O. BOX 665, CHEPACHET, RHODE ISLAND 02814 USA
(401) 568-8459

Available Internationally in Europe and Australasia

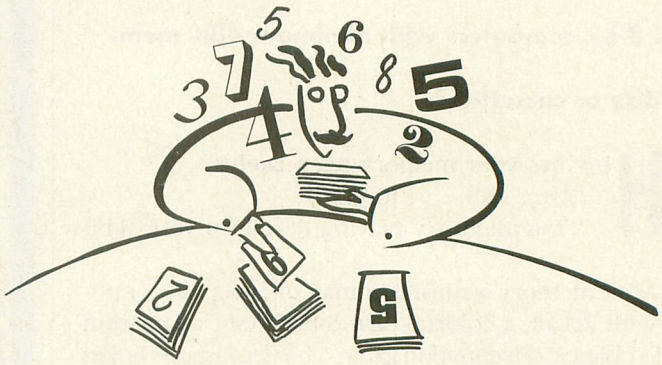
THE MOVING FINGER CO.
Building 2
Shamrock Quay
Southampton, SO1-1QL
England
Tel. 0703-227274

TECH-SOFT COMPUTER WHOLESALE
324 Stirling Highway
Claremont
Western Australia 6010
Tel. 09-385-1885

CIRCLE **036** ON READER SERVICE CARD

Super Sorters

Part II: Mixed Numbers Sorting Routine



By KEVIN PECK

Why won't all your ASCII text sort routines work with numbers in strings? The problem is that normal sort routines look at data one character at a time. As soon as the routine finds two unequal characters, it thinks it's done searching and decides whether or not to swap the two data elements, depending on the sort order. This is fine for text, but simply does not work with numbers.

Let's look at an example using a character-by-character sort on the names SMITH and JONES. The computer finds that the ASCII value of S is greater than J. Thus Smith is greater than Jones—so the two last names must be swapped. This works as expected. We don't care about the rest of the text field. We know a swap is necessary after examining just the first character in each data element.

With the numbers 24 and 156, if we go character by character, the computer will first decide that since 1 is less than 2, then 156 must be less than 24. Oops! We need another sorting method that looks at the whole number first before sorting character by character.

My Mixed Numbers sort routine first determines the signs of the two numbers. If they're not equal—one is positive and one is negative—then we don't even have to look at the rest of the number.

This concludes a two-part series of powerful sorting routines for intermediate programmers, which began with Multikey Sort in the April 1988 issue. Mixed Numbers is a machine language routine that sorts strings containing mixed numeric data types—positive numbers, negative numbers and floating decimal point numbers. Also included is a general-purpose substring finder routine that does multikey sorts within the Mixed Number sorter. This BASIC program works on all 8-bit Atari computers of any memory size, with disk or cassette.

We can decide right away if we need to swap them. If the signs of the two numbers are equal, then we move to the next test.

The second test involves finding the lengths of the two numbers. We'll examine each number, character by character, until we find a decimal point or a space. We do this because 1.2345 is less than 45, although 1.2345 has more digits. Using this method, 1.2345 has a length of 1, and 45 has a length of 2. If the two lengths are unequal, then we can decide right now whether or not to swap them. Otherwise, we must go to the third step.

Our third step goes back to looking at the two numbers on a character-by-character basis. This only works for numbers of equal lengths—the only kind we'll have if we make it this deep into the testing. But what if they're the same length before the decimal point but have a different number of digits after?

According to part two of the test, the numbers 34.567 and 34.5 both have a length of 2. The character-by-character comparison will take care of problem with the digits after the decimal point.

The computer will find the first four characters of each number to be equal. When it gets to the fifth character it will find a 6 in the first number and a space for the second. According to the computer's internal table, the value of a space is less than the value of any number so the computer will correctly decide that 34.5 is less than 34.567.

The only problem with this three-prong numeric sort arises when you have two negative numbers. While 45 is greater than 38, -45 is less than -38. Mixed Numbers checks to see if it's sorting two negative numbers, and if so, it reverses its swap decision.

GETTING STARTED

Type in Listing 1, NUMSORT.DEM, check it with TYPO II and SAVE a copy before you RUN it. If you have trouble typing in the special characters in lines 2010-2100, don't type them in. Listing 2 will create them for you. Type Listing 2, checking it with TYPO II, and SAVE a copy to disk. When RUN, Listing 2 creates these hard-to-type lines, and stores them in a file called LINES.LST.

To merge the two programs, disk users LOAD "D:NUMSORT.DEM" and then ENTER "D:LINES.LST." Cassette users: CLOAD Listing 1, then insert the separate cassette used for Listing 2 and ENTER "C:".

Finally, remember to SAVE the completed program before you RUN it. You should also keep a copy of LINES.LST, the machine language sort routines, for use in your own BASIC programs.

HOW TO USE THEM

Here is the proper format for using this routine in your own BASIC programs:

A=USR(ADR(SN$), FIRST, LAST, FIELDLEN, OFFSET, RECLEN, ORDER)

And here is an explanation of each part of the statement:

A: A USR call may return one value to your BASIC program. That value is sent here. BASIC demands that *all* USR calls be written this way, even if no value is returned.

ADR(SN$): Address of the string containing the sort routine. This string appears in lines 2030-2100 of the demo program.

FIRST: Memory address where we will start the sort. It will always be greater than or equal to the address or the string containing the sorted data.

LAST: Address where the sort ends. It must be greater than FIRST, or the computer will lock up.

FIELDLEN: Length of the numeric field we'll be sorting on. The data string must be put in fixed-length record format. This means that extra characters in the numeric field must be padded with spaces for the routine to work properly.

OFFSET: Amount of character spaces into the record where the numeric field starts.

RECLEN: Length of each record within the data string.

ORDER: Sort order. Use 0 for an ascending sort, or 1 (or any non-zero value) for a descending sort.

continued on next page

DEMO

The demo program uses string DS$ set up as shown below:

Figure 1

Last Name	First Name	Income	Tax Owed
7	6	8	7

Record Length = 28

Line 1070 in your completed demo program enters the subroutine to set up the two machine language strings.

Lines 1120-1200 read the sample data from lines 1590-1780 into one big string, padding any missing characters with spaces.

Then the string is printed as is, using the routine starting at line 1470. The bottom of the screen will tell you that you are now viewing the raw, unsorted data. Press the [SPACEBAR] to continue.

Now we'll actually sort some data. First we'll do an ascending sort by income. This is done in line 1230: ADR(SN$) is the address of the machine language string, ADR(DS$) is the address of our data string, and ADR(DS$)+LEN(DS$) is the ending address of the string in memory.

The income field length is 8. And 13 is the "offset" from the start of the record to the sort field. The offset is obtained by adding the lengths of all fields *before* the field you're manipulating—as explained last month in *Super-Sorts: Part I.*

Both last name (length = 7) and first name (length = 6) appear before income. Since the sum is 13, the offset of income is 13. *Figure 1* gives us the record length. Finally, let's do an ascending sort, giving ORDER a value of 0.

Line 1240 displays the new sorted information, tells you the current format and waits for you to press the [SPACEBAR] again.

Line 1250 sorts the data string again, but by tax owed this time—in descending order. The 8 in line 1230 is changed to a 7, so the length of the sort field is now 7 characters. The offset is changed from 13 to 21. The new format is printed to the screen in line 1260.

SORTING TECHNIQUES

I've found that I usually sort the database by a normal string field and then sort numeric data within smaller sections. For example, let's use a database containing all of our programs, the language they're written in, and their length in bytes so we know how much memory we need for each.

Let's sort them by language first: BASIC, ACTION!, Logo, etc. Then let's sort the programs by memory length within each language. My Multikey sort routine won't work because of the numeric memory length field. We need the starting and ending address of each language within the main data string so we can properly sort the memory length.

The second machine language subroutine is stored in FS$. It finds the first and last occurrence of a field within your data string, then it returns the actual address of these items, which lets you pass the values to the numeric sort routine—which requires a little more work to use it properly.

This is the format of the routine:

START=USR(ADR(FS$), ADR(D$), ADR(FLD$), LENFIELD, OFFSET, LENRECORD, RECCNT)

LAST=PEEK(205)+256*PEEK(206)

I used the variable START instead of A=USR(. . .) because the routine is passing information back to us this time. In this case, it's returning the address of the first element in the sort.

Note that START will equal zero (0) if the field string is not found within the main data string. Be sure to check START for a 0 value before calling the sorting routine. Otherwise, if START is equal to 0, the computer will attempt to sort Page 0 memory and lock up.

You should also check to see if START+RECORD LENGTH is equal to LAST. If so, then only one record containing the given field string was found. And sorting one field will get you nowhere. The second line retrieves the second bit of information supplied by the routine.

Here are the variables:

ADR(FS$): Address of the machine language routine.

ADR(D$): Starting address of the data to be searched.

ADR(FLD$): Address of the string containing the field information we're looking for.

LENFIELD: Length of the field we're looking for. This should be set to LEN(FLD$) for the routine to work properly.

OFFSET: Number of character spaces into the record where the field starts.

LENRECORD: Length of each record within the data string.

RECCNT: record count—the number of records to search within the main data string. To search the whole data string, this will be set to LEN(D$)/LENRECORD. You could sort a subset of the main data string by passing a value between 2 and the actual record count.

The demo program uses the String Find routine in line 1560. We'll use a data string with a fixed record length, using two fields: field one is the programming language and field two is the memory length in bytes:

Figure 2

Program Language	8
Length in Bytes	3
RECORD LENGTH	11

The routine is called several times, starting in line 1370. We must first tell the routine what language to look for by storing the language name in I$ before calling the rou-

continued on page 38

Poland To USA Via Antic I/O

The most unusual story we have ever published

By TADEUSZ MENERT

I don't know how many **Antic** readers will remember my letter published in the April, 1986 I/O Board under the title "Poland Teacher." It was a request for readers to send any Atari-related materials for use with my students at the University of Krakow. I explained that few Poles had Atari computers and that software was even scarcer than the small quantities of basic food products reaching this distant and quite different country—where money cannot be exchanged for any Western currency.

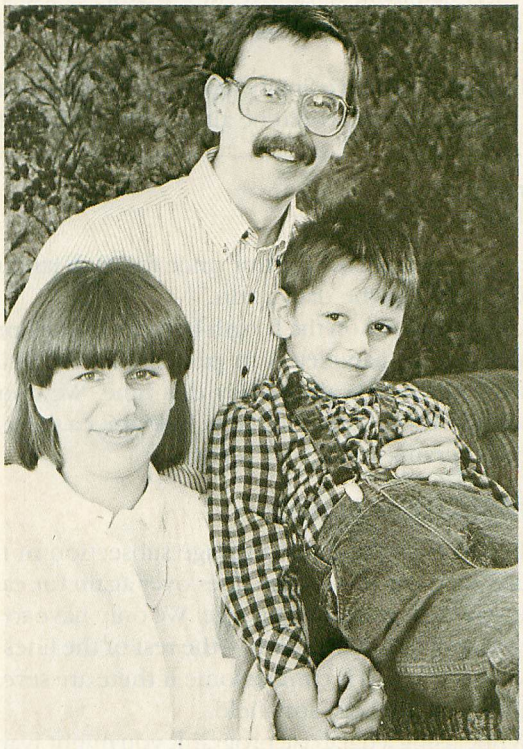
Within weeks after publishing my message, I was almost drowning in the wave of letters, magazines and disks. Dozens of people who never met me were suddenly offering to pay the subscription fees to various computer magazines so that I could receive them directly in Poland.

It is said that extensive users of impersonalized computers are deprived of warm feelings. On the contrary, these supposedly heartless computer monsters actually appeared to be much more friendly and understanding than others who never touch a computer keyboard. It seems that the popularity of personal computers creates a network of friendly users willing to share their concepts and knowledge no matter where they live or what they do.

In June 1986, two months after my letter appeared in **Antic**, I was forced to leave Poland due to various political reasons. I had to leave behind my Atari, along with almost all my belongings. With my wife and our four-year-old son, Mike, I landed in West Germany.

It seemed quite natural to try to get to an English-speaking country. I was, after all, an English teacher. The United States was our choice. However, according to cur-

continued on next page



Dan Looper

Tadeusz and Jolanta Menert with their five-year-old son Michal.

POLAND TO USA VIA ANTIC I/O

continued from previous page

rent immigration laws, being a political refugee isn't enough for admittance to the USA. Sponsors are needed who will help a refugee settle down succesfully.

With no relatives in America and only a few pen-pal Atarians, it seemed almost impossible for us. Besides, deprived of my 800XL and disk drive I could no longer count on writing interesting letters, full of computer news and gossip, to the States.

Although I never openly asked any of my friends for help in getting across the Atlantic, they offered such help on their own! By September 1986, we already had our sponsor, Marlin. But there were still long months of waiting while our paperwork was processed by the American immigration authorities.

Having quite a lot of time at my disposal, I looked around to see how well the Atari was doing in West Germany, since I had read so many positive things about the growing Atarian population there. However, it was hard to find a single active users group. It was somewhat sad to see that other computers had so many active users groups holding regular meetings, advertising in local papers, organizing computer shows. And I found only one or two Atari-specific magazines—they were exclusively for the ST.

In August 1987 we finally received the long-awaited letter saying that we would be allowed to come and live in the United States of America. Less than a month later, we landed happily in Colorado, heartily welcomed by people we had never seen before in our lives. When they decided to help us the year before, the only thing they knew about us was that we needed help. Thanks to them, we were able to start our new life on the American soil.

But some thanks also must go to that little magic box called a computer. I am often asked how it happened that we ended our long journey in Colorado. Before giving any more detailed answer, I always reply "Thanks to Atari!" and I watch the confused looks.

When you are starting life over again from the very beginning, there are many important things to take care of. But although it will definitely be some time before we can afford to buy a computer, I know what make I will choose when the time comes. I owe you too much, Atari, to trade you for something else!

P.S. I would like to assure everyone who sent Atari materials to Poland in answer to my 1986 I/O letter that it is still being used by my friends living there. This has been a great support to those needing helpful information that would otherwise be unavailable in Poland. Thank you once again. ■

FOR MORE ARTICLES LIKE THIS, CIRCLE **191** ON READER SERVICE CARD.

Tadeusz Menert, former English professor and present janitor, still welcomes any letters from Atarians willing to write to him at: 4040 S. Garfield Avenue, Loveland, Colorado 80537.

SUPER SORTERS

continued from page 36

tine. We must call the routine once for each language before displaying the data again.

Line 1420 sorts on the Length In Bytes of each program. Notice that the parameters are passed from the String Find routine when we call the sort this time. We don't want to sort the entire data string here, but rather a subsection—only programs written in BASIC.

SUBSECTION SORTS

To sort each program language subsection of the data string, we'd use these same lines over again for each possible value of program language. We only have to change the value of FLD$ each time—the rest of the lines remain the same. But this is cumbersome if there are several possibilities for the key sort field.

While using a database program, you might want to examine a subsection of the database. Using the program language database example again, let's say you want to see all Logo programs, with their memory length in bytes. If you've sorted the string by program language using the Multikey Sort routine, then a quick call to the String Find routine will supply the addresses necessary to display the requested information. Here's another example:

```
200 FLD$="LOGO"
210 FIRST=USR(ADR(FS$), ADR(D$), ADR(FL$),
LEN(FLD$), 0, 15, LEN(D$)/15)
220 IF FIRST=0 THEN PRINT "No matching data
found.":GOTO 300
230 FOR I=FIRST-ADR(D$)+1 TO LAST-ADR(D$) STEP
11
240 PRINT D$(I,I+10):NEXT I
250 REM Program continues here
```

These program lines would display all Logo programs and their memory lengths.

You could also use the String Find routine to make sure that you haven't entered any duplicate data. Some database applications don't let you duplicate certain fields. If you enter "Paper Clips" while in the Add Category function of an inventory database, the program must check to see if that category already exists. If so, then the program must tell you so and instruct you to enter the Adjust Inventory mode to add the newly purchased paper clips to the database.

To test for duplication, enter the new field data and use that data as the FLD$ parameter for the String Find routine. If START=0 after calling the routine, then the program can add the new information to the list. Otherwise the program should warn the user of the duplication and let you exit from the Add Category routine. ■

Kevin Peck wrote the Word Searcher *puzzle solver (**Antic**, March 1987) as well as* Super Sorter: Part I *(April 1988). He is a computer science major from Salina, Kansas.*

FOR MORE ARTICLES LIKE THIS, CIRCLE **190** ON READER SERVICE CARD.

Listing on page 69

The Ever-Changing Atari Marketplace

Six Antic Years

By NAT FRIEDLAND, *Antic Editor*

WELCOME, XE-GS OWNERS

Atari Corp. sold 100,000 XE Game Systems in the U.S. last Christmas—every unit that they manufactured last year. And of course the XE Game System is just a cosmetically redesigned 800XL/65XE 8-bit computer.

True, the XE Game System is being marketed as a device for playing entertainment software cartridges without needing a disk drive. But it seems very likely that after a few months with challenging "games" like the Flight Simulator II cartridge included with the XE Game System, many new owners will become full-fledged Atari users by adding the advanced new Atari XF551 drive ($199.95) which is now available.

Thousands of XE Game System owners probably will soon want to explore more of the outstanding capabilities of the 8-bit Atari. They might first try large-scale graphic adventure game disks that need saving between play sessions. From there, it's an easy step to using paint programs, word processors, databases, speech products—and the many fine programs available from users groups, online and on Antic Disks.

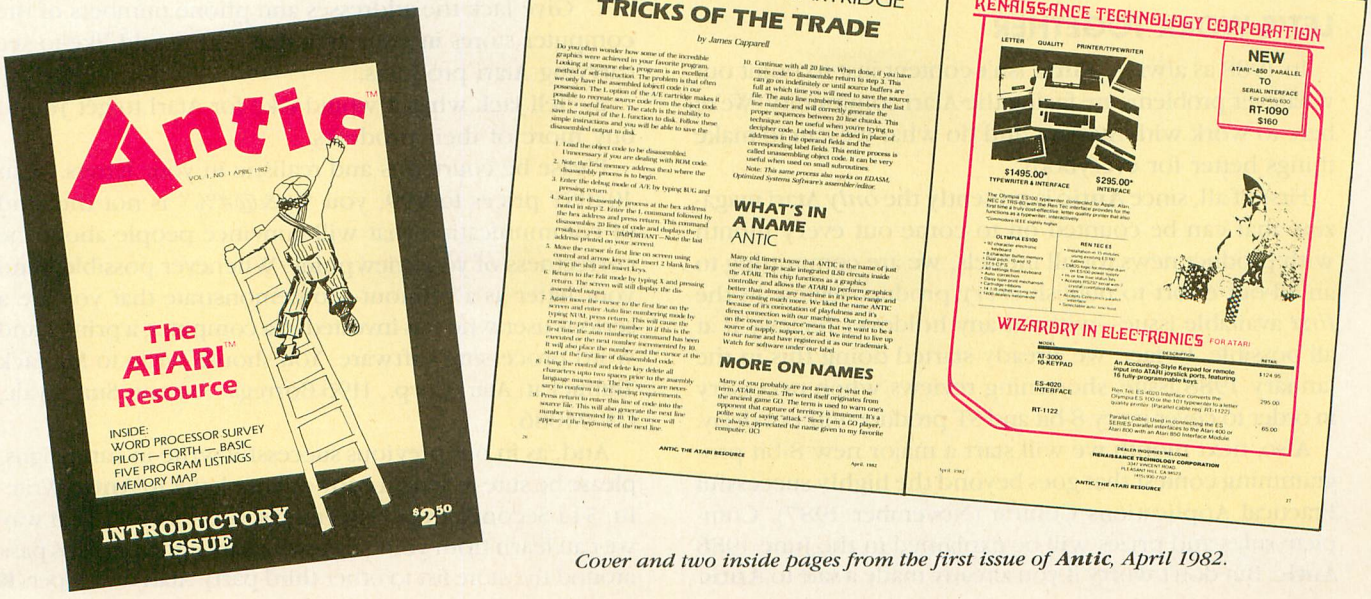
Meanwhile, the first big batch of Atari entertainment cartridges for the XE Game System is being shipped (and will be reviewed in the next issue of **Antic**). These cartridges can be used on *any* Atari 8-bit computer. The 12 impressive titles feature classic software that has either *never* been available for the 8-bit Atari or has long been unavailable—Battle Zone, Blue Max, David's Midnight Magic, One-on-One Basketball, etc. Naturally, **Antic** will review all new Atari cartridges as soon as they become available.

CONSTANT CHANGE

Considering that Atari personal computers have always been a comparatively specialized segment of the overall computer market, **Antic** has certainly seen many dramatic Atari changes during our first six years of publication. When publisher James Capparell put out our first issue in April 1982, an Atari 800 with 16K memory and a bulky 810 disk drive cost $1,679.95.

Then as now, **Antic** had no doubts that the Atari was technologically the best 8-bit computer ever made. But it took an adventurous and individualistic computer user to recognize this. The old Atari, Inc. owned by Warner Communications never marketed their great computers effectively. At first the company was too busy making unprecedented amounts of money on video cartridge systems—peaking at $2 billion sales in 1982, the year of Pac Man. Then when the bottom dropped out of the video game market in 1983, shell-shocked executives were too

continued on next page



Cover and two inside pages from the first issue of ***Antic****, April 1982.*

busy trying to halt a $450 million loss!

A totally unexpected bombshell hit the Atari world in July 1984 as Warner sold the company for $240 million to Jack Tramiel, the man who built Commodore Computers (especially the Commodore 64) into Atari's victorious arch-rival in the marketplace. The feisty, aggressive Tramiel swiftly finished restructuring the company into a lean-and-mean competitor, changing its name to the Atari Corp.

In an astonishing six months, the new Atari Corp. premiered the groundbreaking 520ST computer at the January 1985 Consumer Electronics Show, and then brought it to market by June. Without question, this was a unique, even heroic, feat that won Atari renewed worldwide credibility. In November 1986, Atari Corp. went public with a sold-out $50.6 million stock issue. And the price of Atari shares more than doubled before falling back as a result of the October 1987 stock market slump.

ATARI COMMUNITY '88

Antic Magazine is proud to have completed six years of service to the worldwide Atari community. The unique loyalty of Atari-using **Antic** readers enabled Antic Publishing Inc. to grow from classic "kitchen table" beginnings to a 54-employee company occupying an entire three-floor San Francisco building.

The success of **Antic** Magazine is what made it possible for us to bring Atarians these other important services:

- ANTIC ONLINE, our pioneering three-year-old electronic publication on CompuServe that provides the fastest Atari news, software and graphics files for downloading, and a vast archive of reviews and articles.

- ANTIC SOFTWARE, probably the leading supplier of high-quality programming for all models of Atari computers, featuring 8-bit software like RAMbrandt and ST products like CAD-3D and the Cyber series.

- START, the first all-ST magazine—which jumps from four to eight yearly issues in 1988.

LET'S WORK TOGETHER

In 1988 as always, **Antic** isn't content just to point out whatever problems are facing the Atari community. We're here to work with Atarians and do what we can to make things better for everybody.

First of all, since **Antic** is presently the *only* Atari magazine that can be counted on to come out every month with product news for all models, we are committing to an all-out effort to publish *every* product review in the *first* available issue—without any holdover reviews if at all possible. In fact, we already started doing this in the January 1988 issue, shortening reviews when necessary in order to cover every 8-bit and ST product without delay.

Also, next month we will start a major new 8-bit programming contest that goes beyond the highly successful Practical Applications Contest (November 1987). Complete rules and prizes will be explained in the June 1988 **Antic**. But don't worry if you already made a sale to **Antic** this year, all programs accepted for publication during 1988 will automatically be considered for the contest.

The editors of **Antic** believe most Atari users would agree that the biggest problem facing Atarians today is the difficulty of finding software and other products for our computers. Product unavailability is especially severe for the 8-bit Atari, but the ST situation could use considerable improvement too.

Unfortunately, this problem is too big for **Antic** to fix by itself. But if enough users are willing to become just a bit more involved, we think that genuine progress could be made! After all, a pre-release copy of Springboard's new 8-bit Atari version of Newsroom just arrived at **Antic**—a product that would never have been created if it wasn't for the hundreds of readers who responded to **Antic's** 1987 write-in campaign.

If you'd like to find more Atari products at convenient dealers, here are few simple things you can do: TELL your nearby software dealer that you want to buy products for your Atari there. JOIN your local users group. SUPPORT Atari software publishers by buying the programs you want—DON'T trade illegal copies with your friends!

And if you want **Antic** to continue coming out every month with the best coverage supporting *your* Atari computer—please give this magazine the support it needs from you! SUBSCRIBE—that's the most important thing you can do to keep **Antic** at its best for you! Also, submit good articles, programs, reviews and tips. Don't be shy about it. Remember, **Antic** has always been written primarily by its readers. Right now, we can use more reviewers with all kinds of special backgrounds—from ST sysops to 8-bit hardware upgraders. So write to **Antic** and tell us about your areas of expertise.

WRITE TO UNCLE JACK

Now let's get together for a special project that could make more Atarian products available in *your* area soon! **Antic** is asking you to write a letter this month to Jack Tramiel, Chairman of Atari Corp. Tell him these two things:

1. Give Jack the addresses and phone numbers of the computer stores in your area that you would like to see carrying Atari products.

2. Tell Jack what it would take for Atari to get *you* to buy more of their products.

Please be courteous and realistic in your letters. "Cut 1040ST prices to $99, you *+&@#%" is not the kind of communication that will convince people about the correctness of your viewpoint. Whenever possible, send your letter as a printout—to demonstrate that you are a serious user who has invested in a computer, a printer and word processing software. You should write to Mr. Jack Tramiel at: Atari Corp., 1196 Borregas Avenue, Sunnyvale, CA 94086.

And, as in our previous successful write-in campaigns, please be sure to send a copy of your letter to **Antic** Write-In, 544 Second Street, San Francisco, CA 94107. That way we can learn from your suggestions too, and perhaps pass around the store list to other third-party Atari developers.■

Third Annual

ANTIC AWARDS

Outstanding Atarian Achievements of 1987-88

This issue's Third Annual Antic Awards show there is a wide spectrum of large and small companies, individuals and clubs providing outstanding support for the Atari Community.

This year, Antic is pleased to honor some 18 Outstanding Atarian Achievements, more than ever before. As we decided in 1987, no winners are eligible for an award in two consecutive years. There are many other deserving Atari contributors whom we expect to honor in future anniversary issues. With the help of loyal, dedicated Atari users, Antic Magazine looks forward to meeting the ever-changing needs of the Atari Community for many more years to come.

Outstanding

Products

BBS

Users Group

Services

Professional Programmer

Antic Contributor

By GREGG PEARLMAN, Antic Assistant Editor

James Pierson-Perry

Outstanding Antic Contributor

Having appeared in every **Antic** but two since March, 1987, Jim Pierson-Perry is undoubtedly our most prolific Contributing Writer these days—as well as the most versatile contributor. A research chemist for Dupont, Jim writes programs and reviews products on both the 8-bit and ST computers. His expertise includes music and MIDI software, scientific and financial applications and adventure games. Jim's *Designer Labels* program (April, 1987) made it possible to put Print Shop icons on stick-on labels and was just about the most popular **Antic** program last year.

Publishing Partner

Outstanding Product

SoftLogik's **Publishing Partner** desktop publishing program, is one of the most ambitious packages being marketed for the ST. It is GEM-based and easy to use, and putting DEGAS or NEOchrome pictures into your text is no problem. To date, Publishing Partner is the most popular ST desktop publishing software around. It was written entirely in 68000 assembly language by Deron Kazmaier, whose new **Publishing Partner Professional** upgrade is due shortly with even more powerful features.

GFA BASIC

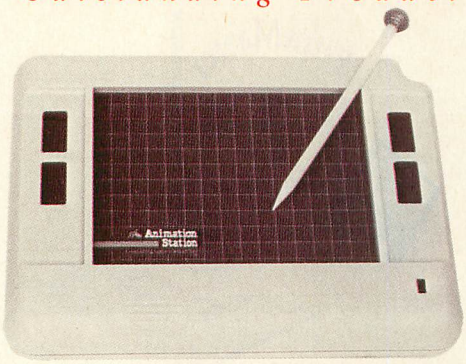
Outstanding Product

Quick, memory-efficient **GFA BASIC** is the best BASIC programming language available for the Atari ST. Its main drawback is that unlike ST BASIC, you don't get a free copy of GFA BASIC when you purchase your computer. But users have been able to overlook this inconvenience, since GFA BASIC costs just $79.95 and supports many GEM functions by keyword. Most **Antic** ST programs are now written in GFA BASIC, a German import distributed in the U.S. by MichTron. GFA BASIC boasts a rapidly increasing number of support products, including a compiler for standalone machine language code.

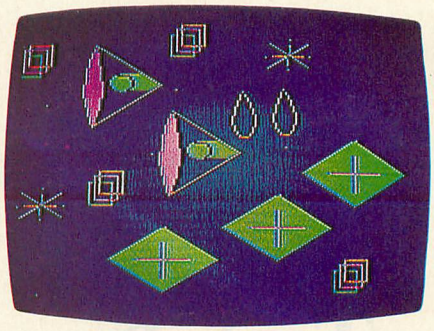
ANTIC AWARDS

Animation Station

Outstanding Product



Suncom's **Animation Station**, reviewed in the November 1987 **Antic**, consists of a sturdy, well-designed graphics tablet and Baudville's DesignLab paint program. Suncom, best known in the Atari market for their joysticks, is doing a fine job filling the void left when the KoalaPad and Atari Touch Tablet were no longer being made.



Virtuoso

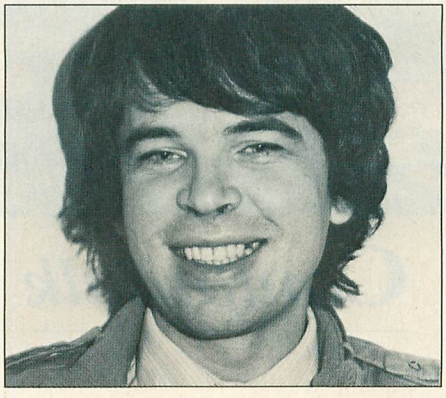
Outstanding Product

Virtuoso Desktop Performance Studio (April, 1988) brings true desktop video to the 8-bit Atari XL and XE. Virtuoso is a unique music/graphics interface that enables experienced users to create impressive animations with soundtracks—in real time.

This is the kind of dramatically innovative software that gives the 8-bit Atari its best chance of staying viable. The brainchild of Joseph Lyons and Frank Schwartz, Virtuoso can be used for many other applications. A marine navigational plotting adaptation has already been licensed.

Boris Tsikanovsky

Outstanding Professional Programmer

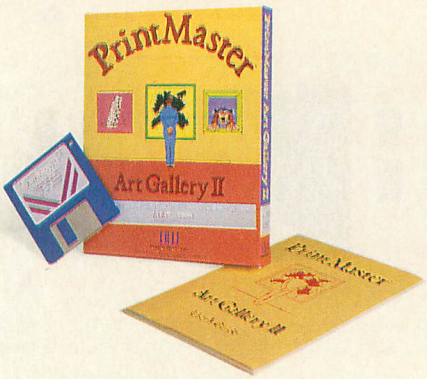


The ST has always had 512 colors, but until **Spectrum 512**, you could use only 16 at a time. Boris Tsikanovsky has changed all that and then some—Spectrum 512 uses "dithering" techniques to simulate not just 512 colors, but *24,389*. In Spectrum 512 you can use DEGAS and NEOchrome pictures or convert Amiga .IFF and CompuServe GIF files.

Two recent additions by Boris give Spectrum 512 even more flexibility. **Digispec** lets you convert *any* Amiga picture—even a 4,096-color image. **Unispec** turns Spectrum 512 into a desk accessory so, for example, you can grab a chunk of your picture while in DEGAS and paste it onto the current 512-color picture.

PrintMaster Series

Outstanding Product



This continuing series of graphics/text page printing programs from Unison World works like a highly advanced ST version of the 8-bit Atari's classic Print Shop software. But **PrintMaster** uses the ST's power to support much sharper graphic images and a much greater variety of printers. The series currently includes PrintMaster and PrintMaster Plus, as well as Fonts & Borders and PrintMaster Art Gallery I and II.

TurboBase

Outstanding Product

MicroMiser's **TurboBase** (**Antic**, December 1987) is a high-powered business software package that rivals the integrated applications available for IBM PC and works on 8-bit Atari systems costing a fraction of the PC price. Turbobase sets up customer directories, dated records, inventory, invoices, payroll and more. The program can take advantage of just about every hardware enhancement available for the 8-bit Atari, such as the 1Mb RAMdisk capability of ICD's Multi I/O Board and SpartaDOS 3.2.

CompuTalk

Outstanding BBS

Take six 48K Atari 800s, each with a modem and an 850 interface, link them all together via a 20Mb Corvus Hard Disk and Multiplexer. Now toss in 25-year-old sysop Kris Meier and you have **CompuTalk** of Ft. Worth, Texas, possibly the largest Atari bulletin board system operated by a private individual. Meier said that before the article "Texas-Sized BBS" in the August, 1987 issue of **Antic**, his BBS received around 100 calls a day. But now that more Atari users know about it, that number has increased to 230—and 80% of Meier's callers read about CompuTalk in **Antic**.

PCS School

Outstanding Service

At Patrick McShane's **PCS School** in Nampa, Idaho, students ranging from first grade through 12th use Atari computers to push to the limits of CAMLU—Computer Activated Motorized Lego Unit. Among the Atari-controlled Lego equipment they've developed are a plotter and a hoist that lifts upwards of 40 pounds with a 4-volt motor.

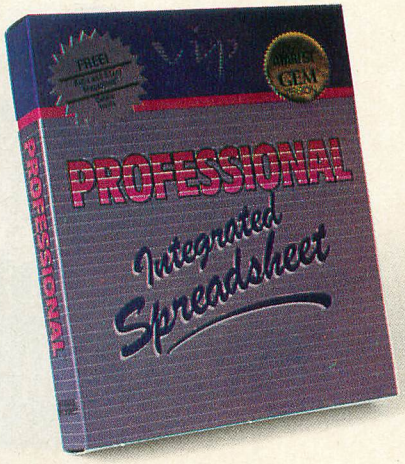
Since the publication of *Maverick Atari School* in the October 1987 **Antic**, McShane's enrollment has more than doubled, and students attend from all parts of the country. "We've even heard from people from behind the Iron Curtain," says McShane.

CLAUG

Outstanding Users Group

Since 1985, volunteers from CLAUG (ChicagoLand Atari Users Group) have been a mainstay in helping staff the Atari Corp. booth at the Summer Consumer Electronics Show each June in Chicago. In another CES innovation, CLAUG now holds a special dinner meeting, attended by a busload of Atari-world top executives, which is the closest thing to an Annual Atari "Roast." CLAUG exemplifies the kind of creative dedication that represents Atari users groups at their best.

ANTIC AWARDS



ISD Spreadsheets

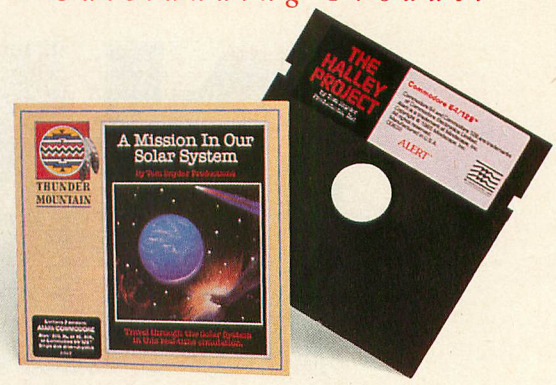
Outstanding Product

VIP Professional is the only spreadsheet available for the Atari ST that is fully compatible with Lotus 1-2-3, the industry standard. VIP adds GEM's smooth graphic interface to the power and flexibility of 1-2-3—it's command and file compatible. The simpler but still powerful **Masterplan** is a scaled-down version of VIP Professional, trading full Lotus compatibility for a friendlier user interface and a lower price.

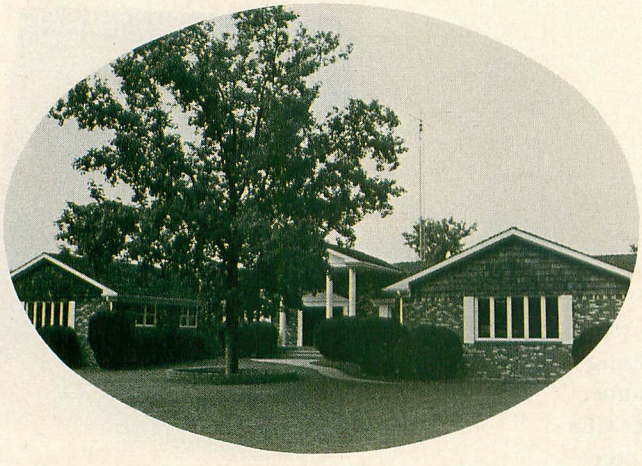
Thunder Mountain Software

Outstanding Product

ANTIC AWARDS



Thunder Mountain is Mindscape Software's "discount house"—a company dedicated to providing Atari 8-bit users with fine software for just $9.95 . Thunder Mountain has a full line of educational and entertainment titles as Songwriter, Mission in Our Solar System, Run for the Money and Batty Builders. Many Thunder Mountain releases are reissues of successful older software that otherwise would be unavailable.



Midwest Computer Camp

Outstanding Service

Housed on a magnificent old estate in the woods north of Indianapolis, Midwest Computer Camp is the largest full-time, year-round residential computer education camp in the U.S. Campers from age 8 to 18 spend six hours a day on computer activities, and there's a counselor for every four campers. Just about every conceivable brand of personal computer is available, including plenty of Ataris.

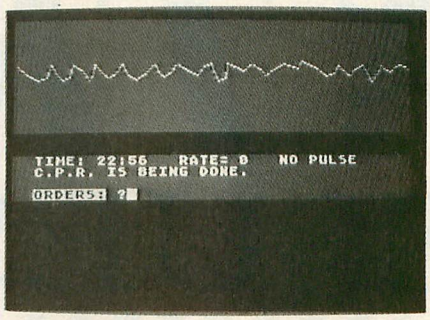
dBMan

Outstanding Product

If you're an ST user who is experienced with the industry standard dBASE III database software, **dBMan** by Versasoft is the serious ST database system you're looking for. dBMAN supports command files, local and global memory variables, and permits flexible report creation. The software gives professional database designers the flexibility and power needed to develop turnkey systems.

Cardiac Arrest!

Outstanding Product



A 1988 episode of television's "St. Elsewhere" featured a computerized medical simulator that enabled doctors to practice emergency techniques before treating human patients. That's just what **Cardiac Arrest!** delivers—for both Atari 8-bit and ST computers.

Our medically trained reviewer (May 1987) called Cardiac Arrest! "fascinating, useful and an invaluable study aid in Advanced Cardiac Life Support." Cardiac Arrest! is produced by Mad Scientist Software, physician Bruce Argyle's small Utah company which exemplifies how individual Atari enthusiasts can successfully bring a fine commercial product to market.

Supra Corp.

Outstanding Product

Supra's fine product line of hard disks, modems and buffer/interfaces has long been in the forefront of hardware support for both Atari 8-bit and ST computers. Supra's ST hard disks come in a full range of memory sizes, including 10Mb, 20Mb, 60Mb. And Supra produces one of the very few hard disks made for 8-bit Ataris. The new Hayes-compatible **SupraModem 2400** is another excellent product which will be reviewed in next month's **Antic**.

Firebird Software

Outstanding Product

Those hit games, The Pawn, The Guild of Thieves and Star Glider all come from one place—**Firebird Licensees**, probably the most prolific Atari game marketer for the past year. Firebird's games combine flashy graphics with flashy packaging—and not just for the ST. Many titles are now available for the 8-bit Atari as well.

SAVE 70%

THE ST QUARTERLY
START™

EXTRA ISSUES!

★★★

Come to grips with GEM!

Pascal $149
Fortran $199

800 pages of documentation included

Prospero Pascal for GEM and **Prospero Fortran for GEM** - two new products for the Atari ST - with:

- Complete programming environment with editor and workbench
- High performance compiler (Pro Pascal or Pro Fortran)
- Linker, Run-time Libraries, Librarian, X-referencer, Symbolic Debugger
- Compiled Pascal or Fortran GEM bindings
- Complete language and GEM documentation
- Access to BIOS, XBIOS and Line A routines

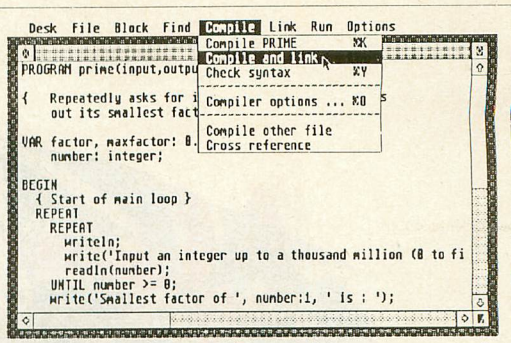
The **programming environment** is designed to stay resident in your Atari while you are programming. It controls the editor, the compiler, the linker and utility programs, and allows you to run the program you have compiled or any other program.

With the **four-window editor** you can load up to four different source files, and cut and copy between them - the editor understands Wordstar® command sequences. It has block copy and move as well as powerful search and replace functions.

The **compiler** is Prospero's well established Pro Pascal or Pro Fortran-77 compiler, both of which conform fully to ISO and ANSI standards.

The **linker** is fast and efficient; assembler language libraries may be introduced.

The **debugger** provides complete source line tracing and source variable display capability; break points can be set; the calling sequence may be shown, the last ten lines executed can be listed, as can any source lines from the main program or any libraries; you can execute SID or any other program; screen switching separates program text and GEM output.



Windowing and graphics support is provided by GEM; the documentation gives all the explanation needed to use these powerful functions.

The three volume **Documentation** pack includes:

- Installation and operating instructions
- Implementation details
- The programming language specification
- Detailed descriptions of all 109 VDI Bindings and all 101 AES Bindings, with example programs.

TO BUY NOW CALL 1-800-327-6730. Visa, Mastercard & CODs taken.

Prospero Software, Inc. 100 Commercial Street Suite 306, Portland, ME 04101 . Tel (207) 874 0382. Distributor and dealer inquiries invited.

For international sales call London 01-741 8531 or write to Prospero Software Ltd, 190 Castelnau, London SW13 9DH, England.

Prospero Software
LANGUAGES FOR MICROCOMPUTER PROFESSIONALS

CIRCLE **019** ON READER SERVICE CARD

ATARI 8-BIT POWER

ALPHA SYSTEMS is constantly innovating to provide more power for your 8-bit Ataris

NEW **HACK BACK Special OFFER**

The Alpha Systems HACK PACK contains all our finest products for making Back-up copies, Analyzing, Understanding and Protecting your Atari programs. It comes complete with Atari Protection Techniques (Book and Disk I), Advanced Protection Techniques (Book and Disk II), The Chipmunk, The Scanalyzer, The Impersonator and Disk Pack 1000. Worth over $150. Get them all for the special price of **Just $99.95**

Atari Software Protection Techniques Vol I & II

These Book and Disk packages detail the most advanced copy protection methods in use today. They guide you through the methods used to create the protection as well as the copying techniques to get around them. They include information on Phreaking • Hacking • On-line security • Black boxes • Self-destructing programs • Pirate bulletin board systems • Logic bombs • New piracy laws • Hardware data keys • Weak sectoring (Phantom, Fuzzy and unstable sectors) • Overfilled tracks • CRC errors • Bank Select cartridges and MUCH, MUCH MORE. The disks include automatic program protectors, Protection Scanners, directory hiding and more.

BOOK I and DISK I $24.95
BOOK II (Advanced protection) and DISK II $24.95
Special Offer, Order both sets for Only $39.95

CHIPMUNK

Automatic Disk Back-Up System. Make perfectly running unprotected back-up copies of hundreds of the most popular Atari programs. Chipmunk's sophisticated programming Automatically finds and **REMOVES copy protection** from most Atari programs. Back-up even heavily protected programs with ease. Finally, a back-up system that needs no special hardware or skills.

(If you need a full list of what Chipmunk copies, call or write for our free catalog) **$34.95**

Scanalyzer Automatically scan & analyze commercial programs. Unlock programming secrets and learn from the masters **$29.95**

Impersonator Cartridge to Disk back up system. Create running back-up copies of any cartridge (up to 16K) **$29.95**

NEW **CHEAT**

Get more from your games with CHEAT. Tired of spending days trying to beat a game? Tired of getting stuck just when you need another life? Cheat is an innovative new product that gives you the chance you need to beat your favorite games. Cheat works with hundreds of Atari games to give you unlimited lives or power. End the frustration and get hours more enjoyment from your games. (Call or write Alpha Systems for our free catalog with a full list of the programs that work with Cheat) **ONLY $24.95**

BASIC TURBOCHARGER

NOW for the first time a BASIC programmer can get the power, flexibility and incredible speed of machine language. BASIC TURBOCHARGER is a **book and disk package** that contains over 150 ready to use machine language routines. Complete instructions show how to add them to your own BASIC programs to get these features and more: • Smooth Scrolling • Player/Missile control • Load & Save Picture files • Sorting and Searching • Special Effects Graphics • Incredible Speed • Much, Much More • Over 150 programs. You've heard of the power of Assembler, now harness it for your own needs. **$24.95**

NEW **PARROT II**

An All New Parrot sound digitizer for your Atari. Parrot II is a sophisticated new hardware device that plugs into your joystick port. Parrot II has two inputs, One for a microphone and one for a powered source such as a tape player, radio or Compact Disk.

The Powerful Parrot II software lets you record sounds into your computer and play them back on any Atari. Parrot II turns your computers keyboard into a musical instrument with nine different sounds covering three octaves each. The sounds can be anything, a dogs bark, a piano, a complete drum set, a symphony or your own voice.

Parrot II lets you modify the sounds on a graphic display to create brand new sounds and special effects. Best of all, the sounds and voices can be put into your own programs that can be used on any standard Atari. Explore the world of digital sound and music. ONLY **$59.95**

Pre-Recorded Sound Disk More pre-recorded sounds for Parrot **$4.95**
PARROT II Demo Disk (Does not require Parrot to run) **$5.00**

NEW **POP-N-ROCKER** a fast paced, multi-player trivia game that mixes questions with real songs (digitized with Parrot). Be the first to identify the songs and answer the music trivia questions. *Pop-N-Rocker* comes with three data disks and lets you add new questions so it will never get old. You can use a Parrot Sound digitizer to add new songs too! Use any kind of music from Rock to Classical to Nursery Rhymes. A new concept in entertainment and a perfect add-on for Parrot. **$24.95**

COMPUTEREYES & MAGNIPRINT II +

Turn your computer into a digital portrait studio. This complete package lets you **capture, save & print** digital images from your **Video Camera, VCR or TV.** COMPUTEREYES hardware plugs directly into your joystick ports for easy use. Print your picture on a 6 foot poster. **$119.95**

ComputerEyes camera system
Comes complete with everything above, plus a black and white video camera and connecting cable. **$329.95**

Graphics 9 Software – Add a new dimension to your COMPUTEREYES pictures – captures images in 16 shades of grey. **$12.00**

GIANT WALL SIZED POSTERS.

Magniprint II +
Easily the most powerful print program available today. Print graphics from almost any format in hundreds of shapes, sizes, and shades. Supports **color printing** and lets you create **giant posters.** Magniprint II + lets you stretch and squeeze, invert, add text, adjust shading and much more. Works with EPSON, NEC, Citoh, Panasonic, Gemini, Star, XMM801, and compatible printers. (850 interface or equivalent required). **$24.95**

Graphics Transformer
Now you can combine the most powerful features of all your graphics programs. Create print shop icons from a Koala pad picture, from a photo digitized with ComputerEyes, or any picture file. Graphics Transformer lets you **Shrink, Enlarge and Merge** pictures for unequaled flexibility. **$22.95**

YOUR ATARI COMES ALIVE

SAVE MONEY. Finally an alternative to buying expensive computer add-ons. Your Atari Comes Alive shows you how to **built them yourself.** This 'How-To' **book and disk package** gives you complete step by step instructions and programs needed to built and control these exciting devices and MORE: • Light Pen • Light & Motor Controllers •Alarm Systems • Voice Recognition • Environmental Sensors •Data Decoders • More than 150 pages. **Your Atari Comes Alive** **$24.95**

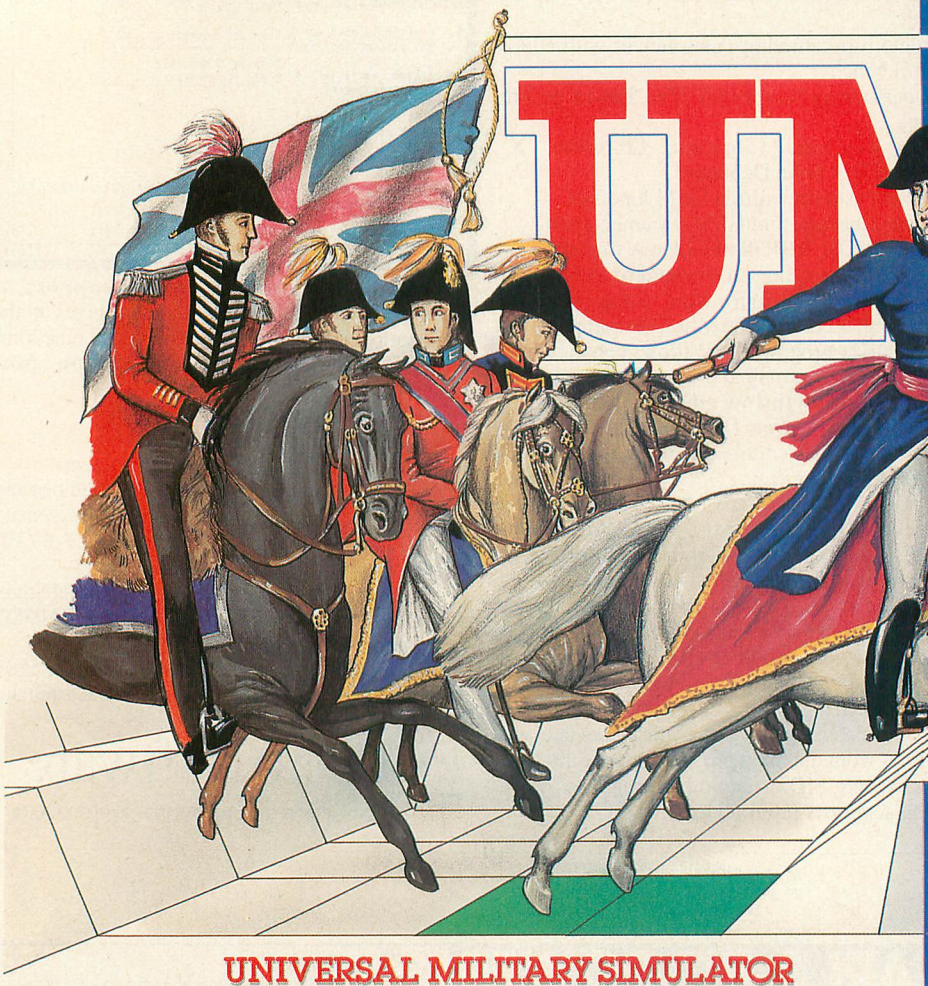
ALPHA SYSTEMS

24 HOUR HOTLINE **216-374-7469**

VISA & MASTERCARD, ORDER BY PHONE, OR SEND MONEY ORDER TO:

ALPHA SYSTEMS 1012 SKYLAND DRIVE MACEDONIA, OH 44056 **FREE BONUS:** DELUXE SPACE GAMES (3 games on a disk) Free with any order of 3 or more items. Include $3.00 shp & hdlg (US Canada) Ohio res. add 5½% sales tax. Foreign orders add $8.00 shp & hldg. Call or write for free catalog. Customer Service Line (216) 467-5665 M-F 9-3.

CIRCLE **001** ON READER SERVICE CARD

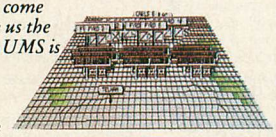


UMS

UNIVERSAL MILITARY SIMULATOR

You may never buy another war game.

"One's first impression of UMS is that of awe. The computer-generated topographical battlefields, the highly playable nature of the game, and the very flexible nature of the construction set come together to give us the impression that UMS is definitely a breakthrough product."

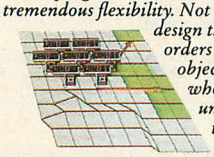


That's what the wargame experts at Computer Gaming World say about UMS. They also like UMS' high-tech graphics...

"...the three-dimensional topographical views of the battlefield offer a unique perspective in computer gaming. The ability to look at the entire map from eight different compass points is, to our knowledge, unique."

...the power and flexibility...

"...the program's constructability allows for tremendous flexibility. Not only can players design their own maps, orders of battle and objectives, but players who feel that certain units are too strong, too fast, or too experienced can adjust those with the powerful editor...the program truly does allow almost any historical, fantasy or science fiction battle to be created."



Screenshots from Atari ST.

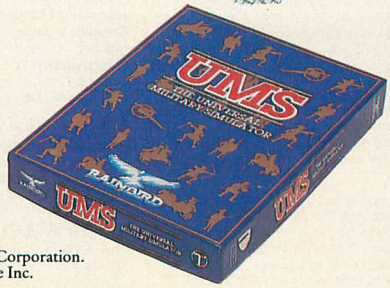
"...gamers will appreciate the program inclusion of elements such as terrain, elevation, weaponry, morale, status, and unit efficiency in its calculations."

...and to sum it all up...

"...we want to say that this is a cutting edge product that all computer wargamers will want to play."

Universal Military Simulator. It's the new standard in wargames.

Available now on Atari ST and IBM. Coming soon on Amiga and Mac.



Atari ST© Atari Corporation.
Mac© Apple Computers Inc.
IBM© International Business Machine Corporation.
Amiga© Commodore Business Machine Inc.

Telecom Soft, P.O. Box 2227, Menlo Park, California 94026.

CIRCLE **030** ON READER SERVICE CARD

THE ULTIMATE MILITARY SIMULATOR

Intergalactic Development Incorporated

RAINBIRD

Rainbird and Rainbird Logo are registered trademarks of British Telecommunications PLC

ST Resource
All the latest news for the ST user
May 1988

Crazy Chicken Barrage

Watch out for the eggs, grenades and knives!

By STEPHEN EVERMAN & PAUL PRATT *Type-In Software*

Ever want to just chuck it all and get a chicken farm? Well, you'll change your mind after playing Crazy Chicken Barrage, because this farm is out to get *you!* The game runs in low resolution and a color monitor is required.

High in their roosts above the barnyard, your hens produce egg after egg—and then they toss them down without a second thought. If you don't want to go broke, you must catch each egg before it splats on the ground. To make things even worse: You're stuck with war surplus chickens—a rare breed that lays hand grenades and knives as well as eggs. It's almost as if the chickens want to make sure that you "buy the farm" in more ways than one.

But you do have four lives and your profits are stored as points on the disk, so your heirs can remember you fondly.

GETTING STARTED

Using Michtron's GFA BASIC, carefully type-in BARRAGE.BAS and Save a copy before you Run it. Antic Disk users who do not own GFA Basic will find a ready-to-run version of the program, BARRAGE.PRG, on the back of the monthly disk—along with a Help file explaining how to transfer the program to an ST disk.

To start playing Barrage, click on PLAY. The farm boy onscreen jumps into egg-catching position and the action begins.

Moving your mouse left and right moves the farm boy accordingly. Help him grab those eggs before they splat. That's tough enough, and it gets tougher. You start off with one egg, but eventually you'll have to juggle four at a time. Then just when you think you've gotten the hang of that, there'll be something even tougher to contend with—another round.

There is no limit to the number of rounds you can play, *continued on next page*

and as the game proceeds, the eggs fall at different angles and speeds. They might become grenades that explode if they hit the ground, or knives that kill if you catch them (so let them drop!). And everything keeps falling faster and faster.

When you just can't take the pressure anymore, flee to the entry screen by clicking the mouse. When you're ready, click on PLAY again and you'll return to the round you left.

When your feathered friends finally do you in, your score is saved to disk if it's higher than previous high score. And if there isn't a high score file on the disk, the program will create one.

PROGRAM NOTES

The first thing we do after checking the resolution with an Xbios function is to store the screen memory address in the variable Scr_mem by LPEEKing address 1102.

Next, the Fix_colors( ) subroutine saves the user's current color palette in the Pal array. Few things are as annoying as a program which colors your screen with arcade-like hues, then neglects to restore your *original* screen colors.

Fix_colors is a simple routine which may be used to save a user's palette at the start of a program, and restore it at the end. Use the statement Fix_colors(True) to save the original palette, and Fix_colors(False) to restore it.

We then Gosub to In_hi_score and get the high score from the disk. If there isn't a HI_SCORE.EGG file, we'll be routed to the procedure that creates one.

Now we take Scr_mem down to Assign_objects, where we change the data at the end of the program into objects.

The Get command stores a piece of the screen as a string which can be put back onscreen with the Put command. We'll use the Get command to store our objects in arrays. For example the Egg, Grenade and Knife are all stored in an array called Egg$.

Egg$(0)=Egg

Egg$(1)=Splattered Egg

Egg$(2)=Hand Grenade

Egg$(3)=Knife

Assign_objects first creates three erasers (by getting three pieces of blank screen) that erase the boy, egg and score respectively. Then *all 16* of the screen colors are set to the same color so when we begin Poking our data into screen memory, we won't see it happening. Once all the colors are the same, we begin pumping out data onto the screen and catching the objects in arrays until we've created the pictures we're going to use.

Here's how we get the three boy icons (walking left, walking right and middle) into their arrays: The outer loop "For Boys=1 to 3" says to create all three boys the same way. It is the inner loop "For X=0 to 30" that can be tricky. This loop gets the data from the Data statements and draws the boys in the upper left corner of the screen, so we can capture them into arrays with the Get command.

SCREEN MEMORY

Scr_mem can also be considered the beginning of the first 16 pixels of screen memory. Unfortunately we need four color planes of 16 bits each to create the first 16 pixels on the screen, so the first 64 *bits* of screen memory are all dedicated to the first 16 *pixels* of screen memory. That is, for every 16 pixels across the screen, we have to Poke four words of data.

The loop names these four words Plane1, Plane2, Plane3 and Plane4. We then Poke them directly into the upper left corner of screen memory. But our boy is only one word wide, so we aren't interested in the second set of 16 pixels in screen memory. We are interested in the 16 pixels directly below the first 16, So we multiply X by 160—the number of bytes across the screen—to get the screen memory address where the second set of 16 pixels begins.

Once all of our objects are safely tucked away in arrays, we return to the beginning of the program and set up the eggs' characteristics for the first round. We'll run them through a loop that accesses the New_egg subroutine using the command @New_egg(Numegg).

An egg's characteristics include its X-Y position, speed of descent and whether it falls straight or at an angle. In fact, an egg can be "not an egg at all", but a hand grenade or knife. The procedure New_egg always makes a new object an egg that drops straight down. Then it accesses the subroutine according to the level you're on: if you were on Level 5, the program would Gosub to Procedure Lev5.

This would send you to Procedure Grenade to see if the egg should be turned into a grenade, and then the speed of the falling egg is set randomly. The characteristics of an egg are kept in arrays whose reference number is the *number* of that falling object.

Let's skip down to Procedure Main. First, let's make sure the falling object has characteristics with a Gosub New_egg(1). The While loop circles until we push a mouse button and the variable Play becomes false.

Now let's dispose of the three If/Endif segments of the procedure. The first simply checks to see if a button is pressed. Then it removes all the falling objects from the screen, makes the boy dance, and leaves Main. The second If Dance=True does a Gosub to Dance. The If steady>4 statement puts a standing boy on the screen at the X position of your mouse after five cycles through Main.

CAUTION: FALLING EGG

Procedure Egg_drop sets the falling object to the first object, array number 0. Then a Repeat/Until loop is set up to cycle until all of the falling objects that are suppose to be on the screen have been drawn.

The first three lines after Repeat erase the old object, add its vertical offset (or speed) to its vertical position and

continued on page 60

ST Graphics Tablets

If you dislike "drawing with a bar of soap. . ."

Reviewed by FRANK HAYES

The ST mouse is great for selecting an onscreen item by pointing and clicking. That, after all, is what it was designed for. Unfortunately, for other things the mouse simply doesn't work as well.

For instance, boot up your favorite ST drawing program and use the mouse to sign your name on the screen. If you're like most people, you'll find it's a little uncomfortable—and the result won't be a very good sample of your signature.

Many artists find that they have a similar problem when they try to use a mouse with computer drawing programs. As computer artist Eleanor Kent once commented, "Working with a mouse is like trying to draw with a bar of soap."

Fortunately for ST users there's an alternative. You can do your drawing with a stylus and a graphics tablet.

What's a graphics tablet? Put your hand on your ST's mouse. Now imagine that the mouse has suddenly transformed itself into a pen, and your mousepad has changed into a small drawing board. That's what a graphics tablet is like. To the ST, it appears to be a mouse, but you use it much more like a pencil and drawing board. Use that electronic pencil to sign your name and you'll probably produce an easily recognizable signature.

ARTABLET

Two graphics tablets for the ST are the **ARTablet**, available from EI/O Products, and the **ProTablet ST** from Quantum. Like other peripherals such as modems, printers and scanners, these graphics tablets aren't built just for the ST. They can be connected to a wide range of other computers. But the ARTablet and ProTablet both come with driver software that's specifically designed to work on the ST, making these tablets more productive and easier to use.

The ARTablet from EI/O Products uses a graphics tablet manufactured by Summa. It comes in various sizes. We reviewed the smallest and least expensive ($395), which measures 9-1/2×13 inches physically. However, the actual drawing area is only about 6×9 inches—slightly larger than your ST's screen.

What's the ARTablet got to recommend it? Like a regular ST mouse, it has two "buttons" on the pen. When you would normally press the left mouse button, you simply press down a little harder with the stylus. That makes sense, since most ST drawing programs let you draw by pressing down the left button. The "right button" is a real button on the side of the stylus.

The graphics tablet itself sets up at an angle, like a drawing easel. The cords are long enough to give you plenty of flexibility when you're using the tablet and stylus. Best of all, the software is designed to let you use either the graphics tablet or the mouse. The graphics tablet has priority, but it's very easy and convenient to simply put down the stylus and use the mouse whenever you want to.

The disadvantages? The biggest one is the ARTablet's fairly small drawing area. It feels a little cramped when you're trying to do detailed work—though that's probably not such a problem with the larger sizes. The replaceable plastic tip in the stylus isn't as smooth as a metal tip would be for writing or drawing, and the stylus connects to the underside of the graphics tablet. As a result, the ARTablet can't lie flat on your desk, but must be angled like an easel. It's also too easy to accidentally hit the button on the stylus.

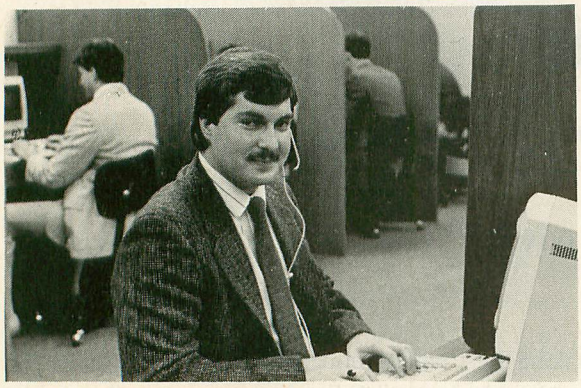
continued on page 58

Lyco Computer

Marketing & Consultants

Since 1981

Lyco Means Total Service.



Mark "Mac" Bowser, Sales Manager

I would personally like to thank all of our past customers for helping to make Lyco Computer one of the largest mail order companies and a leader in the industry. Also, I would like to extend my personal invitation to all computer enthusiasts who have not experienced the services that we provide. Please call our trained sales staff at our toll-free number to inquire about our diverse product line and weekly specials.

First and foremost our philosophy is to keep abreast of the changing market so that we can provide you with not only factory-fresh merchandise but also the newest models offered by the manufacturers at the absolute best possible prices. We offer the widest selection of computer hardware, software and accessories.

Feel free to call Lyco if you want to know more about a particular item. I can't stress enough that our toll-free number is not just for orders. Many companies have a toll-free number for ordering, but if you just want to ask a question about a product, you have to make a toll call. Not at Lyco. Our trained sales staff is knowledgeable about all the products we stock and is happy to answer any questions you may have. We will do our best to make sure that the product you select will fit your application. We also have Saturday hours — one more reason to call us for all your computer needs.

Once you've placed your order with Lyco, we don't forget about you. Our friendly, professional customer service representatives will find answers to your questions about the status of an order, warranties, product availability, or prices.

Lyco Computer stocks a multimillion dollar inventory of factory-fresh merchandise. Chances are we have exactly what you want right in our warehouse. And that means you'll get it fast. In fact, orders are normally shipped within 24 hours. Free shipping on prepaid orders over $50, and there is no deposit required on C.O.D. orders. Air freight or UPS Blue/Red Label shipping is available, too. And all products carry the full manufacturers' warranties.

I can't see why anyone would shop anywhere else. Selection from our huge in-stock inventory, best price, service that can't be beat—we've got it all here at Lyco Computer.

TO ORDER, CALL TOLL-FREE: 1-800-233-8760
New PA Wats: 1-800-233-8760
Outside Continental US Call: **1-717-494-1030**

Hours: 9AM to 8PM, Mon. - Thurs.
9AM to 6PM, Friday — 10AM to 6PM, Saturday

For Customer Service, call 1-717-494-1670,
9AM to 5PM, Mon. - Fri.
Or write: Lyco Computer, Inc.
P.O. Box 5088, Jersey Shore, PA 17740

VISA MasterCard

Risk-Free Policy: • full manufacturers' warranties • no sales tax outside PA • prices show 4% cash discount; add 4% for credit cards • APO, FPO, international: add $5 plus 3% for priority • 4-week clearance on personal checks • we check for credit card theft • compatability not guaranteed • return authorization required • price/availability subject to change • Prepaid orders under $50 in con., U.S. add $3.00.

Monitors

Thomson:

230 Amber TTL/12"	$79.95
450 Amber TTL/15"	$69.95*
4120 CGA	$225.95
4160 CGA	$259.95
4460 EGA	$319.95
4375 UltraScan	$389.95
GB 100 EGA Card	$129.95
GB 200 Super Card	$219.95

Quantities Limited

THOMSON
4120 Monitor

- 14" RGBI/video composite/analog
- Compatible with IBM and Commodore
- RGB data cable included

$225.95

Blue Chip:

BCM 12" Green TTL	$75
BCM 12" Amber TTL	$79

NEC:

Multisync II	$559

Save $170 over NEC Multisync with Thomson 4375 UltraScan $389.95

Modems

Avatex:

1200e	$69.95
1200i PC Card	$69.95
1200hc Modem	$89.95
2400	$179.95
2400i PC Card	$169.95

Hayes:

Smartmodem 300	$149.95
Smartmodem 1200	$285.95
Smartmodem 2400	$425.95

Smarteam
1200 Baud Modem

OUR PRICE **$89.95**

Hayes Compatible

ATARI

Access:

Triple Pack	$11.95
Leader Board Pack	$14.95

Activision:

Hitch Hikers	$13.95
Music Studio	$19.95

Broderbund:

Print Shop	$25.49
Print Shop Compan.	$22.95
Graphic Lib. I, II, III	$13.49
Bank St. Writer	$27.95

Electronic Arts:

Pinball Con Set	$8.95
Lords of Conquest	$8.95
Starfleet I	$32.95
Chess Master 2000	$25.95
Music Con Set	$8.95
Super Boulderdash	$8.95
One on One	$8.95

Firebird:

The Pawn	$22.95

Microleague:

Microleag. Baseball	$22.95
General Manager	$16.95
Stat Disk	$13.95

Microprose:

Conflict in Vietnam	$22.95
F-15 Strike Eagle	$19.95
Kennedy Approach	$13.95
Silent Service	$19.95
Top Gunner	$13.95

Strategic Simulations:

Battle of Antetiem	$28.95
Battlecruiser	$33.95
Nam	$22.95
Phantasie	$22.95
Wargame Construc.	$16.95
Warship	$33.95
Wizards Crown	$22.95

Sublogic:

Flight Simulator II	$31.49
Night Mission Pinball	$18.95
Scenery #1-#6 ea.	$12.95
Scenery #7	$14.95

ATARI ST

Microleague:

Microleague Baseball	$33.95
General Manager	$16.95
Wrestling	$25.95

Microprose:

Silent Service	$22.95
F-15 Strike Eagle	$24.95
Gunship	$28.95

Strategic Simulations:

Phantasie	$22.95
Phantasie II	$22.95
Road War 2000	$22.95
Colonial Conquest	$22.95

Sublogic:

Flight Simulator II	$31.49
Scenery Disk	$14.95

Timeworks:

Wordwriter ST	$44.95
Partner ST	$39.95
Data Manager ST	$44.95

Unison World:

Art Gallery 1 or 2	$14.95
Print Master	$19.95
Fonts & Borders	$17.95
Music Studio	$27.95
Bureaucracy	$22.95

Electronic Arts:

Arctic Fox	$25.95
Empire	$32.95
Starfleet I	$32.95
Chess Master 2000	$25.95
Gridiron	$32.95

Epyx:

Sub Battle Simulator	$22.95
World Games	$22.95
Wrestling	$22.95
Winter Games	$11.95

Firebird:

Pawn	$25.95
Starglider	$25.95
Golden Path	$25.95
Guild of Thieves	$25.95
Tracker	$25.95

ATARI ST

Access:

Leader Board	$22.95
Tournament #1	$11.95
10th Frame	$22.95

Activision:

Champion. Baseball	$22.95
Champion. Basketball	$22.95
Championship Golf	$New
GFL Football	$22.95

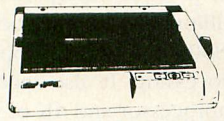
Joysticks

Tac 3	$9.95
Tac 2	$10.95
Tac 5	$12.95
Tac 1 + IBM/AP	$26.95
Economy	$5.95
Slik Stick	$6.95
Black Max	$10.95
Boss	$11.99
3-Wav	$19.99

1-800-233-8760

star micronics inc NX-1000

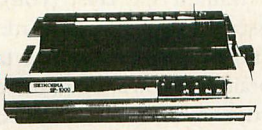
- 144 cps Draft
- 36 cps NLQ
- EZ Operation Front Panel Control



$165.95

SEIKOSHA Sp 180Ai

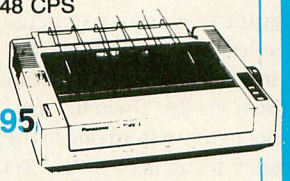
- 100 cps draft
- 20 cps NLQ



$129.95

Panasonic 1092i

- 240 CPS/12 Character Mode
- Push Feed Tractor
- NLQ Mode 48 CPS



$295.95

PRINTERS

star micronics inc

NL-10 w/o Cart	$159.95
NX-1000	$165.95
NX-1000C	$175.95
NX-1000 Color	$225.95
NX-1000C Color	$229.95
NX-15	$295.95
ND-10	$265.95
ND-15	$379.95
NR-10	$309
NR-15	$425.95
NB-15 24 Pin	$699.95
NB24-10 24 Pin	$425.95
NB24-15 24 Pin	$559.95

BROTHER

M1109	$195
M1409	$299
M1509	$335
M1709	$475
Twinwriter 6 Dot & Daisy	$899
M1724L	$599
HR20	$339
HR40	$569
HR60	$709.95

SEIKOSHA

SP 180Ai	$129.95
SP 180VC	$129.95
SP 1000VC	$139.95
SP 1000AP	$169.95
SP 1200VC	$155.95
SP 1200Ai	$165.95
SP 1200AS RS232	$165.95
SL 80Ai	$299.95
MP1300Ai	$269.95
MP5300Ai	$399.95
MP5420Ai	$879.95
SP Series Ribbon	$7.95
SK3000 Ai	$339.95
SK3005 Ai	$419.95
SPB 10	$CALL
SL 130Ai	$599.95

Toshiba

321SL	$489
341 SL	$659
P351 Model II	$899
351 SX 400 cps	$1019

EPSON

LX800	$175.95
FX86E	$289.95
FX286E	$429.95
EX800	$374.95
EX1000	$469.95
LQ500	$CALL
LQ1000	$549.95
LQ2500	$849.95
GQ3500	$LOW
LQ850	$499.95
LQ1050	$679.95

CITIZEN

120 D	$149.95
180 D	$169.95
MSP-10	$259.95
MSP-40	$289.95
MSP-15	$324.95
MSP-50	$389.95
MSP-45	$425.95
MSP-55	$489.95
Premiere 35	$464.95
Tribute 224	$624.95

Panasonic

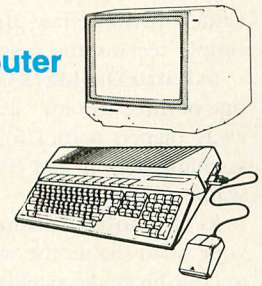
1080i Model II	$165.95
1091i Model II	$185.95
1092i	$295.95
1592	$399.95
1595	$449.95
3131	$269.95
3151	$419.95
KXP 4450 Laser	$CALL
1524 24 Pin	$559.95
Fax Partner	$589.95

OKIDATA an OKI AMERICA company

Okimate 20	$119
Okimate 20 w/cart	$179.95
120	$189.95
180	$219.95
182+	$225.95
183	$249.95
192+	$309.95
193+	$449.95
292 w/interface	$449.95
293 w/interface	$585.95
294 w/interface	$819.95
393	$955.95

ATARI 520 ST Computer

- Built-in Drive
- Thomson 4120 Monitor



$769.95

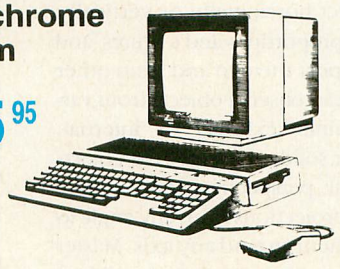
ATARI HARDWARE

520 ST FM Mono	$675.95
520 ST FM Color	$819.95
1040 ST Mono	$789.95
1040 ST Color	$975.95
130XE Computer	$135.95
SX551 Drive	$CALL
SF 314 Disk Drive	$219.95
Indus GT Atari Drive	$175.95
SHD 204 20 MEG Drive	$579.95
XM301 Modem	$42.95
SX212 Modem	$89.95
GTS 100 (3.5" DSDD ST)	$195.95

ATARI 520 ST-FM Monochrome System

$675.95

Internal drive included



ATARI 1040 ST Color System

$975.95

Attention Educational Institutions:

If you are not currently using our educational service program, please call our representatives for details.

ATARI 1040 Monochrome System

$789.95

ST New Products

by GREGG PEARLMAN, *Antic Assistant Editor*

MICHTRON QUINTS

The Juggler ($49.95) is a switching program that lets you keep *seven* GEM applications in memory at the same time and access them via the "switchboard," making it easier to move from one to the other. The Juggler recognizes .PRG, .TOS and .TTP files.

Create pictures and complex animations with **GFA Artist** ($79.95), save them in a special run-only file that allows up to 20,000 frames per film, then show them off to your friends. You can incorporate text into your pictures in a custom font (or one of the four provided ones), employ color cycling, even define your own fill pattern from part of your picture. With the Film Merger, you can merge into a *single* file several film files.

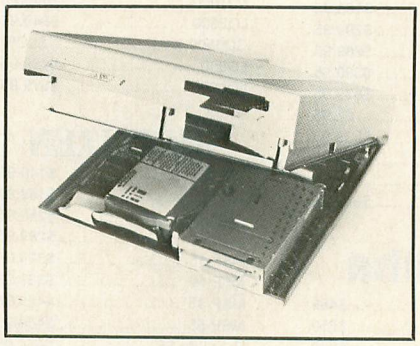
The Low-Res Static mode lets you use over 1,000 colors onscreen at once, and the Function Selection box integrates both low and medium resolution into one screen, combined with multiple palettes. The program is compatible with DEGAS and NEOchrome formats, and it requires 1Mb of RAM, TOS in ROM and a color monitor.

Master CAD ($249.95) lets you create complete, exact 2-D and 3-D graphics and *project* 2-D designs onto 3-D images without having to waste time building data matrices or fighting with inadequate user interfaces. You can move, copy, rotate and flip any object horizontally or vertically, change their proportions and textures, and export or import them to and from other objects. You can observe objects from various viewpoints, external or internal, transparent or solid, or observe the objects in orthogonal, perspective, axonometric and oblique projections from any angle as well as spin them around any axis. Master CAD uses the screen as a "window" into a workspace with about 2,300 miles in each positive or negative access direction.

PreSchool KidProgs ($39.95) stimulates the development of young children with KIDGRID +, a drawing program with 192 trangles that can be filled with one of 12 colors, KIDKEYS, which lets children choose one of 20 songs or create their own on the three-octave keyboard, and KIDBLOCKS, a multi-sided block puzzle to be unscrambled. PreSchool KidProgs requires a color monitor.

Microdeal's **Slaygon** ($39.95) is the most sophisticated military robot ever created. Controlled from within by one highly trained specialist (you), Slaygon possesses the strength of 100 men, the armor and weapons of a small tank—and your brain—as you attempt to destroy the Cybordynamics Laboratory before the finalization of a toxic virus designed to annoy all human life. You must circumvent security robots through five miles of hallways and 500 rooms, but you'll be aided by a cloaking device, short-range scanner and energy shields.

Michtron, 576 S. Telegraph, Pontiac, MI 48053. (313) 334-5700.
CIRCLE **190** ON READER SERVICE CARD



MEGADRIVE

Supra's **MegaDrive ST** hard disk connects to the ST's internal DMA port, leaving the external DMA port free for additional expansion. The MegaDrive allows full autobooting from the hard drive and comes with formatting software that lets you partition the hard disk into as many as 12 logical partitions. Power for the hard disk comes from the computer's own power supply.

20Mb: $649; 40Mb: $1,049. Supra Corp., 1133 Commercial Way, Albany, OR 97321. (503) 967-9075.
CIRCLE **184** ON READER SERVICE CARD

DARK CASTLE

In **Dark Castle**, you must connive and survive your way through 14 danger zones in your quest to vanquish the Black Knight. Dark Castle, a former Macintosh hit, features colorful animation and fascinating sound as you encounter trick after trick, test after test, trap after trap.

$44.95. Three-Sixty Pacific, Inc., 2105 S. Bascom, Campbell, CA 95008. (408) 879-9144.
CIRCLE **186** ON READER SERVICE CARD

TRANSPUTER PRINTER

CSS Laboratories' **transputer-based laser printer** incorporates Inmos Ltd.'s 15 million instructions per second (MIPS) T800 chip, which supports true parallel processing. It also incorporates a math coprocessor and 4K of memory directly into the microprocessor chip itself.

The printer can produce five to 20 pages per minute and can be upgraded to any laser printer engine for speeds of up to 50 pages per minute. All you have to do is buy the faster engine and an inexpensive "personality module." CSS expects to support up to 200 pages per minute by the third quarter of 1988.

$2,990. CSS Laboratories, 1641 McGaw Avenue, Irvine, CA 92714. (714) 852-8161.
CIRCLE **183** ON READER SERVICE CARD

THREE FROM DATASOFT

You're Soviet submarine captain Marko Ramius, and you want to defect to the United States with your state-of-the-art sub, the Red October. In **Hunt for Red October** ($49.95), based on the best-selling novel by Tom Clancy, your objective is to rendezvous with the U.S. Navy and fake a radiation leak, thus providing a reason to evacuate the 113-man crew. Then the Navy will smuggle the sub into a U.S. port. (You can't sail openly into U.S. waters. Under maritime law, the Soviets would simply reclaim the vessel.)

In **BattleDroidz** ($34.95) you control one of three "droidz" in combat on a faraway planet. BattleDroidz includes 3-D scrolling action and 37 different landscapes to explore.

As the **Global Commander** ($39.95), your word shapes the world. Your job is to coordinate the satellite network orbiting Earth and act as the planet's chief negotiator. Your domain includes 16 United Nuclear Nations and a network of satellites which monitors the airwaves for information regarding each nation's status.

Intellicreations (Datasoft), 19808 Nordhoff Place, Chatsworth, CA 91311. (818) 886-5922.
CIRCLE **185** ON READER SERVICE CARD

New ST product notices are compiled from information provided by the products' manufacturers. ***Antic*** *assumes no responsibility for the accuracy of these notices or the performance of the product.*

ST Toolbox

Make It Move, Payroll Master

MAKE IT MOVE

Make It Move is an impressive animation design tool, although it is *not* a drawing program. It lets you define sprite-like objects from NEOchrome or DEGAS .PI1 graphics files. You then can create fairly sophisticated animations with these images.

The package includes two disks containing the programs and a tutorial. Every screen illustration in the 29-page manual is almost too dark to recognize and the manual doesn't tell you how to recode animations on videotape. But it *is* nicely indexed, and the appendix contains short explanations of each command.

The first program you'll use is OBJECTS.PRG, which lets you select the sprite images for your graphics presentation, but you'll have to draw your artwork before using any of the Make It Move programs. You can load two graphics files into memory at once or use one of the file buffers as a clipboard. Once your artwork is in a file buffer, you select the images with a rectangular "rubber band box" pulled over the desired area of the image. Then you can name each image for reference.

You can change your picture file format easily with OBJECTS.PRG. You can load a NEO file and save it as a DEGAS .PI1 file. Another nice feature is the facility for creating zoom files of a single object. The object can zoom from a small speck to the full-scale image on the horizontal and/or vertical axes. Then you can incorporate the zoom files into your script.

Keep your background simple—it isn't always transparent in your animations. Also, your presentation will use the color palette of the full screen display of your script—which is not necessarily the same as a given object. After you've selected all the objects you want, the file containing them must be stored in a special compressed format which is *not* the same as the DEGAS Elite compressed format.

Make It Move has very sophisticated scriptwriting facilities. You can display, hide and move your defined objects around the screen at given times, but there's no way to rotate objects other than page-flipping.

Make It Move excels in screen wipes and fades. The 13 options range from fading into a given color to digital dissolves in geometric patterns. These options let you create very professional-looking productions.

The SCRIPT.PRG program lets you view scripts in segments or in their entirety while constructing your presentation. A separate program, VIEWIT.PRG, lets you view a finished presentation. The VIEWIT.PRG is designed to be copied and distributed for the sole purpose of viewing scripts, but it is not public domain.—TOM CASTLE

$59.95, color. Michtron, 576 S. Telegraph Road, Pontiac, MI 48053. (313) 334-5700.

CIRCLE 170 ON READER SERVICE CARD

PAYROLL MASTER

I bought an Atari 520ST computer intending to phase out the Apple III that I use at work. My first step was to find a payroll program that does everything the $395 Apple program can do. Royal's **Payroll Master** not only meets the challenge, but surpasses it. With a retail price of $79.95 and the fact it runs on a stock 520ST, there's no reason not to use Payroll Master for any small to medium-sized business payroll.

The program comes on an unprotected master disk—fantastic, since backup copies are essential. Payroll Master is easy enough that a 350-page manual isn't necessary. If you do have questions, assistance is only a phone call away, and a disk replacement/update service is offered for a minimal charge. The program itself is GEM-oriented, and payroll data is memory-resident (so execution is *fast*). Up to 400 employees can be entered.

After a few numbers and mouse clicks, you're done with an employee. You can process everyone, or only selected people. Payroll Master provides user-definable federal, state, city and local tax tables, which you can enter easily. This negates any tax update service (which my Apple needed at over $100 annually). Also, you can add five user-defined deductions. The program supports weekly, biweekly, monthly and semimonthly pay periods, along with hourly, salary and base-plus-commission pay types. Vacation and sick leave are tracked for convenience.

Dragging with your mouse and clicking gives you a check "mask" of your own design so you can use virtually any preprinted paycheck form. Reports included are payroll registers, employee information and month/quarter/year-end registers. W-2s are printed at the end of the year also.

You can send reports to the printer or a disk file. The "dump report to disk" feature also lets you save the reports as text files. So if you lose your hard copies, you can always bring up the text file for any pay period.

I wish the payroll register was shorter (although I suppose it's possible that I might have missed an obscurely documented alternative for-

continued on next page

ST TOOLBOX
continued from page 57

mat). I need a report with only the check number, employee and net amount, but so much other information is included on this report that it's several pages long. However, I soon learned to overcome this by printing my register report to disk and editing the file before I make a hardcopy.

I also wish that Payroll Master would automatically skip everyone who has already had their paychecks printed for that pay period. I generally have to print checks for different parts of my 40-person staff at different times—and if I just select Print All, duplicate checks for the previously paid employees are printed. In addition, I would sometimes find it helpful if the program had a small ledger system for posting special situations to the accounts involved.

Still, Royal Software has a real winner. Anyone looking to process payrolls efficiently, inexpensively and painlessly should look at this program—especially if you have just a single-sided drive and 512K of memory.—FRANK TOMECEK

$79.95. Royal Software, 710 McKinley Street, Eugene, OR 97402. (503) 683-5361.

CIRCLE **171** ON READER SERVICE CARD

ST GRAPHICS TABLETS
continued from page 53

There are no switches or calibrations to set for the ARTablet—you just plug it into your ST and begin using it. All in all, it's a convenient and useful way to draw.

PROTABLET ST

Quantum's $395 ProTablet ST is manufactured by Mitsubishi. This graphics tablet is much larger than the ARTablet we tested—11×17-1/2 inches, with an 8×12 inch drawing area. That's almost twice the drawing area and a big advantage. The ProTablet has a number of other attractive features—but with that power comes much more complexity.

For example, the ProTablet's metal-tipped stylus works with a smooth, light touch and you can replace the metal tip with a ball-point pen tip if you like. But there's no second button on the stylus—you can only click by pressing harder with the stylus. Supposedly you can click the right mouse button by clicking with the stylus in one of the corners of the tablet, but it's difficult to use correctly.

You can also scale the drawing area for your particular work, using only a portion of the tablet's drawing surface for the whole ST screen. This makes it much easier to trace a drawing into DEGAS or into a CAD program. It's very easy to reset the scaling. Too easy, in fact—the scaling seemed to reset itself even when we didn't want it to.

Many of the ProTablet's options are controlled by 10 DIP switches on the underside of the tablet, which are supposed to be set correctly for the ST when you receive the tablet. Ours weren't, and we had a difficult time getting the switch settings right. If they're wrong, you may get no results at all.

But there are some major advantages to the ProTablet too. All the connections are made to the rear of the tablet rather than the underside, so the tablet can either sit flat or set angled as an easel. The power-on LED makes it easy to tell whether everything's connected properly. And though you can't use the mouse and tablet at the same time, you can easily switch between them using the software, which comes in the form of a Desk Accessory program.

One of the best features of the ProTablet is the optional drawing puck. The puck plugs into the ProTablet tablet, replacing the stylus. It looks something like a mouse with crosshairs, and it allows very precise tracing. That's extremely useful when you're trying to copy a sketch into a drawing or CADD program. The puck has felt pads on the underside, so it glides very smoothly across the surface of the graphics tablet. There are also four buttons on the puck, solving the "missing button" problem. Unfortunately, the software version we tested only recognized one of the buttons.

The puck exemplified the ProTablet. It was wonderful, but I wished the software was easier to use and made better use of the hardware.

Fortunately, both Quantum and EI/O Products have promised to improve and update their software. If you only need your mouse for choosing items from drop-down menus, you certainly don't need a graphics tablet. But either the ProTablet ST or the ARTablet will make your life much easier if you're an artist, drafter or other graphics professional who's tired of drawing with a bar of soap.■

ARTABLET
$395, 6×9 inches
EI/O Products
1559 Rockville Pike
Rockville, MD 20852
(301) 869-5984

CIRCLE **290** ON READER SERVICE CARD

PROTABLET ST
$395, 12×8 inches
Quantum Microsystems Inc.
P.O. Box 179
Liverpool, NY 13088
(315) 451-7747

CIRCLE **291** ON READER SERVICE CARD

Atari in your closet?

Convert it into quick cash.

***Antic** classified ads sell*
your unused Atari equipment fast!

WordPerfect ST

Proving why it's the IBM PC bestseller

Reviewed By GREGG PEARLMAN, *Antic Assistant Editor*

WordPerfect ($395) is now by far the most powerful and complete word processor available for the ST. And we're pleased to report that the latest release (January 29) seems to have cleared up all the bugs from earlier shipments.

WordPerfect, the longtime best-selling word processor for IBM PCs and compatibles, is known for being crammed with high-powered features—which require an arsenal of commands to master them all. Even WordPerfect's ST quick-reference card runs five text pages. However, you can operate WordPerfect either with keyboard commands or by clicking on menu selections with your mouse.

Throughout 1986-87, WordPerfect Corp. of Utah demonstrated their commitment to the Atari market by showing off beta versions of their ST adaptation at Atari Fairs. This company has earned an enviable reputation for customer service. They constantly upgrade and enhance their main product, instead of spreading themselves thin with a lot of different software like so many other publishers.

When significant bugs turned up in the earlier releases of the ST conversion, WordPerfect Corp. left no doubt that it would keep on providing their customers with free upgrades until the debugging was successfully completed. I also personally found that the customer service people at WordPerfect's toll-free 800 number live up to their reputation for being extremely helpful and friendly. They'll go the extra yard to solve your problem.

The WordPerfect software consists of six *non-protected* disks. This means you can back up each disk and customize several different versions of the program. And you can copy them to a hard disk for vastly increased convenience and speed. Of course, WordPerfect Corp. doesn't need to worry too much about piracy: WordPerfect is almost unusable without its manual of over 600 pages!

GLOBAL REPLACE

You'd think that such a huge manual would provide adequate documentation about each feature. But unfortunately that's not the case. Too often, you'll read and reread an instruction until the words fall off the page and you *still* won't know exactly what to do. For example, later on in this review I'll explain the tortuous process I needed to go through before figuring out how to build a personal dictionary and add it to the built-in 115,000-word main dictionary.

In the normal course of my word processing, I often perform search-and-replace functions. Perhaps I downloaded or Linklined a document and must excise all unwanted carriage returns, or I must replace all five-space tabs with paragraph symbols.

To test WordPerfect, I loaded a 2,000-word document that had been printed to disk. Onscreen, most lines started 10 spaces from the left-hand margin. The newest release took 11 seconds for a global delete, replacing nine spaces with "nothing." The same process on a 20,000-word document took 97 seconds. This is an impressive improvement over our older version, which needed one minute for 2,000 words and nine minutes for 20,000. Now if only the marker on the slider bar would descend as the search progressed. . .

It's easy to scroll up or down with the arrow keys, but if you move the slider-bar cursor with the mouse, the screen will take a few seconds (depending on file size) to reposition. You can have as many as five columns of text onscreen.

I was unable to find a way to search-and-replace symbols for turning off boldface, italics, etc. Many other word processors will let you do this. I alerted WordPerfect Corp. about this difficulty—which doesn't exist in the IBM version—and it should be taken care of in the next upgrade. Part of the problem seems to be that WordPerfect ST is virtually a WYSIWYG program. While most other word processors have a Print Preview mode, in WordPerfect ST you're *always* in Print Preview.

There is a "reveal codes" option that shows the text as well as carriage returns, control codes and the cursor (each taking up at least two spaces). You must highlight a block of text in order to boldface or italicize it.

SPELL CHECKING

Spell-checkers can be fascinating. ("How do they *know*?") And the scope of the WordPerfect spell-checker is truly astounding.

The 115,000-word dictionary is divided into Common and Main dictionaries. When WordPerfect encounters a suspicious word during a spell-check, it first checks the Common dictionary. It switches to the Main dictionary only after coming up empty. If the Main directory provides no answers, it displays a couple of dozen similarly spelled words to choose from. Just click on the appropriate spelling to replace the document's version. You can even look up a word phonetically.

Spell-checking a document is not a particularly fast

continued on next page

WORDPERFECT ST
continued from previous page

process—sometimes you have to click (or press a key) two or three times for the program to accept, skip or let you edit a word. Updating a dictionary takes about five minutes of disk access, even on a hard disk. It's probably a good idea to place the dictionary files on a RAMdisk, if you have one. In fact, it's fun watching the spell-checker use the RAMdisk dictionary to zip through your document.

ADDING WORDS

New user-approved words are saved to a supplementary dictionary which seems to fill up fast. I had all kinds of trouble checking documents when my supplementary dictionary had reached a scant 4K. The answer, which is not documented, is to add the extra words to the main dictionary after the supplementary dictionary fills up about halfway.

This you must do via the Speller Utility disk—also a wise thing to copy to your hard disk—which lets you create an auxiliary dictionary, add or delete words in the Main or Common dictionary either by typing them in or by loading another dictionary file, optimize (compact) a dictionary you've created, display words in the Common list, check which dictionary contains a word, and look up a word in the standard way or phonetically. When it encounters the same word twice in a row (word word), the spell-checker will ask if you want to skip or accept the double word.

WordPerfect has a fine Thesaurus function. Choosing the Thesaurus program brings up a three-column window: the first column shows the word under the cursor in the text, along with several synonyms to choose from. Clicking on one of those words brings up a second column showing *its* synonyms. Clicking on one of those brings up the third window.

You can replace a word with one you've chosen, look up a word, clear a column, or view your document. Sometimes, however, you'll find that the word you're looking up isn't a "headword"—which simply means that it *can't* be looked up in the thesaurus. Each headword is classified as an adjective, noun or verb.

SETUP AND PRINTING

The setup program lets you set your default drive(s), telling WordPerfect where to find not only your main text files, but your dictionary and thesaurus files as well. The program currently has settings for 259 printers, and you can store drivers for six at a time.

It may be a minute or so before the printer actually starts doing its stuff, because of all the disk access required. I had trouble getting an accurate printout with **Antic**'s Epson RX-80 compatible Panasonic KX-P1080i printer (reviewed in the April, 1988 issue), whether I used the program's built-in Panasonic driver or the Epson FX/RX driver.

It's easy to convert files to WordPerfect format from ST Writer, 1st Word and Word Writer formats. Just run WordPerfect's conversion program, specify the file type and furnish filenames. Conversion of a 100,000-byte ST Writer file took one minute, 38 seconds on a floppy disk, 14.8 seconds on a hard disk and a quick 4.3 seconds on a RAMdisk.

Oddly enough, our newest (January 29) WordPerfect release no longer converts ST Writer files. However, WordPerfect Corp. says a fix is on the way. Meanwhile you should have no trouble using the conversion program from an earlier (January 8) release.

SUMMING UP

If you want to own the most power-packed word processor available for the ST today, and can live with the relative complexity needed for harnessing this power, WordPerfect is what you've been waiting for. The company's excellent track record for supporting its software is also a significant factor. WordPerfect is widely available at substantial discounts below its $395 list price. And for full-time students or educators who can verify their status, there's a special price of only $99. ■

WORDPERFECT
WordPerfect Corp.
288 West Center Street
Orem, Utah 84057
(800) 321-4566
$395, color or monochrome

CIRCLE 173 ON READER SERVICE CARD

CRAZY CHICKEN BARRAGE
continued from page 52

print the object. Once the object is Put on the screen, we wait for the next vertical blank with the command Vsync, then add the object's horizontal movement to the X position to prepare for the next movement.

The rest of the routine is a series of nested If statements that check to see what happens to the object we just drew.

The Difficulty procedure takes care of all bookkeeping for the program. It changes the levels, keeps track of the number of fallen eggs and awards bonuses. The first thing it does is Decrement Eggs_available, which is the number of objects that must fall before we add another falling object.

The Walk procedure makes sure that the X position of your mouse is in bounds and that you have moved the mouse. If so, the procedure then checks to see which direction the mouse is going in—whether the new position is larger or smaller then the proceeding position.

If the position is larger, we set the variable Obj to 3, and if it's smaller, the variable is set to 2. The left-walking boy is Obj$(3) and the right-walking boy is Obj$(2). So by replacing the number with the variable, we automatically switch to the corrected picture. ■

Paul Pratt and Stephen Everman published Maze Master *and* Pascal Towers *in the March 1988* **Antic** *and BASIC Concentration in April 1988.*

FOR MORE ARTICLES LIKE THIS, CIRCLE 195 ON READER SERVICE CARD.

Listing on page 72

New ST Entertainments

From dungeons to outer space

ROADWAR EUROPA

I loved the original version of this game and I love this sequel. Despite a less than original premise (remember Mad Max?), **Roadwar Europa** puts you in command of a roving band of vehicular warriors, fighting for control of radiation-ridden roadways of the future.

On this outing, the scene is Europe and its world-threatening terrorists. It seems that a rather ugly faction has planted five nuclear devices in major European cities. The detonation of the first one is just to let you know they're serious. Unfortunately, what you don't know is the location of the other four. The object of the game is to defuse these bombs and save the world. Feel up to it?

What makes this complex game such a joy to play are its logical, simple design and ease of use. Start out by allocating vehicle, manpower, and supply points to create a gang.

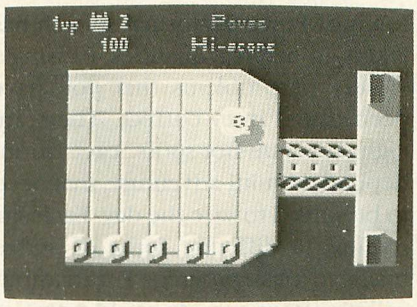
Game play follows a simple and hypnotic pattern. Move, search, fight—it couldn't be easier. What isn't easy is the strategy needed to complete the game. What kind of vehicle do I need? Should I risk another fight? Is your doctor healing your men, or merely an extra mouth to feed? These are only a few of the problems awaiting you.

Simple mouse/menu and alternative keyboard commands allow you to learn and play quickly. You'll soon graduate to the highly complex tactical battle mode, in which you control all aspects of your Roadwar, such as vehicle position, aim, movement, and ramming and boarding enemy vehicles.

A very attractive and well designed, high-res screen makes the mayhem easy on the eyes, while a generous manual also manages to ease you into this complex game. And a disk that's not copy protected makes sure you're the only one to blame for a defective disk.— STEVE PANAK

$44.95, color only. Strategic Simulations Inc., 1046 N. Rengstorff Avenue, Mountain View, CA 94043. (415) 964-1353.

CIRCLE **282** ON READER SERVICE CARD



URIDIUM, XEVIOUS

Space shoot-em-ups aren't news anymore and they aren't exactly my cup of tea either, so I was surprised to enjoy Mindscape's **Uridium** ($39.95) so much. Detailed and lifelike graphics are a real help and an easy joystick system is also a plus.

The playing style isn't that much different from Zaxxon except that scrolling goes straight across the screen instead of from corner to corner. The object of the game is also quite different. An enemy fleet of 15 Super Dreadnoughts is stealing minerals from 15 different planets in your galactic sector. You'll first have to knock out the fighters that protect the Dreadnought, while avoiding the homing mines that come from the ship.

To do that, your ship is equipped with an unlimited supply of phaser power and some pretty flashy maneuvering capabilities. When all the Dreadnought's defenses have been eliminated, you can land on the ship and destroy it.

For those weary of games with 100-page manuals, for those who just want to load the game and take off, Mindscape's **Xevious** ($29.95) is probably right up your alley. There are only 126 words in the manual about the ST version of the game.

Xevious is a vertically scrolling combat game, pitting you and your aircraft against a mighty arsenal of land and air forces from a enemy about which you know very little. The joystick controls sideways and up/down movement in a strictly 2-dimensional format. The button is used to fire an unlimited supply of bombs. The easy way to play is just leave the button depressed constantly for a continuous barrage of bombs. But a quick tapping of the button will actually produce more bombs at a faster rate. High scores are saved to disk.—RICK TEVERBAUGH

Color only. Mindscape, 3444 Dundee Road, Northbrook, IL 60062. (312) 480-7667.

CIRCLE **285** ON READER SERVICE CARD

DUNGEON MASTER

Occasionally a game appears that is so revolutionary it immediately pulls ahead of the competition and sets standards for judging future releases. Zork and Flight Simulator II come to mind. Now there's **Dungeon Master**, a graphic role-playing fantasy written expressly for the ST and one of the few games taking complete advantage of 16-bit technology.

Dungeon Master is the first game where skeletons, dragons, mummies, et al. wander freely. Sometimes you can see your adversaries first, but once they see you, they'll stay hot on

continued on next page

your trail.

Dungeon Master's graphics are spectacular. Your main screen is a first-person view of the dungeon that scrolls by as you move. The detail is amazing, as fountains, chipped stones, and messages carved into them—many of them clues—add to the realism of the game. And the ST interface is outstanding. Everything is mouse controlled, from movement to casting spells. But what's amazing—more than hot animation, more than the interface—is the *sound*. Dungeon Master is almost worth buying for the sound-effects alone. All sounds are digitized, from the metallic clank of a door closing to the sound of an axe being swung through the air down to the comical "oof!"

Dungeon Master is more puzzle-oriented than its ancestors. In fact, there is hardly any combat in the first two levels at all. Instead, the game teaches you to be observant. The many hidden switches and panels in the walls may open a secret panel.

The only thing commonplace about Dungeon Master is the storyline where once again, an Evil Wizard has taken over control of the world. You must assemble a party of four adventurers (Fighter, Ninja, Wizard or Priest) to explore a 15-level dungeon.

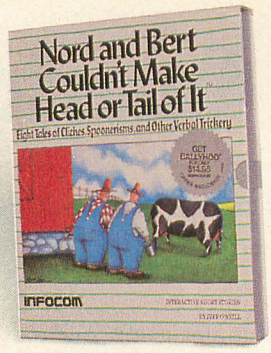
Party members develop not by gaining "experience points" but by practicing their skills, as in real life. This gives character growth a more organic feel than other games of the genre. A hint book is on the way, and there's talk of Dungeon Master II—apparently there are 15 levels that didn't make it into the game. In the meantime, buy this game. It's one of the best games ever written for *any* computer.—HARVEY BERNSTEIN

$39.95. FTL Games, P.O. Box 11248, San Diego, CA 92111. (619) 453-5711.

CIRCLE 170 ON READER SERVICE CARD

NORD AND BERT

Nord and Bert Couldn't Make Head Or Tail Of It is the long-winded title to the latest offering from Infocom, the reigning masters of interactive text adventures. To put it



mildly, Nord and Bert is a major departure from Infocom's previous adventures. Success in this game relies on solving word games, having total recall of cliches and believing firmly that the pun is mightier than the sword.

The underlying thread in Nord and Bert is that a verbal disaster has hit the town of Punster. Normal speech has taken on magical qualities, causing a variety of problems that you have been called in to correct. There are eight separate hot-spots, each an independent mini-adventure, that need to be solved to save the day. Each site requires a different form of verbal magic to make progress. For example, calling a root a *route* could open up a trail through an impassable forest. In another case finding the most laps would actually reveal lost maps.

Game play is also different in that all possible directions are posted on the screen. No need for mapping, the puzzles are reserved for word games. There's also an online hint feature—a necessity for this game, given some of its more obscure references. The starting point for each scenario is to determine what type of word game is being played. These are consistent—one scenario is all homonyms, another is spoonerisms, etc., with no overlapping.

Novelty aside, I cannot recommend this game. Its biggest flaw is inconsistency of play from one scenario to another. The puzzles are fairly trivial, compared to standard adventure games, but the word play ranges from easy to difficult. I love puzzles but when success rests on recalling every cliche in the book there is little challenge and less interest. The element of fairness is gone: either you know it or you don't, with no hope of finding a logical solution. I give Infocom an A for originality but will spend my money on something else.—JIM PIERSON-PERRY

$39.95. Infocom, 125 CambridgePark Drive, Cambridge, MA 02140. (617) 576-3190.

CIRCLE 172 ON READER SERVICE CARD

F-15 STRIKE EAGLE

In its original incarnation on the 8-bit Atari, **F-15 Strike Eagle** solidly established Microprose as the leading developer of flight combat simulation software. Now converted to ST format, it's essentially the same.

However, fans of the previous version will appreciate the enhancements designed to take advantage of 16-bit technology. The wire frame designs of the old targets have been replaced by true-to-life graphics. Planes, airfields, SAM sites, etc. all closely resemble their real-life counterparts. The ST version plays much *faster* too, adding to the excitement. One new element not found previously is the ability to save a pilot's performance to disk.

The game places you in the cockpit of an F-15 air/ground attack fighter. With the assistance of a sophisticated heads-up display (HUD), three major air-to-air weapons systems, (guns, medium and short range missiles), and computerized intelligence displays, you attempt to complete any of seven missions (based on actual military incidents) in places such as Libya, Egypt, Syria and Hanoi.

As is common with Microprose releases, the documentation is superb. The first part of the manual gives an overview of the game and controls, while an extensive second section deals with advanced defensive flight techniques, aerodynamics, etc. The manual also contains the authentication codes you need to get off the ground—sugar-coated copy protection.—HARVEY BERNSTEIN

$39.95. Microprose, 180 Lakefront Drive, Hunt Valley, MD 21030. (301) 771-1151.

CIRCLE 171 ON READER SERVICE CARD ■

$5.95 All this software without typing—yours for only $5.95. Your double-sided Antic Monthly Disk has every type-in program from this issue, plus this month's Super Disk Bonus and other extras. Shipment within 24 hours is guaranteed when you phone your MasterCard or Visa order to the Disk Desk: (800) 234-7001. Now Toll-Free!

SOFTWARE LIBRARY

► *MIXED NUMBERS SORTING ROUTINE*
SUPER SORTERS: PART II 65

► *GAME OF THE MONTH*
PERFECTED PONG 67

► *KEEP ON COMPUTING WHILE YOU PRINT!*
ANTIC SPOOLER 69

► *BASIC CONCENTRATION MEMORY GAME*
RECALL 70

ST RESOURCE

► *WATCH OUT FOR EGGS, GRENADES AND KNIVES!*
CRAZY CHICKEN BARRAGE 72

TYPING SPECIAL ATARI CHARACTERS 64

HOW TO USE TYPO II 65

DISK SUBSCRIBERS: Programs for 8-bit Atari computers can be used immediately. Just follow instructions in the accompanying magazine articles. ST Owners: See monthly disk's ST Help File for instructions on how to transfer programs to 3-1/2 inch disk.

DOS COMPATIBILITY: All 8-bit programs published by **Antic** are tested to work with Atari Disk Operating System (DOS) 2.0S and 2.5—*not* with the incompatible DOS 3.0. DOS 2.0S is available on each Antic Monthly Disk. Copy the DOS.SYS and DUP.SYS files.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of the publisher.

TYPING SPECIAL ATARI CHARACTERS

Antic printed program listings leave a small space between each Atari Special Character for easier reading. Immediately below you will see the way **Antic** prints all the standard Atari letters and numbers, in upper and lower case, in normal and inverse video.

```
ABCDEFGHIJKLMNOPQRSTUVWXYZ
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz
0123456789        0123456789
```

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

NORMAL VIDEO

FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
♥	CTRL ,	♣	CTRL S
♦	CTRL A	♠	CTRL T
♪	CTRL B	♥	CTRL U
♫	CTRL C	♦	CTRL V
♬	CTRL D	♣	CTRL W
♭	CTRL E	♠	CTRL X
♯	CTRL F	♪	CTRL Y
♮	CTRL G	♫	CTRL Z
♯	CTRL H	♣	ESC ESC
♭	CTRL I	♠	ESC CTRL −
♮	CTRL J	♥	ESC CTRL =
♫	CTRL K	♦	ESC CTRL +
♬	CTRL L	♣	ESC CTRL *
♭	CTRL M	♠	CTRL .
♪	CTRL N	♠	CTRL ;
♭	CTRL O	♪	SHIFT =
♣	CTRL P	♠	ESC SHIFT CLEAR
♭	CTRL Q	♪	ESC DELETE
♬	CTRL R	♪	ESC TAB

INVERSE VIDEO

FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
♥	⅄ CTRL ,	♣	CTRL X
♦	⅄ CTRL A	♪	CTRL Y
♪	⅄ CTRL B	♫	CTRL Z
♫	⅄ CTRL C	♠	ESC SHIFT DELETE
♬	⅄ CTRL D	♥	ESC SHIFT INSERT
♭	⅄ CTRL E	♦	ESC CTRL TAB
♯	⅄ CTRL F	♣	ESC SHIFT TAB
♮	⅄ CTRL G	♠	⅄ CTRL .
♯	⅄ CTRL H	♠	⅄ CTRL ;
♭	⅄ CTRL I	♪	⅄ SHIFT =
♮	⅄ CTRL J	♪	ESC CTRL 2
♫	⅄ CTRL K	♪	ESC CTRL DELETE
♬	⅄ CTRL L	♪	ESC CTRL INSERT
♭	⅄ CTRL M		
♪	⅄ CTRL N		
♭	⅄ CTRL O		
♣	⅄ CTRL P		
♭	⅄ CTRL Q		
♬	⅄ CTRL R		
♣	⅄ CTRL S		
♠	⅄ CTRL T		
♬	⅄ CTRL U		
♪	⅄ CTRL V		
♣	⅄ CTRL W		

Whenever the CONTROL key (CTRL on the 400/800) or SHIFT key is used, *hold it down* while you press the next key. Whenever the ESC key is pressed, *release* it before you type the next key.

Turn on inverse video by pressing the Reverse Video Mode Key ◪ . Turn it off by pressing it a second time. (On the 400/800, use the Atari Logo Key instead.)

Among the most common program typing mistakes are switching certain capital letters with their lower-case counterparts—you need to look especially carefully at P, X, O and 0 (zero).

Some of Atari Special Characters are not easy to tell apart from standard alpha-numeric characters. Usually the Special Characters will be boxed. Compare the two sets of characters below:

SPECIAL		STANDARD	
♯	♯ CTRL F	⁄	⁄
♮	♮ CTRL G	\	SHIFT +
♫	♫ CTRL N	_	SHIFT −
♬	♬ CTRL R	-	−
♣	♣ CTRL S	+	+

HOW TO USE TYPO II (8-BIT)

TYPO II automatically proofreads **Antic**'s type-in BASIC listings for 8-bit Atari computers. It finds the exact line where you made a program typing mistake.

Type in TYPO II and SAVE a copy to disk or cassette. Now type GOTO 32000. When you see the instruction on the screen, type in a single program line **without the two-letter TYPO II code** at the left of the line number. Press the [RETURN] key.

Your line will reappear at the bottom of the screen with a two-letter TYPO II code on the left. If this code is not exactly the same as the line code printed in the magazine, you mistyped something in that line.

To call back any line previously typed, type an asterisk [*] followed (without in-between spaces) by the line number, then press [RETURN]. When the complete line appears at the top of the screen, press [RETURN] again. This is also the way you use TYPO II to proofread 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 [RETURN] (Cassette owners LIST "C:). Type NEW, then ENTER "D:FILENAME"[RETURN](Cassette—ENTER "C:). Your program is now in memory without TYPO II and you can SAVE or LIST it to disk or cassette.

Don't type the TYPO II Codes!

```
WB 32000 REM TYPO II BY ANDY BARTON
VM 32010 REM VER. 1.0 FOR ANTIC MAGAZINE
HS 32020 CLR :DIM LINE$(120):CLOSE #2:CLO
   SE #3
BN 32030 OPEN #2,4,0,"E":OPEN #3,5,0,"E"
YC 32040 ? "{CLEAR}":POSITION 11,1:? "{INVERSE}TYPO II{INVERSE}"

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 ? "{CLEAR}":POSITION 11,1:? "{INVERSE}TYPO II{INVERSE}
   ":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
VV 32150 FOR D=1 TO LEN(LINE$):C=C+1:ANS=
   ANS+(C*ASC(LINE$(D,D))):NEXT D
WJ 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)
VG 32220 POSITION 2,13:? "If CODE does no
   t match press {INVERSE}RETURN{INVERSE} and edit line a
   bove.":GOTO 32050
```

part II: mixed numbers sorting routine

SUPER SORTERS

Article on page 34

LISTING 1

Don't type the TYPO II Codes!

```
VL 1000 REM NUMERIC SORT DEMO
WI 1010 REM BY KEVIN PECK
VF 1020 REM (c)1988, ANTIC PUBLISHING
XT 1080 GOSUB 2000
SY 1130 DIM DS$(560),L$(7),F$(6),I$(8),T$
   (7)
FZ 1140 DS$=" ":DS$(560)=" ":DS$(2)=DS$
PD 1150 FOR I=1 TO 20:READ F$,L$,I$,T$
ZB 1160 PS=(I-1)*28+1
DF 1170 DS$(PS,PS+LEN(L$))=L$
QC 1180 DS$(PS+7,PS+7+LEN(F$))=F$
OR 1190 DS$(PS+13,PS+13+LEN(I$))=I$
KL 1200 DS$(PS+21,PS+21+LEN(T$))=T$
EW 1210 NEXT I
IX 1220 POKE 710,145:POKE 82,2
IE 1230 GOSUB 1470:POSITION 8,22:? "Origi
   nal, Unsorted data":GOSUB 1500
YH 1240 A=USR(ADR(SN$),ADR(DS$),ADR(DS$)+
   LEN(DS$),8,13,28,0)
YX 1250 GOSUB 1470:POSITION 6,22:? "Sorte
   d Ascending by Income":GOSUB 1500
WV 1260 A=USR(ADR(SN$),ADR(DS$),ADR(DS$)+
   LEN(DS$),7,21,28,1)
DY 1270 GOSUB 1470:POSITION 5,22:? "Sorte
   d Descending by Tax Owed":GOSUB 1500
IY 1280 REM
GW 1290 REM SECOND EXAMPLE:
XF 1310 ? "{CLEAR}":POSITION 10,10:? "Reading D
   ATA"
AX 1320 DS$=" ":DS$(220)=" ":DS$(2)=DS$
LR 1330 FOR I=1 TO 20:READ I$,L$
UC 1340 PS=(I-1)*11+1
XY 1350 DS$(PS,PS+LEN(I$))=I$
DL 1360 DS$(PS+8,PS+8+LEN(L$))=L$
JX 1370 NEXT I:GOSUB 1530:POSITION 8,22:?
    "Original Unsorted Data":GOSUB 1500
JA 1380 REM
CG 1390 REM CALL ONCE FOR EACH LANGUAGE
WT 1410 I$="ACTION":GOSUB 1560
VC 1420 I$="BASIC":GOSUB 1560
XA 1430 I$="ASSEMBLY":GOSUB 1560
DG 1440 I$="LOGO":GOSUB 1560:GOSUB 1530
KK 1450 POSITION 2,22:? "Data sorted Asce
   nding by BYTE size":GOSUB 1500
ZT 1460 GRAPHICS 0:POKE 710,145:END
RZ 1470 ? "{CLEAR}":POSITION 2,0:? "{INVERSE}LAST{INVERSE}  {INVERSE}FI
   RST{INVERSE} {INVERSE}INCOME{INVERSE}  {INVERSE}TAX OWED{INVERSE}"
NY 1480 FOR I=1 TO 20:PS=(I-1)*28+1
AV 1490 ? DS$(PS,PS+6);" ";DS$(PS+7,PS+12
```

continued on next page

```
   );"  ";DS$(PS+13,PS+20);"     ";DS$(PS+
   21,PS+27):NEXT I:RETURN
FU 1500 POSITION 5,23:? "■PRESS SPACE BAR
   TO CONTINUE";:POKE 764,255
AR 1510 IF PEEK(764)<>33 THEN 1510
BT 1520 POKE 764,255:RETURN
SR 1530 ? "■":POKE 82,9:POSITION 7,0:? "■
   LANGUAGE■     ■BYTES■"
EJ 1540 FOR I=1 TO 20:PS=(I-1)*11+1
BX 1550 ? DS$(PS,PS+7);"     ";DS$(PS+
   8,PS+10):NEXT I:POKE 82,2:RETURN
ZQ 1560 FIRST=USR(ADR(FS$),ADR(DS$),ADR(I
   $),LEN(I$),0,11,LEN(DS$)/11)
QR 1570 LAST=PEEK(205)+256*PEEK(206)
LI 1580 A=USR(ADR(SN$),FIRST,LAST,3,8,11,
   0):RETURN
GE 1590 DATA MIKE,SMITH,50234.45,567.32
BX 1600 DATA KEVIN,PECK,89675.00,-700.13
XC 1610 DATA BETTY,HUNTER,23456.21,45.23
MO 1620 DATA SCOTT,JONES,43256.78,123.67
WW 1630 DATA BILL,SMITH,4567.89,-34.56
CR 1640 DATA KIRK,PECK,56709.23,56.45
VB 1650 DATA HERMAN,SMITH,10231.45,10.56
ES 1660 DATA JILL,JOHNSON,15678.32,-10.26

AJ 1670 DATA FRED,JAMES,11456.32,152.12
UM 1680 DATA BARNEY,HUNTER,34892.11,35.67

IJ 1690 DATA SUSAN,HUNT,8900.00,-156.90
QS 1700 DATA LOU,PECK,12754.23,-67.98
FD 1710 DATA JOSH,SMITH,34567.89,200.00
LH 1720 DATA MARY,JOHNSON,89900.45,500.00

GP 1730 DATA AMANDA,JAMES,44900.34,-34.00

HS 1740 DATA BOB,HUNT,56789.34,234.78
YU 1750 DATA JERRY,PECK,29000.00,56.90
ZG 1760 DATA MICKI,SMITH,32456.89,-90.56
EA 1770 DATA LEROY,JOHNSON,8765.12,-5.67
VQ 1780 DATA JIM,HUNTER,67543.12,345.67
RT 1790 DATA ACTION,67
TP 1800 DATA ACTION,98
OA 1810 DATA ACTION,54
AH 1820 DATA ACTION,109
LL 1830 DATA ACTION,23
TP 1840 DATA ACTION,100
JX 1850 DATA BASIC,120
CH 1860 DATA BASIC,23
NC 1870 DATA BASIC,115
JW 1880 DATA BASIC,97
FH 1890 DATA BASIC,54
SS 1900 DATA BASIC,178
HE 1910 DATA BASIC,67
PQ 1920 DATA ASSEMBLY,123
DI 1930 DATA ASSEMBLY,45
JT 1940 DATA ASSEMBLY,89
FC 1950 DATA ASSEMBLY,65
ST 1960 DATA LOGO,15
PP 1970 DATA LOGO,10
CZ 1980 DATA LOGO,154
QL 1990 DATA LOGO,20
XY 2000 DIM FS$(137)
XZ 2010 FS$="XD▼◆PATAUhh◆NhaMhaJhaVhh◆Qh
   h◆Xhh◆Ohh◆LhaK═ZMeX◆M☒□FN■▼IMQUP▭HDQPU8
   Z◆N◆UZMeX◆TO□FU"
KW 2020 FS$(81)="═ZMeO◆M☒□FNAP□FPdKP═ZPEL
   P▭8ZMeX◆MO□FN☒ZUPB■▼IMAUPAADQPUPG"
CC 2030 DIM SN$(292)
HY 2040 SN$="XhhaNhaMhaJhaVhh◆Khha0═eK◆Xh
   h◆Lhh◆aaZ◆H8ZUAL◆O□FISOP▼IMI-PChIMI.P
   ▭I PaHDXPA◆PP═Z"
FA 2050 SN$(81)="N◆UZMeLaTX□FUSOP▼◆bIII-P
   □FbIII.PAI PaHDXPA◆QZa◆◆dbP◢☒"
UX 2060 SN$(134)=CHR$(34)
NZ 2070 SN$="QVPK◆QEPP:☒H08PGZa◆◆═e
   bII□P/◆heaa◆Z◆P6▼IMHIIcMhcIHDLPG◆Q◆P&b
   ═☒+PG@LPE◆aa◆═eDII□"
BD 2080 SN$(215)="P/◆heaa◆Z◆P═Z═TeLaTZUi▼
   ◆UELPH◆TEVP"
SB 2090 SN$(249)=CHR$(155)
VV 2100 SN$(250)="═ZMeLaM◆Ni▼◆NE□PK◆ME▼P6
   ◆SO1MQTPH6-☒/HDXPGPO"
AF 2110 RETURN
```

LISTING 2

```
BN 10 REM NUMSORT.BAS
WI 20 REM BY KEVIN PECK
GD 30 REM (c) 1985,1988 ANTIC PUBLISHING
BP 35 REM (CREATES SN$ AND FS$ FOR LINES
   2010-2100 OF THE NUMSORT DEMO.)
EV 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 FN$(20),TEMP$(20),AR$(93):DPL=P
   EEK(10592):POKE 10592,255
WO 70 FN$="D:LINES.LST":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
TH 100 IF PEEK(764)=18 THEN FN$="C:"
VB 110 POKE 764,255:GRAPHICS 0:? "     AN
   TIC'S GENERIC BASIC LOADER"
MY 120 ? ,"BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LW 150 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BQ 160 AR$="":READ AR$
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DM 180 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")     "
BK 190 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 160
MM 200 IF PEEK(195)=5 THEN ? :? :? "■TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CM 210 IF C<LN+1 THEN ? :? "■TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
UQ 220 IF FN$="C:" THEN ? :? " Prepare ca
   ssette, press [RETURN]"
AR 230 OPEN #1,8,0,FN$
PV 240 POKE 766,1:? #1;A$;:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0:? "■COMPLETED■
   "
NT 1000 DATA 599
HB 1010 DATA 05004804904803207008303606103
   4216169000170133208133212133213104104
   1332061041332051041332151O4
DQ 1020 DATA 1332141041041332091041041332
   1610410413320710413320410413320302416 5
   2051012161332051440022302O6
DN 1030 DATA 1600001772052092142080202001
   9620920824505616520613321316520522921 6
   1332121760021982130341550 50
ZP 1040 DATA 0480500480320700830360400560
   4904106103402416520510120713320514400 2
   2302062322080022302082282O3
QC 1050 DATA 2080181652081972042080120561
   6520522921613320517602198206096165213
   2401861600001772052092142O8
KL 1060 DATA 2322001962092082452401990341
   5505004805104803206807307703208307803 6
   0400500570500411550500480 52
PJ 1070 DATA 0480320830780360610342161041
   0413320610413320510413321510413321410 4
   1041332031041041332070241O1
RQ 1080 DATA 2031332161041041332041041041
   3322516521513300105616521422920413300 0
   1760021980011642071620001 77
MP 1090 DATA 2052010452080012321772052010
   4624000920103224000520019621620824113 2
   2080241650341550500480530 48
EZ 1100 DATA 0320830780360400560490410610
   3420613321316520510120413321214400223 0
   2131642071690001332261772 12
ZN 1110 DATA 2010452080022302261772122010
   4624000920103224000520019621620824113 2
   2091652251332242282264000 6
BG 1120 DATA 1440341550500480540480320830
   7803604004905105204106106707208203604 0
   0510520411550500480550480 32
YZ 1130 DATA 0830780360400490510530410610
   3417608620816816520919720824005814400 4
   1760562081991652251332240 24
SF 1140 DATA 1381012262010022080061690012
   2922513322416522420805416000017720507 2
   1772121452051041452122001 96
MJ 1150 DATA 2042082411652091332081662260
   2414402820819217620424006916522513322 4
   0241381012262010020341550 50
QV 1160 DATA 0480560480320830780360400500
   4905304106103420800616900122922513322 4
   1652242082020241652121012 04
SQ 1170 DATA 1332121652131050001332131972
   1520816116521219721420803415505004805 7
   0480320830780360400500520 57
HV 1180 DATA 0410610670720820360400490530
   5304115505004904804803208307803604005 0
   0530480410610340241652051 01
RS 1190 DATA 2041332051652061050001332061
   9700120818816520519700020818209616420 7
   1772052092122400041761731 44
TE 1200 DATA 1752001962162401922082390341
   55
```

new challenges from an old favorite

PERFECTED PONG

Article on page 30

LISTING 1

Don't type the TYPO II Codes!

```
QV 10 REM PERFECTED PONG
PO 20 REM BY BOB AYIK
GD 30 REM (c) 1985,1988 ANTIC PUBLISHING
EV 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 FN$(20),TEMP$(20),AR$(93):DPL=P
   EEK(10592):POKE 10592,255
IG 70 FN$="D:PONG.EXE":REM THIS IS THE NA
   ME OF THE DISK FILE TO BE CREATED
RD 80 ? "■Disk or ■assette?";:POKE 764,25
   5
PY 90 IF  NOT (PEEK(764)=18 OR PEEK(764)=
   58) THEN 90
TH 100 IF PEEK(764)=18 THEN FN$="C:"
VB 110 POKE 764,255:GRAPHICS 0:? "     AN
   TIC'S GENERIC BASIC LOADER"
MY 120 ? ,"BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LW 150 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BQ 160 AR$="":READ AR$
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DM 180 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")     "
BK 190 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 160
MM 200 IF PEEK(195)=5 THEN ? :? :? "■TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CM 210 IF C<LN+1 THEN ? :? "■TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
UQ 220 IF FN$="C:" THEN ? :? " Prepare ca
   ssette, press [RETURN]"
AR 230 OPEN #1,8,0,FN$
PV 240 POKE 766,1:? #1;A$;:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0:? "■COMPLETED■
   "
IJ 1000 DATA 3630
FJ 1010 DATA 255255000080251080032022083
   1
   62000189141089157000048232208247169117
   1410010021690001410000021 62
XL 1020 DATA 000169000157000128157000129
   1
   57000130157000131157000132232208238169
   0121411970021412190021690 00
DH 1030 DATA 141198002141200002141216087
   1
   60255200185194089153052128192014208245
   1602552001852090891530 2130
NR 1040 DATA 192010208245160255200185032
   0
   90153078132192035208245160255200185220
   0891531261321920192082451 60
WW 1050 DATA 255200185240089153092131192
   0
   09208245160255200185250089153134131192
   0052082451602552001852 0089153202130
UA 1060 DATA 153121131192010208245160255
   2
   00185011090153164131192005208245160255
   2001850170901531473119 2008
MD 1070 DATA 208245160255200185026090153
   1
   89131192005208245162018032146082162009
   1600000321250821620180 32161
JM 1080 DATA 082162009160001032125082169
   0
   00141211087032176082160000169000153000
   0511530000521530000531 53000
GR 1090 DATA 054153000055200208238141193
   0
   87252080247081160255200185138090153074
   0521920222082451602552 00185
VI 1100 DATA 161090153074053192022208245
   1
   60255200185184090153074054192022208245
   1602552001852090901530 74055
VL 1110 DATA 192022208245160255169028200
   1
   53074051192016208248160019200153074051
   1920222082481620001691 32160
VD 1120 DATA 005157234090024105002232224
   0
   12240008136208242024105006208235169000
   1572340901690001410480 02169
WG 1130 DATA 048141049002173190087141047
   0
   02173216087141198002169007162082160204
   0320922281691921410142 12169
PD 1140 DATA 017141111002169099141001208
   1
   69121141002208169143141003208169077141
   0002081690011410082081 41009
YM 1150 DATA 208141012081401120816904081
   4
   10072121690851410122081691721410052088
   1690621410470021690031 41029
RW 1160 DATA 208169255141252002169251133
   0
   20169008141031208173252002201255240038
   2010282080141732110870 73001
KM 1170 DATA 141211087032176082076254081
   1
   73216087024105016141216087248081243082
   1411980021412000021692 55141
QC 1180 DATA 252002173031208041002208037
   2
   38192089173192089201006208005169000141
   1920890321090821421900 32
IR 1190 DATA 146082173190087074170160000
   0
   32125082032195082173031208041004208037
   2381930891731930892010 06208
HR 1200 DATA 005169000141193089032109082
   1
   42190087032161082173190087074170160001
   0321250820321950821730 31208
NY 1210 DATA 041001240003076209081169064
   1
   41014212076219083162000141190087024109
   1900872322240052082471 70096
CZ 1220 DATA 189104090153223087232189104
   0
   90153225087232189104090153221087096160
   2552001890680901531741 31232
LN 1230 DATA 192005208244096160255200189
   0
   68090153204131323192005208244096010010
   0101701602552001891220 90153
VY 1240 DATA 228131232192007208244096169
   2
   25133020165020208252096173193087208063
   1600001852340900562330 02201
UK 1250 DATA 018176002169252141233090169
   0
   16205233090240007024105016208246240012
   2062330902062440822390 83233
WN 1260 DATA 090206233090206233090173233
   0
   90153234090200192012208204169000133077
   1690051411930872061930 87076
UH 1270 DATA 098228162096169012032086228
   1
   62096169003157066003169087157069003169
   1821570680031690121570 74003
IS 1280 DATA 169005157075003032086228173
   0
   47002141190087169000141047002169000160
   0030321830831690791330 85169
PE 1290 DATA 000133086169003133084162096
   1
   69017157066003169003141251002032086228
   1690001600450321830 79079
NQ 1300 DATA 133085169000133086169045133
   0
   84162096169017157066003169003141251002
   0320862281690391411890 87169
DF 1310 DATA 004141188087173189087172188
   0
   87032183083238188087238188087173188087
   2010462082341730480021 41186
QK 1320 DATA 087173049002141187087096133
   0
   85152133084162096169009157066003169087
   1570690031691851570680 03169
ZV 1330 DATA 001157072003169000157073003
   0
   32086228096173047002141190087169000141
   0470021731860871410480 02173
IO 1340 DATA 187087141240083235084049002
   1
   73190087141047002169064141007212169054
   1410002081690651410012 08141
BY 1350 DATA 202087169198141002208169068
   1
   33129169070133133169069133131169128133
   1281331321331301690141 41193
ZK 1360 DATA 002169000141008208141009208
   1
   41010208169000141005208169001141111002
   1690001620001570000681 57000
BD 1370 DATA 069157000070157000071232208
   2
   41169240160000145128145132200192018208
   2471600001692241451302 00192
PX 1380 DATA 004208249169002141029208169
   0
   62141047002169003141015210169000141008
   2101691201410082101690 07162
DS 1390 DATA 112160000032092228169227133
   1
   02173216087141198002169007162082160204
   0320922281691921410142 12169
```

continued on next page

```
   5216908713315316901313315416908813315
   5
   1690551331561690881331571691
EV 1400 DATA 0971331581690881331591691391
   3316016908813316116918113316216908813
   3
   1631692231331641690881331651
SD 1410 DATA 1690091331661690891331671732
   1608714120000205610500414119600214119
   7
   0021050071411980021691541411
MP 1420 DATA 1920021411940021692551412520
   0216923608423108500141213087141214087
   0320360871732110872080141601
BX 1430 DATA 0001620000321660861600011620
   0003216608603203108617321808714120008
   7
   1732200871411920871732220871
FY 1440 DATA 1412060871690011411990871620
   0003205608617320908720800716900014100
   5
   2101330771742100870480061891
PF 1450 DATA 0830891410012101731970872400
   0303214508517319608724000303220908517
   3
   2110872402121732520022012551
UP 1460 DATA 2402052011752080081690011412
   1208707616008703203108617321908714119
   2
   0871732170871412000872400121
HH 1470 DATA 1732200871411920871732180871
   4120008716900114120108716925514125200
   2
   0561761511690001411970871411
HO 1480 DATA 1990871732110872080502382130
   8716200114221208703206708717421308716
   0
   0000321660861620010320670871
FY 1490 DATA 0320310861732170871412000871
   7321908714119208717322108714120608716
   2
   0010320560860961690001411961
SC 1500 DATA 0871690011411990871732110872
   0806223821408716900114121208723208522
   7
   0861732140872400051620000321
OE 1510 DATA 0670871742140871600010321660
   8617321408724000516200003206708703203
   1
   0861732180871412000871732201
IF 1520 DATA 0871411920871732220871412060
   8716200003205608609617322308714121708
   7
   1732240871412180871732250871
FI 1530 DATA 1412190871732260871412200870
   9616900003201311422400124000616906516
   0
   0002400041691881600021412021
CC 1540 DATA 0871410012081730102100410151
   4120108716925114119308717319308720802
   0
   1692511411930871851920020561
ZS 1550 DATA 2330022011422080021691541531
   9200217300021122400124000604100420822
   0
   2400040410082082141691541531
CH 1560 DATA 1920021690001412120871690001
   3301914120508714120408714119308714119
   4
   0871411950870961402150872241
DY 1570 DATA 0101440431380562330101701601
   0717321508724001215202410500416816900
   4
   1411900872080051690081411901
CC 1580 DATA 0871731900871450881520241050
   2016819220514424214219008713801001002
   4
   1091900871701602208618508 7
UA 1590 DATA 1081732150872400051520241050
   0416816900014119008718909108914119108
   7
   1732150872400030781918717 3
PE 1600 DATA 1910871450881520241050201682
   3223819008717319008720100514422116901
   4
   2052130871440812052140871441
EO 1610 DATA 0760961601071690001450882001
   4508815202410500316816900014508820014
   5
   0881520241050151681922051441
BE 1620 DATA 2280961891960021411900871600
   0216900014100121016924513302016907015
   7
   1960021650202082521731900871
TQ 1630 DATA 1571960021692451330201650202
   0825213620822609616900114121208717320
   0
   0021411980021411920021411941
DM 1640 DATA 0021732520022012552080251730
   0021104100824000917300021104100424002
   2
   2082331731900871412000020761
FI 1650 DATA 2020841690121411970021730470
   0214119008716900014102920814104700207
   6
   2270800830581550671960871991
LP 1660 DATA 0870000000000000201087201087
   0
   0020308720308700020908721108700025500
   0
   2270872220880000010000010001000
HA 1670 DATA 0010010010000010010010010010
   0100100100100100100100100200100100100
   1
   0010020010020010020010020011
QW 1680 DATA 0020010030010030010000010000
   0100000100000100100100000100100100100
   1
   0010010010010010010010010002
OI 1690 DATA 0010020010020010020010020010
   0300100200100200100300100000100000100
   0
   0010000010000010010010000001
DP 1700 DATA 0010010010010010010020010010
   0
   0100100100200100100100200100200100200
   1
   0020010020010020010000001000
FW 1710 DATA 0010010010010010010010010010
   0100100100100100100200100100100200100
   2
   0010010010020010020010020011
HX 1720 DATA 0030010020010030010030010000
   0100000100000100000100000100000100100
   1
   0000010010010010010010010001
SC 1730 DATA 0010010010020010020010020010
   0200100200100200100200100200100000100
   0
   0010000010000010010010010001
TC 1740 DATA 0010010010010010010010010020
   0100100100200100200100200100200100200
   1
   0020010020010020010030012223
JY 1750 DATA 0882180890000010000010000010
   0100100001000001000001001001001001001
   0
   0010010010020010010010010001
XJ 1760 DATA 0010010020010020010020010030
   0100300100200100000100100100100100000
   1
   0010010010010010010010010001
GL 1770 DATA 0010010010010010010010020010
   0200100200100200100200100200100200100
   2
   0010030010030040060050040003
LF 1780 DATA 0020010010020030040050060040
   0300700600504004003003003003003003004
   0
   0040050060070000330350370 39
DP 1790 DATA 0410430451681361361361680080
   0800800800816800816812816816800816800
   8
   1681361361680080081681281 68
VC 1800 DATA 0081681281281681361681680080
   0800800816813616813616816816813616800
   8
   1121121120660012800200200 2
KC 1810 DATA 0110110110111391391391391391
   3913913913913913901101113901101101 1
   0110110110020020020020020 2
ZG 1820 DATA 0020020020020020020020020650
   0004800300303304605204103500000004811 4
   1011151011101161150981210 00
VI 1830 DATA 0341110980000331211052190892
   1409010704811410111511500017918016117 8
   1800001161110000981011031 05
GH 1840 DATA 1100441011021160000511071051
   0810817916517216516318005010510310411 6
   0000511071051081081751761 80
TR 1850 DATA 1691751740481080971210000451
   1110010116517916316117616504811410111 5
   1150000971101210001071011 21
UO 1860 DATA 0001161110000991040971101031
   0100011509911410110111000009911110811 1
   1140000340970981010000000 35
OI 1870 DATA 1041051081000000521011011100
   0000003310011710811605110111010511111 4
   0511121051141051160010030 01
YB 1880 DATA 0010020020010010040020010050
   0300100600400100700000003909710910100 0
   0000481140970991161050991 01
YF 1890 DATA 2402522542071951951951
```

```
   1732190871411920871692240 32
DA 2040 DATA 013114240000238193087206209 0
   8717321008704800320621008717325200220 1
   1752080008169001141212087076
NF 2050 DATA 160087104168104170104076098 2
   8160000024233003197130176116024105020
   1971301441090321081142001 69
LW 2060 DATA 008141210087169200141000210 1
   6904514100121017320508720100120803620 6
   2050872061920872062200872 06
BW 2070 DATA 219087173220087201001208002 1
   6900114122008717321908720100120800216 9
   0011412190871732040872010 01
FH 2080 DATA 208040206204087238200087238 2
   1808723821708717321808720522208714400 3
   2481132271141732220871412 18
LV 2090 DATA 087173217087205221087144003 1
   7322108714121708709616000014513020019 2
   0042082490962010481760021 69
NX 2100 DATA 048201195144002169194096173 2
   0008720520608717602516501920100514401 9
   1690001330191731920872010 02
```

```
FK 2110 DATA 144005238205087208003238204 0
   8709616513020104817600716900114119808 7
   2080092012081440201690001 41
PH 2120 DATA 198087169030141004210169043 1
   4100521016900214120908709616200805622 9
   1302010091440430562330101 70
PF 2130 DATA 141065006173198087041001208 0
   1202417320108712505908914120108720801 0
   0241732010872530750891412 01
LA 2140 DATA 087169000141198087240035170 1
   7319808707300120801217320108702412505 1
   0891412010872080101732010 87
PQ 2150 DATA 056253067089141201087169001 1
   4119808717320108701600716900014120108 7
   2080092010211440051690201 41
MB 2160 DATA 201087096173201087201011144 0
   0323819408709600011704011707215207223 8
   2320901722320901852340901 41
WX 2170 DATA 010212141018208141019208141 0
   2020814102120814102520820800516925514 1
   2320901041681040642240022 25
LI 2180 DATA 002000080
```

keep on computing while you print!

ANTIC SPOOLER

Article on page 22

LISTING 1

Don't type the TYPO II Codes!

```
IX 10 REM PRINTER SPOOLER
KE 20 REM BY GLENN K. SMITH
GT 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 FN$(20),TEMP$(20),AR$(93):DPL=P
   EEK(10592):POKE 10592,255
CU 70 FN$="D:SPOOLER.OBJ":REM THIS IS THE
    NAME 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
TH 100 IF PEEK(764)=18 THEN FN$="C:"
VB 110 POKE 764,255:GRAPHICS 0:? "      AN
   TIC'S GENERIC BASIC LOADER"
MY 120 ? ,"BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LW 150 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BQ 160 AR$="":READ AR$
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DM 180 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")      "
BK 190 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 160
MM 200 IF PEEK(195)=5 THEN ? :? :? "■TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CM 210 IF C<LN+1 THEN ? :? "■TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
UQ 220 IF FN$="C:" THEN ? :? " Prepare ca
   ssette, press (RETURN)"
AR 230 OPEN #1,8,0,FN$
PV 240 POKE 766,1:? #1;A$;:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0:? "■COMPLETED.
   "
HK 1000 DATA 631
OX 1010 DATA 255255174068169069172232002 2
   0013220516000013220413220616906913320 7
   1742320021772062011022400 12
SL 1020 DATA 201069240016201070240011201 0
   7120801013802410503320800423223223213 8
   1452042302042302062080042 30
UX 1030 DATA 205230207165207201071208207 1
   6520620101620820117423200223223214225 5
   0680761770700000000000000 00
GB 1040 DATA 000000001000000000000000001410
```

```
   0906914201006917301106901301206924002 3
   1730540692051390692080151 73
AU 1050 DATA 055069205140069208007169000 1
   4100806924023317300906914117607023801 1
   0692080032380120692380540 69
YL 1060 DATA 208003238055069173055069201 1
   0220801717305406920117620801016917616 2
   0701410540691420550691740 10
ZF 1070 DATA 069160001140008069096173008 0
   6924000620600806907609822817300706901 6
   0030762150691730110690130 12
WW 1080 DATA 069208003076000070174006069 1
   7317607015719200316823813906920800323 8
   1400691731400692011022080 17
KB 1090 DATA 173139069201176208010169176 1
   6217006916507007014113906914214006917 3
   0110692080032060120692060 11
KT 1100 DATA 069232142006069224040240014 1
   9215520805616903215719200323222404020 8
   2481601460760020701621011 89
RY 1110 DATA 000003157020070202016247162 0
   1118900807015700000320201624723214200 6
   0690320892281620111890200 70
QN 1120 DATA 157000003202016247044160001 1
   4000706907609822806400108712819200303 0
   0000400000780000000000000 00
BL 1130 DATA 000000000000000000000001730
   8807017408907013301013401117309107017 4
   0920701330121340131730000 69
OD 1140 DATA 174001069141231002142232002 1
   7300406917400506914102700314202800317 2
   0020691740030691690070320 92
XC 1150 DATA 228076087070255012000169032 1
   6207013301013401116917616207014105406 9
   1420550691411390691421400 69
YD 1160 DATA 169176162102141231002142232 0
   0216916116207014102700314202800316000 0
   1400110691400120691400060 69
AL 1170 DATA 200140007069160105162069169 0
   0707609222800000000000000016607001607 1
   0000120690000000000000000 00
QT 1180 DATA 000000173027003174028003133 2
   0413420514100406914200506916000017720 4
   1531610702001920062082461 60
MN 1190 DATA 008177204153161070200192015 2
   0824616501216601314109107014209207016 5
   0101660111410880701420890 70
OS 1200 DATA 169090162070133012134013173 2
   3100217423200214100006914200106917303 6
   0021740370021410020691420 03
MZ 1210 DATA 069076093070000224002225002 1
   74068
```

BASIC Concentration 8-bit memory game

RECALL

Article on page 33

LISTING 1

Don't type the TYPO II Codes!

```
DA 10 REM RECALL
GX 20 REM BY BARRY KOLBE
QH 30 REM (c)1988, ANTIC PUBLISHING
TC 40 DEBUG=PEEK(53279)=5
TP 100 GOSUB 1610
XX 110 GOSUB 890:GRAPHICS 2:POKE 756,CHSE
   T:POKE 559,46:POKE 752,1:GOSUB 525
BE 120 DL=PEEK(560)+256*PEEK(561)+14
NF 130 POKE DL,PEEK(DL)+128:POKE 513,INT(
   ADR(DLI$)/256):POKE 512,ADR(DLI$)-256*
   PEEK(513):POKE 54286,192
KO 140 X=1:Y=0:POSITION X,Y:? #6;" 1  2
   3  4  5  6";:Y=Y+2
ZS 150 POSITION X,Y:? #6;" 7  8  9 10 11
   12";:Y=Y+2
NL 160 POSITION X,Y:? #6;"13 14 15 16 17
   18";:Y=Y+2
ZM 170 POSITION X,Y:? #6;"19 20 21 22 23
   24";:Y=Y+2
SJ 180 POSITION X,Y:? #6;"25 26 27 28 29
   30";
XL 190 PLAYER=0:IF OPP=1 THEN PLAYER=1:X=
   USR(ADR(MOVE$),ADR(PDEF$),PL0,YP):POKE
    53248,XP
BW 195 POKE 704,96*PLAYER+30
GK 200 POKE 656,0:POKE 657,1:? "Pick two
   numbers CONTROL G to guess";:POKE 656,
   1:POKE 657,10
RN 210 ? "Current player ";PLAYER+1:IF XG
   =1 THEN GOSUB 575
VV 211 GOSUB 525
UJ 220 POKE 656,2:POKE 657,5:? "SCORE  1:
   ";SC(1);:POKE 657,25:? "2: ";SC(2)
SA 230 IF PEEK(764)=189 THEN 970
DG 240 IF OPP=1 AND PLAYER THEN GOSUB 112
   0:XP=TX:YP=TY:GOTO 260
EP 250 GOSUB 430:GOSUB 1060
FU 260 F=((XP-52)/24)+1+((YP-14)/16)*6
OC 270 IF DONE(F)=1 THEN 230
NC 280 CG$(F,F)=MATCH$(F,F)
MN 290 SY=INT((F-1)/6):SX=F-SY*6
VZ 300 POSITION 1+SX*3-3,SY*2:? #6;" ";MA
   TCH$(F,F)
FS 310 IF OPP=1 AND PLAYER THEN GOSUB 135
   0:XP=TX:YP=TY:GOTO 330
EK 320 GOSUB 430:GOSUB 1060
IC 330 S=((XP-52)/24)+1+((YP-14)/16)*6
NP 340 SY1=INT((S-1)/6):SX1=S-SY1*6
GK 350 IF F=S THEN 310
TP 360 IF DONE(S)=1 THEN 310
TB 370 CG$(S,S)=MATCH$(S,S)
BU 380 POSITION 1+SX1*3-3,SY1*2:? #6;" ";
   MATCH$(S,S)
AU 390 IF MATCH$(F,F)=MATCH$(S,S) THEN DO
   NE(F)=1:DONE(S)=1:CG$(F,F)=" ":CG$(S,S
   )=" ":GOTO 720
BY 400 GOSUB 1030:PLAYER=PLAYER+1:XG=1:IF
    PLAYER=2 THEN PLAYER=0
ZL 410 GOSUB 530:GOSUB 550:GOTO 200
LF 420 REM STICK MOVE
CK 430 X=USR(ADR(MOVE$),ADR(PDEF$),PL0,YP
   ):POKE 53248,XP
RK 440 FOR I=1 TO 50:NEXT I
OV 450 IF PEEK(764)=189 THEN GOTO 970
TZ 460 ST=PEEK(632+PLAYER):IF ST=14 THEN
   YP=YP-16:IF YP<=0 THEN YP=78
UP 470 IF ST=13 THEN YP=YP+16:IF YP>=94 T
   HEN YP=14
AP 480 IF ST=11 THEN XP=XP-24:IF XP<=44 T
   HEN XP=172
KX 490 IF ST=7 THEN XP=XP+24:IF XP>=188 T
   HEN XP=52
SU 500 IF PEEK(644+PLAYER)=1 THEN 430
VV 510 GOSUB 525
ZF 520 RETURN
DU 525 POKE 77,0:IF  NOT (DEBUG) THEN POK
   E 16,112:POKE 53774,112
ZX 526 RETURN
SY 530 M$=STR$(F):IF F<10 THEN M$="  ":M$
   (2)=STR$(F)
NZ 540 POSITION 1+SX*3-3,SY*2:? #6;M$;:RE
   TURN
HC 550 M$=STR$(S):IF S<10 THEN M$="  ":M$
   (2)=STR$(S)
OV 560 POSITION 1+SX1*3-3,SY1*2:? #6;M$:R
   ETURN
BX 570 GOSUB 530:GOTO 200
NS 575 FOR XG=14 TO 0 STEP -1:SOUND 0,50,
   14,XG:NEXT XG:POKE 704,96*PLAYER+30:RE
   TURN
RG 580 REM
VC 590 REM RESTART
WU 610 GOSUB 1850
DC 620 MATCH$=BL$:CG$=BL$
JK 630 FOR I=1 TO 30:RN(I)=I:NEXT I
KV 640 FOR I=1 TO 30:X=INT(RND(0)*30)+1:B
   =RN(I):RN(I)=RN(X):RN(X)=B:NEXT I
CW 650 FOR I=1 TO 15:MATCH$(RN(I),RN(I))=
   CHR$(I+162):MATCH$(RN(15+I),RN(15+I))=
   CHR$(I+162)
YW 660 IF I>11 THEN MATCH$(RN(I),RN(I))=C
   HR$(175+I):MATCH$(RN(15+I),RN(15+I))=C
   HR$(I+175)
GK 670 NEXT I
YU 680 FOR I=1 TO 30:DONE(I)=0:NEXT I:XP=
   52:YP=14:SC(1)=0:SC(2)=SC(1):RETURN
RJ 690 REM
NF 700 REM WINNING
CI 720 GOSUB 1040:POSITION 1+SX*3-3,SY*2:
   ? #6;" ";T$(F,F);:POSITION 1+SX1*3-3,S
   Y1*2:? #6;" ";T$(S,S);
WZ 730 SC(PLAYER+1)=SC(PLAYER+1)+1
NP 740 IF SC(1)+SC(2)<>15 THEN 200
KM 750 POKE 54286,64:FOR I=10 TO 250 STEP
    10:POKE 710,I:POKE 712,250-I:SOUND 0,
   150+I,10,8
HG 760 FOR J=1 TO 15:NEXT J:SOUND 0,0,0,0
   :NEXT I
AR 770 POKE 53248,0:GRAPHICS 0:POKE 752,1
   :POSITION 4,4:? "The Winning player is
   ";
QK 780 PLAYER=1:IF SC(2)>SC(1) THEN PLAYE
   R=2
RB 790 ? PLAYER:POSITION 4,8:? "THE PUZZL
   E IS ":POSITION 4,10:? A$
TT 800 POSITION 4,12:? "SCORES  1: ";SC(1
   );"    2: ";SC(2)
PE 810 POSITION 4,16:? "Press START to pl
   ay again"
VE 820 POSITION 4,18:? "Press OPTION to q
   uit"
BN 830 IF PEEK(53279)=6 THEN 110
MT 840 IF PEEK(53279)=3 THEN GRAPHICS 0:E
   ND
PW 850 GOTO 830
RF 860 REM
NH 870 REM INTRO
EC 890 GRAPHICS 17:POKE 708,30:POKE 709,2
   02:POKE 710,152:POKE 711,14:POKE 712,5
   0
GA 895 POSITION 4,1:? #6;"K RECALL K":OPP
   =2
RM 900 GOSUB 610:GOSUB 950
PD 910 POSITION 2,15:? #6;"SELECT to choo
   se":POSITION 2,17:? #6;"START to begin
   "
IY 920 I=PEEK(53279):IF I=6 THEN RETURN
HK 930 IF I=5 THEN GOSUB 1050:OPP=OPP+1:I
   F OPP>2 THEN OPP=1
LL 940 GOSUB 950:GOTO 920
ZA 950 IF OPP=1 THEN POSITION 2,7:? #6;"
    TWO PLAYER  ":POSITION 2,9:? #6;"> ON
   E PLAYER <":RETURN
UM 960 POSITION 2,7:? #6;"> TWO PLAYER <"
   :POSITION 2,9:? #6;"  ONE PLAYER  ":RE
   TURN
LL 970 REM GUESS
VH 980 POKE 752,0:POKE 764,255:? "E":POKE
    656,1:POKE 657,2:? "GUESS ";:POP
UG 990 POKE 656,2:POKE 657,2:INPUT R$:IF
   R$=A$ THEN ? "CORRECT":GOTO 1020
PL 1000 PLAYER=PLAYER+1:IF PLAYER=2 THEN
   PLAYER=0
WO 1010 POKE 752,1:? "E":GOTO 200
OY 1020 SC(PLAYER+1)=SC(PLAYER+1)+15-(SC(
   1)+SC(2)):GOTO 750
```

```
ID 1030 REM DELAY
UK 1040 FOR I=1 TO 200:NEXT I:GOSUB 525:R
   ETURN
RS 1050 REM SOUND
EP 1060 SOUND 0,200,10,8:FOR I=1 TO 50:NE
   XT I:SOUND 0,0,0,0:RETURN
XK 1070 IF PEEK(764)=255 THEN 1070
CB 1080 POKE 764,255:RETURN
IV 1090 REM DELAY
ZA 1100 FOR I=1 TO 20:NEXT I:RETURN
IB 1110 REM
GH 1120 REM COMPUTER
UV 1140 POKE 1791,0:FOR I=1 TO 29:FOR J=I
   +1 TO 30
MJ 1150 IF CG$(I,I)=" " THEN 1180
GD 1160 IF CG$(J,J)=CG$(I,I) THEN CF=I:CS
   =J:POKE 1791,1:GOTO 1190
FX 1170 NEXT J
OK 1180 NEXT I:GOTO 1250
QL 1190 YF=INT((CF-1)/6):XF=CF-YF*6-1:GOT
   O 1270
NH 1200 POKE 1791,0:FOR I=1 TO 30:IF DONE
   (I)=0 THEN CF=I:GOTO 1220
NR 1210 NEXT I:GOTO 1250
YI 1220 FOR J=30 TO I+1 STEP -1:IF DONE(J
   )=0 THEN CS=J:POKE 1791,1:GOTO 1190
FN 1230 NEXT J
IF 1240 REM RANDOM MOVE
DW 1250 XF=INT(RND(0)*6):YF=INT(RND(0)*5)
   :CF=YF*6+XF:IF  NOT DONE(CF) AND SC(1)
   +SC(2)<8 THEN 1280
QA 1260 IF DONE(CF) THEN 1200
BD 1270 REM MOVE
CS 1280 TX=52+24*XF:TY=16*YF+14
MB 1290 IF TX=XP THEN 1310
LJ 1300 FOR J=XP TO TX STEP SGN(TX-XP)*24
   :POKE 53248,J:GOSUB 1090:NEXT J
FM 1310 IF YP=TY THEN RETURN
BZ 1320 FOR J=YP TO TY STEP SGN(TY-YP)*16
   :GOSUB 1330:GOSUB 1090:NEXT J:RETURN
AI 1330 X=USR(ADR(MOVE$),ADR(PDEF$),PL0,J
   ):RETURN
IO 1340 REM
GF 1350 REM COMPUTER 2ND MOVE
FB 1370 IF PEEK(1791)=1 THEN CF=CS:GOTO 1
   190
FD 1380 FOR I=1 TO 30
IM 1390 IF I=F THEN 1410
YU 1400 IF CG$(I,I)=MATCH$(F,F) THEN CF=I
   :GOTO 1190
FA 1410 NEXT I
QN 1420 GOTO 1250
MV 1430 DATA 4,28,52,116,12,255,126,60
RI 1440 DATA 0,0,120,100,255,255,102,0
DO 1450 DATA 0,126,16,158,249,31,0,0
VU 1460 DATA 24,60,126,255,153,153,255,0
FL 1470 DATA 24,60,126,255,255,24,24,24
FH 1480 DATA 16,56,40,56,56,56,124,186
HB 1490 DATA 66,36,24,126,66,66,66,126
BK 1500 DATA 0,54,127,127,62,28,8,0
ZG 1510 DATA 0,24,60,126,126,60,24,0
BN 1520 DATA 8,12,79,159,188,248,124,0
WV 1530 DATA 126,66,66,126,126,126,126,0
QX 1540 DATA 0,0,1,10,28,40,64,0
KR 1550 DATA 56,108,124,56,48,56,48,0
CG 1560 DATA 60,60,24,60,102,66,102,60
NV 1570 DATA 0,60,36,255,255,255,255,255
JE 1580 REM
BD 1590 REM INIT
DT 1610 GRAPHICS 18:POSITION 7,2:? #6;"RE
   CALL":POSITION 3,4:? #6;"by barry kolb
   e"
VX 1620 POSITION 5,6:? #6;"please wait":G
   OSUB 525
DX 1630 DIM BL$(30),M$(2),SC(2),A$(30),R$
   (30),T$(30),MATCH$(30),RN(30),CG$(30),
   CMOV$(35),MOVE$(60),PDEF$(12)
BV 1640 DIM DONE(30),DLI$(20)
VQ 1650 DLI$="H▯▯▯
```

ST RESOURCE

Crazy Chicken Barrage

Article on page 51

A

```
' ------------------------------------
' BARRAGE
' By Stephen Evermann  & Paul Pratt
' (c)1988, Antic Publishing Inc.
'
If Xbios(4)<>0       !CHECK RESOLUTION
  Alert 1,"  ¦     B A R R A G E    ¦ ¦ REQUIRES  LOW  RESOLUTION",1,"SORRY",B
  End
Endif
Scr_mem=Lpeek(1102)            !Get address of screen memory
Dim Obj$(9),Egg$(6),Eggx(10),Eggy(10),Eggtype$(10),Egg_ofs(10)
Dim Speed(10),Pal(15)
@Fix_colors(True)
Graphmode 1
@In_hi_score
@Assign_objects
For Numegg=0 To 9
  @New_egg(Numegg)             !Initialize eggs
Next Numegg
@Talk_screen                   !Opening screen
Boyx=112                       !Initialize boy's position
Boyy=166
Play=True
' Key=&HFFFC02      pause removed
@Do_color
@Talk
Level=0
Numegg=0
Total_eggs=0
Eggs_avaible=15
Lives=3
Extra=0
' Score=0
Bonus_level=1
While Play=True
  ' Score=Temp_score
  @Screen
  Dance=False
  Play=True
  Dead=False
  Hidem
  @Score
  @Heals
  @Main
  If Score>Hi_score
    Hi_score=Score
  Endif
  @Talk
Wend
If Score>Hi_score
  Hi_score=Score
```

B

```
Endif
Setcolor 0,7,7,7
Open "R",#3,"HI_SCORE.EGG"
Write #3,Hi_score
Close #3
@Fix_colors(False)
Showm
End
' ------------------------------------------------
Procedure Main
  @New_egg(1)
  While Play=True
    Mouse Mx,My,Btn
    @Walk
   If Btn<>0
     Play=False
     @Egg_clear
     @Heals
   Endif
   @Egg_drop
   If Dance=True
     Dance=False
     @Heals
   Endif
   If Steady>4                 !For smooth movement
     Steady=0
     Put Boyx,Boyy,Obj$(1),3
     Vsync
     Wave 0,0,0,0
     Dead=False
   Endif
   Inc Steady
  Wend
Return
' ------------------------------------------------------------
Procedure Walk
  If Mx<305 And Mx<>Boyx
    If Mx<>Boyx
      Obj=3
    Else
      Obj=2
    Endif
    Put Boyx,Boyy,Obj$(0),3
    Put Mx,Boyy,Obj$(Obj),3
    Vsync
    Boyx=Mx
    Wave 8,5,7,3
  Else
    Pause 1   !Smooth movement so eggs drop at constant speed
  Endif
Return
```

C

```
' ------------------------------------------------------
Procedure Heals
  Setcolor 0,2
  For Y=0 To Level+6 Step 2
    Put Boyx,Boyy-Y,Obj$(0),3
    Put Boyx,Boyy-Y-2,Obj$(2)
    Pause 3
    Put Boyx,Boyy-Y-2,Obj$(1),3
    Print At(2,6);Chr$(7)
    Pause 5
  Next Y
  Put Boyx,Boyy-Y-2,Obj$(0),3
  Put Boyx,Boyy,Obj$(1),3
  Print At((Boyx/8)-1,18);"       "
  Pause 10
  Setcolor 0,16
Return
' ========================= EGG ROUTINES ============================
Procedure Egg_drop
  ' This routine draws # of eggs that are falling and checks each for collision
  Numegg=0  !Start with egg #0
  Repeat
    Put Eggx(Numegg),Eggy(Numegg),No_egg$,3  !Put blank space where egg was
    Add Eggy(Numegg),Speed(Numegg)           !Move position of egg down
    Put Eggx(Numegg)+Egg_ofs(Numegg),Eggy(Numegg),Eggtype$(Numegg),7 !draw egg
    Vsync
    Add Eggx(Numegg),Egg_ofs(Numegg)     !If horizontal motion add that
    '
    If Eggy(Numegg)>158 And Boyx-10<Eggx(Numegg) And Boyx+12>Eggx(Numegg)
      ' check if boy is under egg. if so catch egg
      If Eggtype$(Numegg)<>Egg$(4)
        Put Eggx(Numegg),Eggy(Numegg),No_egg$,3
        @New_egg(Numegg)                     !Egg caught
        Add Score,49 !(Level+1)*9.6
        @Difficulty
      Else    ! If boy caught a knife, kill him
        @Stabbed
      Endif
    Endif
    '
    If Eggy(Numegg)>187-Speed(Numegg)    !Egg splat
      If Eggtype$(Numegg)<>Egg$(3)
        Put Eggx(Numegg),Eggy(Numegg),No_egg$,3
        If Eggtype$(Numegg)=Egg$(1)
          Put Eggx(Numegg),189,Egg$(2),3
        Else
          Put Eggx(Numegg),189,Egg$(4),3
        Endif
        @New_egg(Numegg)
        @Difficulty
      Else
        @Explode    ! If grenade was dropped, kill boy
      Endif
    Endif
    Exit If Dead
    Exit If Dance
    Inc Numegg
  Until Numegg>Total_eggs
Return
' ------------------------------------------------------
Procedure Difficulty
  Dec Eggs_avaible
  Text 250,16,Int(Score)      !Change score
  If Eggs_avaible<1           !Have enough eggs fallen? If so add another
    Eggs_avaible=15+Level     !More eggs fall each level
    Inc Total_eggs            !Make more eggs fall at once
    @New_egg(Total_eggs)
    If Total_eggs>3           !If finished dropping 3 eggs at once inc level
      @Egg_clear
      Dance=True
      Total_eggs=0
      Temp_score=Score
      Inc Level
```

D

```
    Print At(Mx/8-1,18);"(Bravo)"
    If Int(Score/12000)>=Bonus_level And Lives<3
      Inc Bonus_level      !If need life and have 12000 points since...
      Inc Lives            !last extra life, give new life
      @Heals
      @New_screen
      Print At(Mx/8-1,18);"{EXTRA}"
      @Heals
      Print At(Mx/8-1,18);"{LIFE!}"
    Endif
    '
    If Level>13
      Level=0
      Add Extra,13   !Tells user round 1 is 14,after finished all 13 levels
      Add Exspeed,2
      @New_screen
    Endif
    '
  Endif
  @Score
 Endif
Return
' ------------------------------------------------
Procedure Stabbed
  Put Boyx,Boyy,Obj$(Obj),3
  Put Eggx(Numegg),Eggy(Numegg),Egg$(4),7
  For X=4 Downto 0
    Sound 1,15,1,X,20-X
  Next X
  Pause 32
  Sound 1,0,0,0
  @Kill_man
Return
' ------------------------------------------------
Procedure Explode
  For X=0 To 8
    Setcolor 0,5+Random(3),Random(5),0
    Sound 1,15,14,X,12-X
  Next X
  Pause 26
  Sound 1,0,0,0
  Print At(2,2);Chr$(7)
  Setcolor 0,16
  @Kill_man
Return
' ------------------------------------------------------------
Procedure Kill_man
  Dec Lives
  @Egg_clear
  If Lives=>0            !If game not over because lives left
    If Level>0           !if not first level
      Dec Level
    Endif
    Total_eggs=0
    Eggs_avaible=15
    Score=Temp_score
    Dead=True
    @New_screen
  Else
    Play=False           !Game over
  Endif
Return
' ------------------------------------------------------------
Procedure New_screen
  Cls
  Sput Playfield$
  @Score
  Text 250,16,Int(Score)
  X=2
  While X>=Lives
    Put (X+1)*14,6,No_token$,3
    Dec X
  Wend
Return
```

continued on next page

E

```
' ------------------------------------------------------
Procedure Score
  Graphmode 1
  Deftext 12,0,0,8
  Text 109,16,Total_eggs+1
  Text 174,16,Level+1+Extra
Return
' ------------------------------------------------------------
Procedure Egg_clear
  For Num=0 To Total_eggs+1
    Put Eggx(Num),Eggy(Num),No_egg$,3
    @New_egg(Num)
  Next Num
Return
' ------------------------------------------------------------
Procedure New_egg(Eeg)
  ' This routine sets up the properties a new egg,grenade,or knife will have...
  ' until it hits the ground or is caught. These properties stored in arrays
  Eggy(Eeg)=24                !Always set to top of screen
  Eggx(Eeg)=Random(10)*16+80  !Set Random X start position
  Egg_ofs(Eeg)=0              !Begin egg with no horiz. movement
  Q=Random(10)+1              !Used to change settings
  Eggtype$(Eeg)=Egg$(1)  !Make object egg then change at lev
  '                      routines, if needed.
  Speed(Eeg)=6   !Set this egg to descend 6 pixels at a time.
  On Level Gosub Lev1,Lev2,Lev3,Lev4,Lev5,Lev6,Lev7,Lev8,Lev9,Lev10,Lev11,Lev12,
Lev13
  If Extra>12
    @Knife
    @Grenade
    Add Speed(Eeg),Exspeed
  Endif
Return
' ------------------------------------------------------
Procedure Lev1
  @Grenade
Return
' ------------------------------------------------------
Procedure Lev2
  @Angle
Return
' ------------------------------------------------------
Procedure Lev3
  @Grenade
  @Angle
Return
' ------------------------------------------------------
Procedure Lev4
  Speed(Numegg)=Random(8)+3
Return
' ------------------------------------------------------
Procedure Lev5
  @Grenade
  Speed(Numegg)=Random(8)+3
Return
' ------------------------------------------------------
Procedure Lev6
  Eggx(Numegg)=(Random(3)+8)*16
  Speed(Numegg)=Random(8)+3
  @Angle
  @Grenade
Return
' ------------------------------------------------------
Procedure Lev7
  @Grenade
  @Knife
Return
' ------------------------------------------------------
Procedure Lev8
  @Angle
  @Knife
Return
' ------------------------------------------------------
```

F

```
Procedure Lev9
  @Grenade
  @Knife
  @Angle
Return
' ------------------------------------------------------
Procedure Lev10
  Speed(Numegg)=Random(8)+3
  @Knife
Return
' ------------------------------------------------------
Procedure Lev11
  @Grenade
  Speed(Numegg)=Random(8)+3
  @Knife
Return
' ------------------------------------------------------
Procedure Lev12
  Eggx(Numegg)=(Random(3)+8)*16
  Speed(Numegg)=Random(8)+3
  @Angle
  @Grenade
  @Knife
Return
' ------------------------------------------------------
Procedure Lev13
  Eggtype$(Numegg)=Egg$(3)
  @Knife
Return
' ------------------------------------------------------
Procedure Knife
  If Q=5
    Eggtype$(Eeg)=Egg$(4)      !Object is a knife
  Endif
Return
' ------------------------------------------------------
Procedure Grenade
  If Q=3 Or Q=7
    Eggtype$(Eeg)=Egg$(3)      !Object is a grenade
  Endif
Return
' ------------------------------------------------------
Procedure Angle
  If Q<6                       !Egg offsets
    Egg_ofs(Eeg)=Rnd*2.8      !Egg moves right
  Else
    Egg_ofs(Eeg)=-(Rnd*2.8)   !Egg moves left
  Endif
Return
' ==================   HOUSEKEEPING ROUTINES   ======================
' ------------------------------------------------------------------------
Procedure Screen
  Cls
  Graphmode 2
  Defline 1,3,0,0
  Color 5
  Line 0,198,320,198
  Defline 1,4,0,0
  Color 4
  Box 0,3,320,21
  X=1
  Repeat
    Put X*14,6,Token$,3
    Inc X
  Until X>3
  Deftext 3,0,0,7
  Text 60,16,"ROUND  LEVEL   SCORE"
  Sget Playfield$                !GET COPY OF SCREEN
  @Score
Return
' ------------------------------------------------------
Procedure Fix_colors(State)       ! Saves & restores your desktop colors.
  For X=0 To 15
```

G

```
    If State=True
      Pal(X)=Xbios(7,X,-1) And &HFFF
    Else
      Setcolor X,Pal(X)
    Endif
  Next X
Return
' ------------------------------------------------------------------------
Procedure Talk_screen
  ' Create the opening dialog screen
  Graphmode 2
  For X=2 To 7
    Deftext X,16,0,66
    Text 28+X,34-X,"B A R R A G E"
  Next X
  Defline 1,3,4,4
  Color 3
  Line 10,43,280,43
  Color 4
  Line 10,40,280,40
  Deftext 5,0,0,4
  Text 34,196,"PRATT & EVERMANN     (c)1988  ANTIC PUBLISHING"
  Deffill 3,1,1
  Pbox 76,91,200,138
  Deffill 4,1,1
  Pbox 80,87,204,134
  Pbox 8,162,138,188
  Pbox 148,162,278,188
  Deftext 7,0,0,6
  Text 98,96,"HIGH  SCORE"
  Text 98,118,"YOUR  SCORE"
  Deffill 3,1,1
  Pbox 10,160,140,186
  Pbox 150,160,280,186
  Deftext 7,16,0,11
  Text 18,178,"P L A Y"
  Text 158,178,"E X I T"
  Sget Talk$
  Cls
Return
' ------------------------------------------------------------------
Procedure Talk
  ' Create the opening dialog window
  While Btn<>0
    Mouse Mx,My,Btn
  Wend
  Graphmode 2
  Defmouse 5
  Play=True
  Boyy=56
  Setcolor 0,2
  Deftext 1,0,0,7
  Setcolor 0,2
  Sput Talk$
  Text 139-(Len(Str$(Int(Hi_score)))*5),108,Int(Hi_score)
  Text 139-(Len(Str$(Int(Score)))*5),130,Int(Score)
  While Btn=0 Or My<159
    Mouse Mx,My,Btn
    @Wiggle
    '    Print At(2,12);Mx,My
  Wend
  If Mx>143
    Play=False
  Endif
  Cls
  While Boyy<164       !Boy falls to bottom of screen
    Put Boyx,Boyy,Obj$(0),3
    Add Boyy,4
    Put Boyx,Boyy,Obj$(1),3
    Pause 2
  Wend
  Boyy=166
  Print At(2,2);Chr$(7)
```

H

```
  Setcolor 0,16
Return
' ------------------------------------------------------------------------
Procedure Wiggle
  Put W,Boyy,Obj$(0),3
  Showm
  W=Random(4)+130
  Put W,Boyy,Obj$(2),3
  Showm
  Pause Random(8)+4
  Put W,Boyy,Obj$(3),3
  Showm
  Pause Random(8)+4
Return
' ------------------------------------
Procedure In_hi_score
  ' Save the high score to a file.  Create a file if needed
  On Error Gosub Err
  Reopen:
  Open "R",#3,"HI_SCORE.EGG"
  Input #3,Hi_score           !if Hi_score file exists, open and get hi score
  Print Chr$(7)
  Close #3
Return
' ----------------------------------------
Procedure Err
  Write #3,0            !if no file, create new file with "0" as hi score
  Close #3
  Resume Reopen
Return
' ------------------------------------------------------------------------
Procedure Assign_objects
  ' This procedure physically pokes the objects into screen memory
  ' then uses the GET command to put them into an array.
  Get 0,0,15,30,Obj$(0)
  Get 0,0,15,7,No_egg$
  Get 5,2,11,12,No_token$
  For X=0 To 15
    Setcolor X,16    !BLACKOUT SCREEN SO SCREEN POKING IS HIDDEN
  Next X
  Restore Obj_data
  For Boys=1 To 3
    For X=0 To 30
      Read Plane1,Plane2,Plane3,Plane4
      ' poke object into screen memory
      Dpoke Scr_mem+X*160,Plane1
      Dpoke Scr_mem+X*160+2,Plane2
      Dpoke Scr_mem+X*160+4,Plane3
      Dpoke Scr_mem+X*160+6,Plane4
    Next X
    ' put object into array
    Get 0,0,16,30,Obj$(Boys)
  Next Boys
  Get 5,2,11,12,Token$
  Restore Egg
  Q=1
  Repeat
    X=0
    Repeat
      Read Plane1,Plane2,Plane3,Plane4
      ' poke object into screen memory
      Dpoke Scr_mem+X*160,Plane1
      Dpoke Scr_mem+X*160+2,Plane2
      Dpoke Scr_mem+X*160+4,Plane3
      Dpoke Scr_mem+X*160+6,Plane4
      Inc X
    Until X=8
    Get 0,0,16,7,Egg$(Q)
    Inc Q
  Until Q=5
  Cls
Return
' ------------------------------------------------------
```

continued on next page

I

```
Procedure Do_color    !SET SCREEN COLORS
  Restore Kolor_data
  For X=0 To 15
    Read Kol
    Setcolor X,Kol
  Next X
Return
Kolor_data:
Data 16,1792,1284,1312,7,116,5,1365,546,102,68,1859,1911,1360,1586,1840
' ------------------------------------------------
Obj_data:
Rem   stand boy
Data 8192,8192,0,8192
Data 12290,12290,0,12290
Data 12294,12294,0,12294
Data 12294,6,12288,6
Data 29670,992,28678,28672
Data 30263,2032,29127,455
Data 29847,1712,29543,29344
Data 30711,2032,28679,996
Data 30711,1904,28679,6007
Data 31183,992,31279,13280
Data 14350,2032,14798,2046
Data 14798,1584,14798,4080
Data 6604,1584,6604,5808
Data 7148,1584,7148,1724
Data 6152,2032,6152,6128
Data 2920,1168,2056,2040
Data 2920,1168,2056,4080
Data 2056,2032,2056,2040
Data 2056,2032,2056,4080
Data 0,4088,0,4088
Data 0,4088,0,4088
Data 0,3960,0,3960
Data 0,3960,0,3960
Data 0,3960,0,3960
Data 0,3960,0,3960
Data 0,3960,0,3960
Data 0,3960,0,3960
Data 3960,0,0,3960
Data 3960,0,0,3960
Data 1584,1584,0,1584
Data 1584,1584,0,1584
Rem   * 1 by 32 words
Rem   leftboy
Data 0,0,0,0
Data 16384,16384,0,16384
Data 24576,24576,0,24576
Data 24580,24580,0,24580
Data 24588,12,24576,12
Data 59340,1996,57344,57356
Data 60524,4064,58252,896
Data 59694,3424,59086,58702
Data 61422,4064,57358,1984
Data 61422,3808,57358,12008
Data 62366,1984,62558,26560
Data 28700,4064,29596,4092
Data 29596,3168,29596,8160
Data 13208,3168,13208,11616
Data 14296,3168,14296,3448
Data 12304,4064,12304,12256
Data 5840,2336,4112,4080
Data 5840,2336,4112,8160
Data 4112,4064,4112,4080
Data 4112,4064,4112,8160
Data 16,8160,16,8176
Data 0,16368,0,16368
Data 0,16120,0,16120
Data 0,15480,0,15480
Data 0,14396,0,14396
Data 0,14396,0,14396
Data 0,14366,0,14366
```

J

```
Data 14350,0,0,14350
Data 14350,0,0,14350
Data 12294,12294,0,12294
Data 12294,12294,0,12294
Rem   * 1 by 32 words
Rem   rightboy
Data 0,0,0,0
Data 2,2,0,2
Data 6,6,0,6
Data 8198,8198,0,8198
Data 12294,12288,6,12288
Data 13287,13280,7,12295
Data 13879,2032,12743,448
Data 29847,1712,29543,29351
Data 30711,2032,28679,992
Data 30711,1904,28679,6004
Data 31183,992,31279,998
Data 14350,2032,14798,16368
Data 14798,1584,14798,2040
Data 6604,1584,6604,1716
Data 7148,1584,7148,7856
Data 2060,2032,2060,2036
Data 2920,1168,2056,4080
Data 2920,1168,2056,2040
Data 2056,2032,2056,4080
Data 2056,2032,2056,2040
Data 2048,2040,2048,4088
Data 0,4092,0,4092
Data 0,8060,0,8060
Data 0,7740,0,7740
Data 0,15388,0,15388
Data 0,15388,0,15388
Data 0,30748,0,30748
Data 28700,0,0,28700
Data 28700,0,0,28700
Data 24588,24588,0,24588
Data 24588,24588,0,24588
Egg:
Data 0,0,0,0
Data 128,256,0,384
Data 448,512,0,960
Data 256,512,192,960
Data 0,512,448,960
Data 0,512,448,960
Data 320,512,128,960
Data 128,256,0,384
Rem   splategg
Data 0,0,0,0
Data 0,0,0,0
Data 0,0,0,0
Data 0,0,0,0
Data 1792,1792,1792,1792
Data 4064,4064,16352,16352
Data 6072,6072,65532,65532
Data 28,28,31,31
Rem   grenade
Data 896,0,896,896
Data 1280,0,1280,1280
Data 896,128,512,512
Data 1984,1600,0,0
Data 1984,1152,0,0
Data 1984,1024,0,0
Data 1984,1344,0,0
Data 896,640,0,0
Rem   knife
Data 896,896,896,896
Data 768,768,768,768
Data 4032,4032,4032,4032
Data 768,128,0,896
Data 256,640,0,896
Data 256,512,0,768
Data 256,512,0,768
Data 256,0,0,256
```

SHOPPERS MARKET

SHOPPERS MARKET

SHOPPERS MARKET DISPLAY ADVERTISING

2⅛ × 3

Antic Rates

B/W 1X	450.
B/W 3X	850.
B/W 6X	1525.

Have your ad displayed with other industry advertisers

CONTACT
Karen Gorden
(415) 957-0886

TIRED OF TYPING?
BUGGED BY DEBUGGING?

GET *ALL* THE PROGRAMS WITH ANTIC ON DISK!
MORE THAN 40% OFF REGULAR PRICE!
ANTIC'S MAGAZINE DISK ONLY $5.95
(plus 2.00 shipping and handling)
FOR SAME DAY SERVICE CALL
(415) 957-0886 between 8am and 3pm
Ask for the DISK DESK.
Use your Visa or Mastercard.
Or send check or money order to:
ANTIC PUBLISHING
544-2ND ST.
SAN FRANCISCO, CA 94107

THE AMAZING NEW
VOICE MASTER jr. Junior

TURNS YOUR COMPUTER INTO A TALKING AND LISTENING SERVANT

$39.95

Get speech output and voice recognition in ONE product. Voice Master Jr. is easy to use with new commands added to BASIC. A music bonus lets you write and compose by whistling the tune! Unlimited uses for fun, education, practical applications. Demo programs included. Price only $39.95 including software and manual. A Patented price/performance breakthrough!

TO ORDER BY MAIL include $4 shipping & handling ($6 Canada, $12 overseas) per order. Visa, MasterCard phone orders accepted. Available for C64/128 and Atari 800/800XL/130XE. Specify when ordering. 30 day money back guarantee, one year warranty. Other enhanced voice I/O systems are available for Commodore, Apple, and IBM computers.

Call or write today for FREE Product Catalog
COVOX INC. (503) 342-1271
675 Conger St., Eugene, Oregon 97402

CIRCLE **010** ON READER SERVICE CARD

the JUDGE
Your computer assistant for:

- Decision making
- Contest or Fair judging
- Classroom grading

Easy Menu Operation.
Clear, complete manual.
Atari 48K 800/800XL/65XE/130XE Disk
$39.95

(U.S. S&H $2. NM Sales Tax 5%)
Send check or Money Order or
Send SASE for free catalog

Mead Micro Ware
10 Bonito Pl.
Los Alamos, NM 87544

CIRCLE **017** ON READER SERVICE CARD

Discover The Secrets

That the experts DON'T want you to know!

Now you can delve into the programs written by the BIG developers, and actually FORCE them to give up their secrets!

With MLTMDIS, a TRIPLE-PASS DISASSEMBLER for the 8-bit ATARI computers, you can actually LIST as SOURCE CODE any machine language program. MLTMDIS includes all system labels as well as your own. MLTMDIS actually CREATES ITS OWN LABELS and inserts them in the source code. You can make the listing in either AMAC or MAC/65 format, and if you send it to a diskette file, you can even change it and re-assemble it!

MLTMDIS is a sophisticated piece of software that has been used by professionals to unlock the secrets of competitors' products. MLTMDIS is 100% machine language, and extremely fast!

Send only **$15.95** + $1 postage and handling to PMW Technology, 1140 N. Higley, Suite 109-310, Mesa, AZ 85205. (add $2.90 for COD)

Phone: (602) 981-8550

Arizona residents, add 6.5% sales tax.
AMAC is a trademark of ATARI, Inc.
MAC/65 is a trademark of Optimized Systems Software, Inc.

CIRCLE **018** ON READER SERVICE CARD

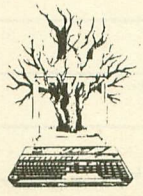
AN OPPORTUNITY UNLIKE ANY OTHER

The nation's leading computer camp offers all traditional camping activities and camaraderie in a beautiful setting. Your child will have exclusive use of a major brand microcomputer for at least 6 hours every day. 1, 2, 3 and 8 week co-ed sessions for ages 8-18.

An experienced staff ratio of one to three and a computer ratio of one to one uncaps the creativity of young people. Students receive hands-on experience in robotics, graphics, lasers, sound, languages, telecommunications and more. For free brochure contact:

Call (317) 297-2700 or write to
MIDWEST COMPUTER CAMP
9392 Lafayette Road, Unit G4
Indianapolis, IN 46278

CIRCLE **014** ON READER SERVICE CARD



Compute Your Roots

The Only Complete Genealogy Package For Atari Computer Systems

Compute Your Roots for the Atari ST Systems

Designed for both small and extensive genealogy projects. COMPUTE YOUR ROOTS features:

- Gem Based
- Complex Database
- Fast, multiple field searches
- LDS Compatible Forms
- Family Group Sheet
- Marriage Entry Form
- Enhanced Data Entry System
- Automatic Pedigree Links
- Note References
- Pedigree Charts
- Individual Entry Form
- Sorted Lists

The program has been specially designed to take full advantage of the Atari ST's power. Its extensive array of tools is available for color/monochrome ST's with at least 512K.

Compute Your Roots for the Atari 8 bit Systems

- Pedigree Charts
- Family Group Sheets
- History Writer
- Chart Searcher
- Cut & Paste Pedigree Charts
- Single & Double Density
- Simple & Colorful Menus
- 10 & 15 In. Printouts

COMPUTE YOUR ROOTS comes fully equipped with plenty of genealogy tools. The pedigree chart program has a built-in ultra fast chart search that searches a chart in less than four seconds. A special cut and paste locations program has also been included. This lets you easily transfer chart information from one chart to another. Just think, let the computer do all the work.

For Atari 8 bits with 48K, disk drive, basic language, 10 or 15 inch printer.

To Order Compute Your Roots send Check or Money Order to the Below Address
$37.45 Atari 8 bit version $39.95 Atari ST version
VISA-MASTERCARD Orders Call 801-483-3357
Wasatch Genealogical Software * 2899 West 7550 South * West Jordan * Utah * 84084

CIRCLE **024** ON READER SERVICE CARD

25

-5¼" DISKETTES FOR ONLY

$9.95!

*HIGH QUALITY

*SINGLE DENSITY-SINGLE SIDED
(we use them as double sided "flippies")

*BULK ERASED OVERSTOCK
(disks at this price sold "as is")

CALL 800 443-0100 ext. 133 24 hours a day—7 days a week. Catalog number BB0013. Visa or Mastercard only. Or, send check or money order to ANTIC PUBLISHING, 544-2ND ST., SAN FRANCISCO, CA 94107.

Antic Classifieds

SOFTWARE

HDUG: The Atari Hard Disk User Group Presents **The MEGAzine** by **Network: Atari The MEGAzine is the OFFICIAL publication for the Atari-Only HDUG User Group.** You can start YOUR subscription by mailing a check or money order for $18 P/year, to: HDUG, 5831 Sun Bay, San Antonio, TX 78244 **Don't wait** a microsecond longer! If you need more info, call VOICE 512-662-9764, or MODEM 512-662-9765 (Any Time/Baud). (5/88)

Missing back issues of ANTIC? Write us at ANTIC, 544 Second Street, S.F., CA 94107, or see THE CATALOG in this issue.

→SpartaDos Public Domain Utilities← Fully Documented $5/disk or $12/set of 3 H.Brewer, 4010 Ridgedale, GC., IL 62040 (5/88)

BEST PD DISKS/PRICES-FASTEST SERVICE-FREE Bonuses. 8 Bit & ST. Great sample disk & catalog $3.50. Please specify computer. PATNOR, POB 370782, El Paso, TX 79937.

★★★★★★

Over 375 Atari ST PD Disks—$4.00 each 8 bit disks also $3.00 each. Fast Service. Call or write for catalog. Specify computer. B.R.E., 6210 N. First #130, Fresno, CA 93710. (800) 622-7942 (209) 432-2159 in CA.

GAMING LANGUAGE-SPI Easy to program. Graphics, PM, and sound at near MACHINE LANGUAGE SPEED. REQ. 48 K plus disk drive. Send $29.95 to SPI, 9512 WESSEX PLACE LOUISVILLE, KY 40222 (5/88)

25 HIGH QUALITY 5 1/4" DISKETTES, ONLY $9.95 (plus $3.00 s/h) These single sided, single density diskettes are product overstock that have been bulk erased and packaged for shipment. Visa or M/C holders CALL (415) 957-0886 between 8 a.m. and 3 p.m. and ask for the DISK DESK. Or send check or money order to ANTIC PUBLISHING 544 2nd ST., SAN FRANCISCO, CA 94107, ATTN: DISK DESK. At this low price disks are sold "as is".

Advertising Deadlines

July 1988		August 1988		September 1988	
Insertion Orders:	March 31	Insertion Orders:	May 2	Insertion Orders:	June 2
Artwork:	April 7	Artwork:	May 9	Artwork:	June 9
On Sale:	Last week of May	On Sale:	Last week of June	On Sale:	Last week of July

New!

An Ad In Antic Reaches More Than 100,000 Serious Atari Users.

Classifieds

BUY-SELL-TRADE-SWAP IN THE CLASSIES

Antic Classifieds

Karen Gordon, Advertising Sales Coordinator
544 Second Street, San Francisco, CA 94107
Telephone (415) 957-0886

Name _____ Company _____

Address _____ Phone _____

City/State/Zip _____

MasterCard/Visa Number _____ Expiration Date _____

Signature _____ Issue(s) Ad To Appear _____

Enclosed is my payment for $ _____.

RATE: $1.00 PER WORD—twenty (20) word minimum.
BOLDFACE: Add $7.50 per line for boldface words or add $40.00 for the entire ad set in boldface (any number of lines).
STARS: Add $6.50 for one (1) line of six (6) stars ★★★★★★ at top of ad.
TERMS: Prepayment is required. Check, Money Order, Visa or MasterCard is accepted. Make check payable to Antic Publishing.
FORMS: Ads are subject to publisher's approval and **MUST BE TYPED.** Please underline words to be set in boldface.
GENERAL INFORMATION: Advertisers using Post Office Box numbers in their ads must supply permanent address and telephone numbers. Ad will appear in the next available issue after receipt unless otherwise specified.
DEADLINE: 90 days prior to cover date (e.g., July 1988 closes April 1, 1988—July issue on sale June 1, 1988).
Clip this coupon, attach to typewritten copy and send with remittance to address above.
HANDWRITTEN COPY WILL NOT BE ACCEPTED.

Advertisers List

Be sure to mention ANTIC when contacting these advertisers—all of whom support the Atari 8 bit and ST computer. This list is provided as a courtesy to our advertisers. ANTIC does not guarantee accuracy or comprehensiveness.

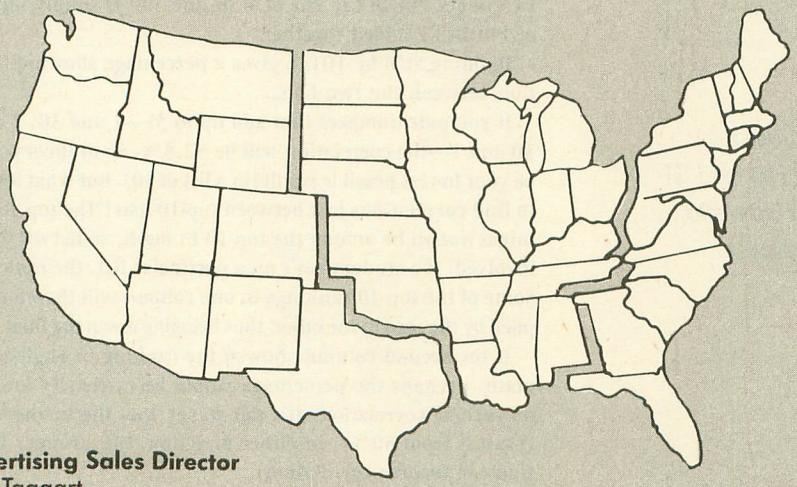
	READER SERVICE NO.	PAGE NO.
ALPHA SYSTEMS	001	49
AMERICAN TECHNAVISION	003	1
ANTIC		32,48
ANTIC SOFTWARE		14,15
B&C COMPUTERVISION	006	12
COMPUTABILITY	008	4,5
COMPUTER MAIL ORDER	004	20,21
COMPUTER REPEATS	009	23
COMPUTER SOFTWARE SER.	005	12
COVOX	010	77
DIGITAL VISION	012	22
DR.T'S MUSIC SOFTWARE	011	26
FIREBIRD	030	29,50,BC
FORESIGHT RESOURCES	015	IFC
G.E.I.S.C.O.		IBC
HARTECH	016	31
JESSE JONES		9
LYCO COMPUTER	020	2,54,55
MARK WILLIAMS	021	17
MEAD MICROWARE	017	77
MICROTYME	031	12
MIDWEST COMPUTER CAMP	014	77
MUSIC EXPO		25
PMW TECHNOLOGIES	018	77
PROCO PRODUCTS	036	33
PROSPERO SOFTWARE	019	49
SOFTWARE DISCOUNTERS	040	16
SPRINGBOARD	023	7
TIMEWORKS	029	10,11
WASATCH	024	77
W.C. COMPUTER SHOW		19
WIZZTRONICS	025	22

Advertising Sales

Phoebe Thompson Associates
Phoebe Thompson
408-356-4994

The Pattis Group
Michael Mooney
312-679-1100

Phoebe Thompson Associates
15640 Gardenia Way
Los Gatos, CA 95030
PHOEBE THOMPSON
408-356-4994



The Pattis Group
4761 W. Touhy Ave.
Lincolnwood, IL 60646
MICHAEL MOONEY
312-679-1100

Garland Associates
10 Industrial Park Rd.
Hingham, MA 02043
JOHN A. GARLAND
617-749-5852

Advertising Sales Director
John Taggart
Antic Magazine
544 Second Street
San Francisco, CA 94107
(415) 957-0886

Garland Associates
John A. Garland
617-749-5852

Address all advertising materials to:
KATIE MURPHY
Advertising Production Coordinator
Antic Magazine
544 Second Street
San Francisco, CA 94107

Tech Tips

HIGHSCORE

In the November/December 1987 issue of Page 6, Ian Finlayson published this routine that uses the forced-read mode to update high scores in computer games:

```
31210 TT7=0
31220 HIGHSCORE=TT7:RETURN
31230 IF HIGHSCORE<=T77 THEN RETURN
31240 GRAPHICS 0:? :? :? "31210 TT7="; HIGHSCORE
31250 ? :? :? "CONT"
31260 POSITION2,0:POKE 842,13:STOP
31270 POKE 842,12:SAVE "D:GAME":RETURN
```

Antic pays $25 for every original and exclusive Tech Tip submission that we publish. Send your 8-bit or ST disk and printout to: Antic Tech Tips, 544 Second Street, San Francisco, CA 94107. Tech Tips welcomes very short programs that demonstrate the Atari's powers, simple hardware modifications, or useful macros for popular software.

APPEND

Let's say you've written your own mailing list program and want to be able to append data to a file called LETTERS.DAT. Charles Jackson, **Antic** Technical and Online editor, suggests that beginners try the following subroutine:

```
10000 TRAP 11000:CLOSE #1:OPEN
#1,4,0,"D:LETTERS.DAT":GOTO 11010
11000 CLOSE #1:OPEN #1,8,0,"D:LETTERS.DAT"
11010 CLOSE #1:OPEN #1,9,0,"D:LETTERS.DAT"
12000 TRAP 40000:RETURN
```

Line 10000 first sets a trap, then tries to open LETTERS.DAT. If no LETTERS.DAT exists on the disk, instead of generating an error, the computer goes to the line at which the trap was set: 11000, which creates the file. If LETTERS.DAT *does* exist, the subroutine goes to line 11010, which OPENs the file and appends the data. The TRAP 40000 in line 12000 turns off the trap.

CORRELATIONS

If you're a teacher, perhaps you want to find a way to express the similarity (or lack thereof) between your students' scores in two different subjects—say, science and math. Once you've *ranked* those scores, this little program by Gregg Pearlman, *Antic* Assistant Editor, can show how *similar* the two lists of *rankings* are. Just be careful *where* you input what.

```
10 Y=0:TOTAL=0:SUM=0
20 ?"NUMBER OF STUDENTS: ":INPUT STUDENTS
30 FOR X=1 TO STUDENTS
40 Y=X*X
50 TOTAL=TOTAL+Y
60 NEXT X
70 FOR PLACES=1 TO STUDENTS
80 ?"RANKING FOR #";PLACES;": ";:INPUT P1,P2
90 PRODUCT=P1*P2
100 SUM=SUM+PRODUCT
110 NEXT PLACES
120 PCT=SUM/TOTAL
130 ? "CORRELATION: ";PCT
```

After you type the number of students (say, 30), lines 30 through 60 *square* each number from 1 to 30 and add them up (9,455) to get TOTAL.

Lines 70 and 110 prevent you from entering data for more than those 30 students. Line 80 asks you to type the *rankings* for the each student's science and math scores, and line 90 multiplies the two to get PRODUCT. The SUM in line 100 is simply all the values of PRODUCT added together.

Dividing SUM by TOTAL gives a percentage showing the correlation between the two lists.

If you pair numbers that add up to 31—1 and 30, 2 and 29. . . 30 and 1—the correlation will be 52.5%, so in theory, that would be your lowest possible result (in a list of 30). But what if you wanted to find correlations just between top-10 lists? The top 10 in science might *not* all be among the top 10 in math, so list *all* the students involved. If a student isn't on a particular list, the ranking is *zero*. Some of the top-10 rankings in one column will therefore be multiplied by the zero in the other, thus bringing down the final percentage.

If the second column showed the ranking in English instead of math, perhaps the percentage would be extremely low—showing an *inverse* correlation. It's fair to say that the further away your result is from 50%—in either direction, the stronger the correlation (or *inverse* correlation).

You can use more than two lists, if you want—say, if you decided to see how strong the relationship involving science, math and music. Make these changes:

```
40 Y=X*X*X
80 INPUT P1,P2,P3
90 PRODUCT=P1*P2*P3
```

Get the lion's share online with GEnie.™

"GEnie changed my mind about what an online service can do for me! I always knew that GEnie offered a princely selection of Special Interest Groups featuring thousands of software files, dynamic bulletin boards, lively discussions and "tips" from the experts. But now GEnie gives me more than my share of valuable information services like NewsGrid and USA Today Decisionlines, American Airlines EAASY SABRE℠ personal reservation system, new and exciting multi-player games and access to Dow Jones News/Retrieval.® And the people on GEnie are so friendly and helpful they make me feel like a member of royalty!

You don't need to pay a king's ransom to get the lion's share, because only GEnie offers you so much online, for less."

B. A. King

Services Available	Compare & Save	Pricing*			
		Registration Fee	Monthly Minimum	Non-prime Time Rates	
				300 baud	1200 baud
Electronic Mail • CB • SIGs/User Groups • Travel • Shopping • Finance • Reference Professional • Leisure • Games • News	**GEnie†**	**$29.95***	**None**	**$5.00**	**$5.00**
	CompuServe	$39.95	None	$6.00	$12.50
	Other	$49.95	$10.00	$8.40	$10.80

**$18 Registration fee extended to 12/31/87.*

Just $5 per hour. Get online today!

1. Have your major credit card or checking account number ready.
2. Set your modem for local echo (half duplex)—300 or 1200 baud.
3. Dial 1-800-638-8369. When connected, enter HHH
4. At the U#= prompt enter **XJM11825,GEnie** then RETURN.

Need help or more information? No modem yet? We can help. In U.S. or Canada call **1-800-638-9636.**

We bring good things to life.

*Basic rates and services in effect 9/87 apply in U.S. only. †Non-prime time rates apply Mon.-Fri. 6 PM-8 AM local time and all day Sat., Sun., and nat'l. holidays. Subject to service availability. Some services offered on GEnie may include additional charges. Dow Jones News/Retrieval is a registered service mark of Dow Jones & Company, Inc.

© 1987 General Electric Company, U.S.A.

CARRIER COMMAND

BRUTE FORCE

In the 22nd century, the Aircraft Carrier does more than launch planes. At close range or miles away, its ability to inflict damage is staggering. Breakthrough propulsion systems put its top speed at over 60 knots. Space age defense and 360-degree turret mounted laser cannons make it virtually invincible.

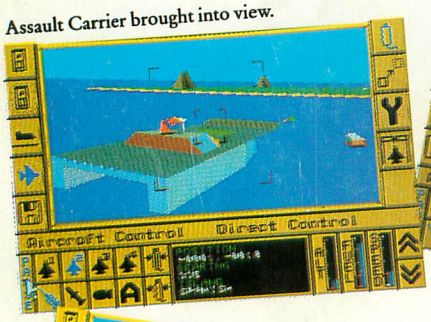
From the bridge of the future you control the ship itself, a squadron of remote fighters, an amphibious assault division, and a huge array of onboard weapons systems.

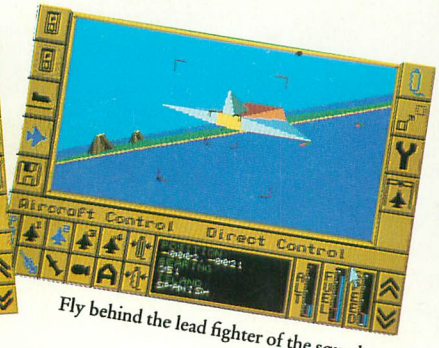
- Protect your ship with defense drones and 360-degree turret-mounted laser cannon with telephoto tracking.
- Conduct your war maneuvers in a huge territory that includes 64 islands. Your goal is to capture the enemy complex and destroy its forces.
- Take on the enemy carrier, run a gauntlet of missiles and confront futuristic naval threats.
- Dispatch the amphibious assault division to establish beachheads, capture airstrips and missile silos.
- 3D solid-filled graphics, smooth scrolling land and sea-scapes, and great sounds and special effects.

Carrier Command. A step ahead of simulations.

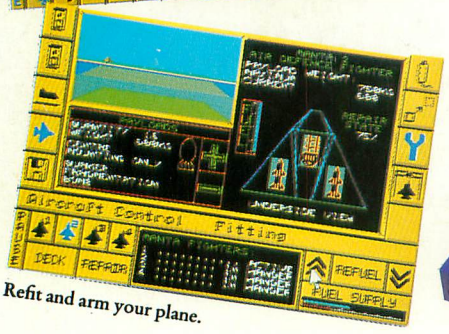
Available now on Atari ST. Coming soon on Amiga, C64, Mac and IBM.

Assault Carrier brought into view.

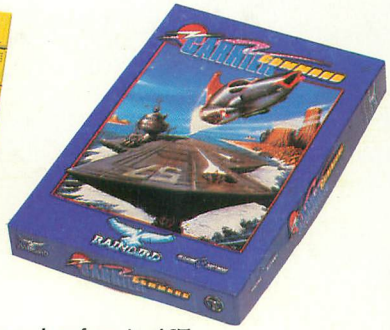




Fly behind the lead fighter of the squadron.



Refit and arm your plane.



Screenshots from Atari ST.

Telecom Soft, P.O. Box 2227, Menlo Park, California 94026.

CIRCLE **030** ON READER SERVICE CARD

REALTIME GAMES SOFTWARE LIMITED

RAINBIRD

Rainbird and Rainbird Logo are registered trademarks of British Telecommunications PLC

Atari ST© Atari Corporation.
Amiga© and C64© Commodore Business Machine Inc.
Mac© and Apple II© Apple Computers Inc.
IBM© International Business Machine Corporation.