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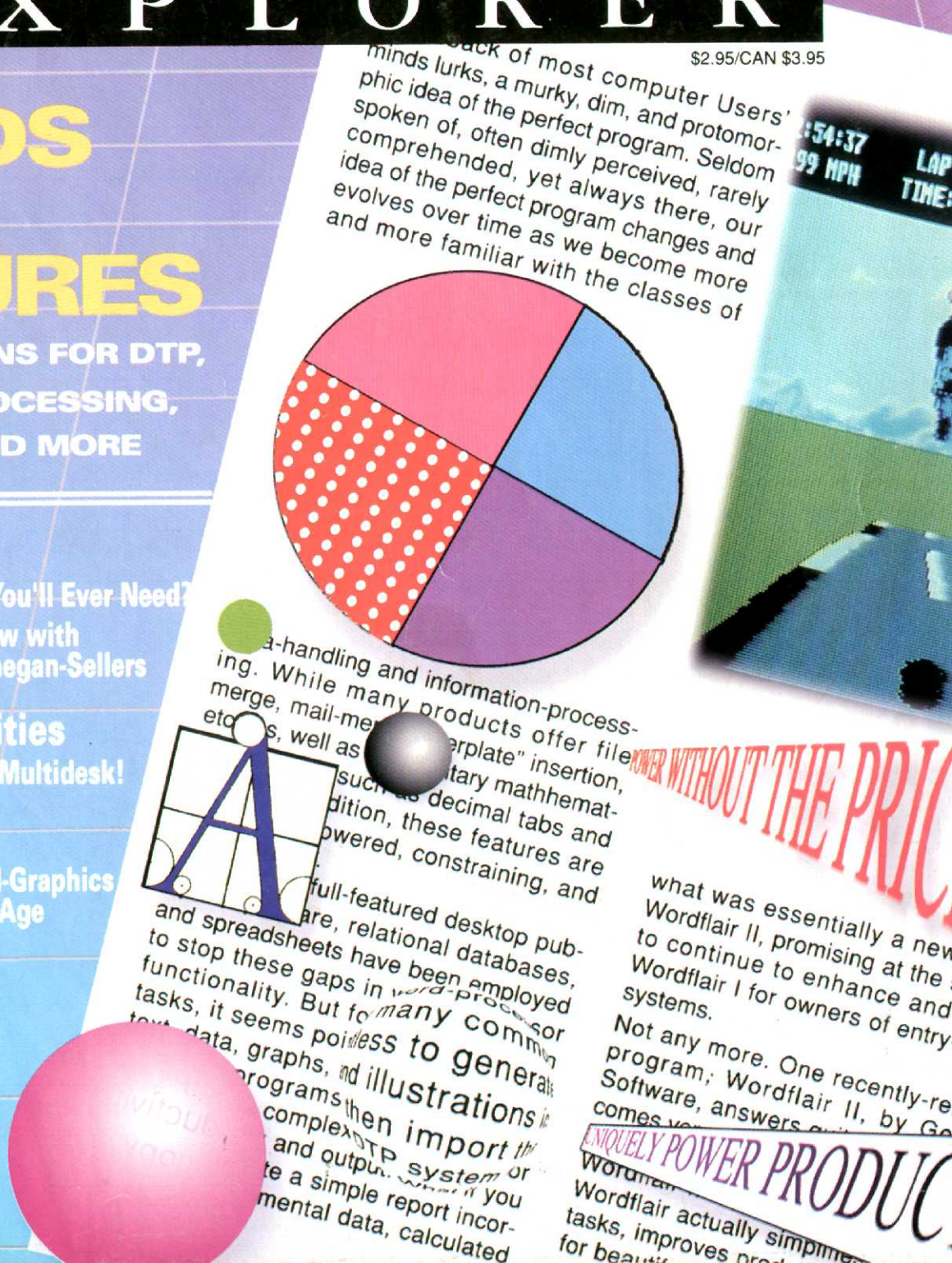

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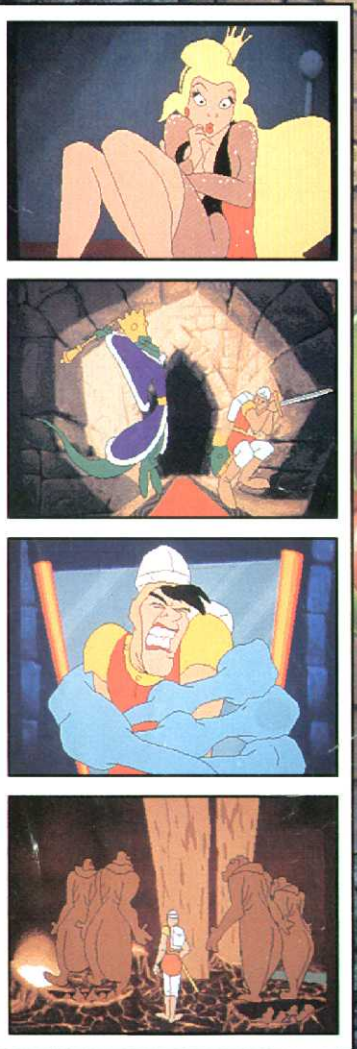

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Publisher/Editor
John B. Jainschigg

Senior Editor
Maura Fitzgerald

Managing Editor
Peter Donoso

Contributing Editors
Pamela Rice Hahn
Ron Luks
Mihai Manoliu
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Greg Rapport
Rapport Advertising
108 Morningside Drive
Trenton, NJ 08618
(609) 393-1586

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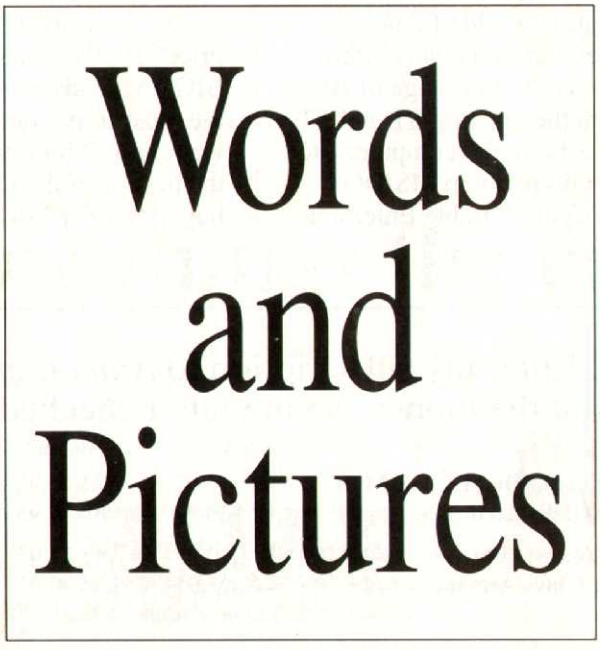
EDITORIAL

By John B. Jainschigg

One afternoon, a few years ago, I was reading an article about a research program where scientists were building six-legged robots to test algorithms for controlling locomotion. The robots were very beautiful: tiny, jointed assemblies of gleaming metal, clockwork, and computer chips. But I wondered why the experimenters had decided to run their tests on physical automata, instead of setting up a computer simulation.

As a programmer, I'm intrigued when research favors physical over computational approaches to a problem. What was the big deal about programming this kind of thing? Fascinated, I sat down and started tracing out what such a simulation would involve, first in my head, and then on paper. As I attacked different aspects of the problem, I quickly fell into the "blackboard" mode of exposition — writing a little bit, drawing a diagram, outlining a few equations, then writing some more.

But wait! What irony! Here I was, a computer guy, using paper and pencil instead of a computer to figure out a computing problem! Why? Because in order to articulate and work with my ideas, I needed to use words, numbers, and pictures, all at once! And though I was fluent in the use of word processors, spreadsheets, DTP, and CADD packages galore, I could think of no single piece of software appropriate to the everyday task of scribbling a few notes and sketching out a few marginal diagrams in some unified document format.



Tools for Thought

Combining words and pictures is crucial both to public and personal exposition: publicly, to effective presentation, to teaching, to all forms of communication; and personally, to the articulation and annotation of any moderately complex thought. In recent years, the software industry has made enormous strides towards solving various aspects of what I've come to call the "Words and Pictures" problem — providing various means for combining verbal and illustrative material in both public and personal domains.

In this issue of Atari Explorer, we offer an overview of products that approach the Words and Pictures problem in different dimensions. Those involved in multimedia, animation, rendering, and other aspects of the production of sequenced graphics for computer presentation, video, and film, will be fascinated to read about Lexicor's Chronos-3D, a state-of-the-art "keyframe animator" that turns the Atari TT or ST into a powerful animation workstation. Chronos-3D is part of the "Phase-4" series of animation, rendering, and image-processing products from this audacious startup, also responsible for a remarkable series of hardware-based graphic enhancements for ST and TT computers.

Our review of Soft-Aware's Informer II database package is prompted by the problem of keeping words and pictures organized. Informer II has the unique ability to incorporate color graphic images in database records. Along with this exciting feature, the database provides exceptionally flexible reporting and forms-generation capabilities *and* a simple and intuitive user interface.

Finally, there's our review of Wordflair II, the FSM/GDOS-compatible document processor from Goldleaf Publishing that brings words, numbers, and pictures into closer integration than ever before. Wordflair combines aspects of word processing, desktop publishing, freehand and computer-generated graphics, database, and spreadsheet functions to produce what reviewer Brian Gockley calls a "T.O.P.Y.E.N." program (The Only Program You'll Ever Need). For my own part, I prefer to think of

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Wordflair II as the kind of program I might eventually use, in preference to paper and pencil, when sketching out a robot simulation.

But That's Not All!

Also included in this issue are reviews of two long-awaited BASIC language implementations: PowerBASIC, Atari's official BASIC compiler for the Portfolio, and GFA-BASIC 3.5E, the new release of GFA's ever-popular ST/TT compiler. Utility lovers will enjoy Dave Plotkin's reviews of Codehead Software's Lookit!, Popit!, and Multidesk — three "must-haves" for anybody looking to increase the flexibility of their ST or TT systems.

Given Atari's growing market share in Europe, we're focusing more attention on the European Atari scene. This issue, we'll be getting "up close and personal" with *Le Rédacteur*, from LogiSoft, the largest-selling Atari word processor in France. Check it out, and decide if 50 million Frenchmen are right or wrong.

Games Explosion

Though this is a productivity-oriented issue, we haven't given short-shrift to the game-players in our audience. We've got reviews of six hot new Lynx titles, including the as-yet-unreleased Scrapyard Dog, Hard Drivin', and Viking Child! ST games fans will enjoy our back-to-back reviews of Musicode's Blackjack and Home Casino Poker, Etc., by Dubl-Dubl-Funware! Finally, 7800 gaming fans will love our special 7800 section, containing reviews of Alien Brigade, Ninja Golf, Basketbrawl, and other best-selling titles!

Outline Art Contest

We're also proud to announce that Atari Explorer is helping sponsor the 2nd Annual Calamus Outline Art contest! Last year's contest drew thousands of entries — many of them extraordinary examples of artistic skill, and of what ISD's Outline Art can do! Check out last year's winners, starting on page 44, then fire up Outline Art and see if *you* can be a winner, this year!

Start doing things the easy way!

If you aren't using CodeHead Software, you're wasting time! Our *award-winning* line of products is designed to help you get the most out of your ST/TT system by organizing your applications, desk accessories, and data files for maximum efficiency. Products like:

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MaxiFile III – the most advanced file management utility for Atari computers!

MaxiFile is ready to work when you are – it runs either as a desk accessory or a program to give you a complete and powerful array of file management commands at *any time*. Includes *fast* file/folder copying routines, an unbelievably powerful *file search* function (you'll never lose track of a file again), a *recoverable delete* option, true MS-DOS disk formatting, graphic display of disk space, batch operations, and *a whole lot more!*

MultiDesk Deluxe – the unlimited desk accessory manager!

Do away with the GEM limit of six DAs – load and unload standard ST desk accessories whenever you like! Our new **nonresident DA** feature brings Mac-style DA handling to the ST at last!

Don't forget the other powerful tools in the CodeHead catalog, like **CodeKeys**, **LookIt! & PopIt!**, **CodeHead Utilities #4**, **G+Plus**, and **MIDIMAX**. And coming soon: **MIDI Spy**, a unique new *background MIDI recorder!*

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Letters To The Editor

Small World, Ain't it?

Geehrte Gesselschaft,

Ungefhär zwei Jahren vorher war ich in Frankfurt am Rhein. Dort habe ich das Erzeugniss = Atari 65 XE gekauft. Aber von Dezember 1990 funkzioniert dieser computer mehr nicht. Unser Reparaturarbeiter hat mir gesagt, dass ich neue Bestandteile brauche: GTIA C 0 14889 - 01, FREDDIE C 0 61991 - 29.

Meine Freunde haben sich schon mindestens zweimal an diese Bestandteile auch in Deutschland gefragt, aber die Antwort war: "Leider, wir haben diese Teile nicht."

Existiert, bitte, eine Möglichkeit, von Ihnen diese Bestandteile zu schicken?

Greso Dusan
Liptovsky Mikulas
Czechoslovakia

In any language, the refrain is familiar. "My 65XE hasn't worked since last December. The repairman tells me I need a pair of chips. And when my friend tried to find them in Germany, all he got was 'Sorry, we don't have any in stock.' Help!"

In these days of the New World Order and the Thousand Points of Light, doesn't it just warm your heart to know that 8-bit users in Czechoslovakia have a hard time finding parts, just like we do in these good old United States? Well, when old Mr. Component-Failure pays one of his rare visits to your 8-bit setup, here's what to do. Achtung!

The most reliable, and least expensive way to get an 8-bit (or any Atari product) fixed is, naturally, to bring it to an authorized Atari repair center or dealer. Failing this, Atari supports a "repair/replacement" policy, under which any Atari product that has ceased to function due to normal wear and tear will be repaired or exchanged for a fixed price (In the case of a 65XE, the cost is $50 (US) plus shipping and handling).

For further details, write to:
Atari Corp.
attn: Customer Relations
Repair/Replacement
P.O. Box 61657
Sunnyvale, CA 94088

Atari strongly advises customers to employ either of the above alternatives, rather than try to fix or modify Atari equipment themselves. Any unauthorized tampering or modification will void your warranty, and Atari will not replace equipment that has been damaged in the course of "repair" by unauthorized personnel. For this reason, Atari sells parts and schematics only to authorized repair centers — never, under normal circumstances, to individuals.

However, if you insist on trying to fix your ailing 65XE (and are willing to accept the possibly dire consequences!), there are a few places that can help. American Technavision, of San Leandro, CA, carries just about every custom chip and subassembly an amateur 8-bit Mr. Fixit could possibly want. A quick call to their 800-number reveals that they stock both the Euro-GTIA and the FREDDIE chip you need. They tell us, however, that because the chips are designed to function with European line current, they have no means of testing them, before sending them to you. So, cross your fingers, and don't say we didn't warn you!
For further information:
American Technavision
15338 Inverness St.
San Leandro, CA 94579
(800) 551-9995
In Calif. or outside U.S.: (415) 352-3787

The Educational Portfolio

Dear Editor,

I pulled out my Portfolio at my Kiwanis meeting, Friday, to jot a note, and I could not have gathered more attention if I had taken off my clothes and pulled a rabbit out of the water glass! It was like a stage production. "What's that?" several queried in unison. When I casually informed them it

Desktop Publishing Solutions from Goldleaf Publishing

Didot Line Art

Didot Line Art is aimed at the graphic artist interested in creating line art, logos, labels, and the like in a friendly environment. A variety of tools already familiar to the graphic artist make for fast manipulation of type outlines, bezier curves and vector paths. Didot also includes a fast and easy-to-use font editor for Calamus and Postscript Type 1 fonts, as well as the ability to quickly auto-trace bitmap images for conversion to vector graphics. Didot supports many printers as well as most popular file formats (including Postscript) for eliminating virtually all compatibility issues.

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Wordflair II

Wordflair II combines word processing, calculations, graphics, desktop publishing and a database on a single electronic page. Wordflair II's level of integration lets you easily manipulate text, data, and graphics without cutting and pasting from different applications. Wordflair II's ease of use and its ability to create compound documents offer you incomparable value. Wordflair II is now available with FSMGDOS, offering you outline fonts with excellent screen and printer output. Fonts may also be scaled to any size - at any time!

SRP : $199.95, including FSMGDOS.

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was a PC, they all hovered over my shoulder. Honestly, I think I could have sold two or three Portfolios, right then and there!

As a beginning user, myself, I'm amazed by the Atari Portfolio; both for its built-in features, and for the fact that the Portfolio is making it so easy for me to learn about computers. I believe it would be feasible to use the Portfolio to educate a lost generation of people who want to learn about computers, but who are embarassed or do not have the time to sit in classes. You have no idea how wonderful it is to be able to study and learn computer skills while using the Portfolio to tackle my everyday workload.

I believe the Portfolio should be in every school, and should be issued to every student learning to use a computer. It is the most amazing instrument available, and has created a totally new vista for me. And to think, all this came about because my wife and I dropped by Battery One Stop in Boynton Beach, FL, to kick the tires on a Sharp Wizard!

George LaMothe
President, Kiwanis Club
Lake Worth, FL

Though Atari markets the Portfolio as a high-tech productivity tool, you're right in saying that the Portfolio is also ideal for learning about computers. Portfolio's small size means you can take it anywhere, so people who don't have time for classroom study can practice computing on the go. Designed for practicality and ease of use, The Portfolio's built-in applications help newcomers become productive as soon as they start using the machine. This "instant gratification" is a powerful motivator for learning.

Portfolio's built-in applications (address book, schedule, calculator, text editor, and spreadsheet) cover all of the most popular software categories — important exposure for the beginner. And because the Portfolio is MS-DOS compatible, skills developed on the device can be transferred directly to PCs in the workplace. Since the Port can interface with standard peripheral devices (printers, modems, etc.), has a regular keyboard, runs a wide range of software, and can be programmed in BASIC (see our review of Atari's new PowerBASIC in this issue), it offers a comprehensive environment for acquiring computer literacy (and even the fundamentals of computer science).

Finally, at a base price of only $299, the Portfolio's a bargain. This is especially true when you consider that the Portfolio comes equipped with a full range of basic applications — usually extra-cost items where desktop systems are concerned. Because the Portfolio is fully self-contained, small, and portable, a school that uses Portfolios to teach computer literacy can avoid the expense of setting up a traditional computer room. Any classroom can be a computer lab! Just pass out the Portfolios at the beginning of class, and collect them at the end! Better yet, in controlled situations, it might be possible to let each student borrow or rent a Portfolio for one semester. That way, each machine could do double-duty: in the classroom and at home!

High Technology

Dear Editor,

Help! The RETURN key on my Mega ST keyboard seems to be broken. Sometimes it works, and sometimes it doesn't, and it seems to be getting worse! I use my Mega every day, and since there are no dealers, nearby, I hesitate to send the keyboard far away by mail, since I'll be unable to use my computer until it's returned. Any suggestions?

Patricia Bond,
Cheyenne, WY

The most likely cause for your problem is dirt in the keyboard, which tends to collect, over time. Sometimes the problem is easy to fix — just vacuum the keyboard, using the soft brush on a standard vacuum cleaner. If you have a detachable keyboard, try knocking its edge against a piece of carpet as you work, to help dislodge grit.

This will usually solve the problem. If it doesn't, you should have the keyboard serviced by authorized personnel.

A Software Author's Guide

Dear Editor,

For several years now I have been developing an ST program for Bowling which will store, retrieve, and perform all of the functions required of a League Secretary. The program has been in use locally for three years now and has been thoroughly tested and revised, yet the software publishers with whom I've corresponded have shown no interest in it, whatsoever.

What does a new, unknown programmer do to have his work evaluated and reviewed? Do software publishers simply ignore unsolicited submissions?

Wayne R. Bird
Saskatoon, Canada

A software publisher spends a lot of money bringing any product to market: costs for acquisition (or royalty arrangement), debugging and beta-testing, manual-writing, package design, package and manual printing, disk duplication (and maybe copy-protection), package assembly, shipping, advertising, sales and administrative overhead, etc. So when software publishers look at a submission (and they do look!), they start by asking themselves a simple question: "Does sufficient market exist for this program so that I can offset my costs and earn a profit?"

By "market," the publisher means: 1) people who need the program, 2) already own the hardware the program requires (or who want the program so much that they'll take steps to acquire the proper hardware), 3) can be told (via advertising, word of mouth, etc.) that the program exists, and 4) will actually buy the product at the price set by dividing upfront costs (plus profit margin) by the numbers derived by applying criteria 1, 2, and 3, above. Once this calculation has been performed, it usually turns out that the real market for anything but business software (word processors, spreadsheets, etc.), certain very flexible vertical-market applications (DTP packages, CAD programs, MIDI sequencers, etc.), and games, is very small indeed. In such cases, broad-based consumer publishing of the software is out of the question.

Assuming your market is small, if your program does something really spectacular and can be sold at a very high price, a publisher may still take it on. Much large-business accounting software, high-end computer graphics and publishing software, industrial expert systems, etc., are sold (or licensed) in this manner, and value-added services such as custom installation, training, and ongoing consultation are often thrown in with the software itself.

If the practical upper limit of your product's price is also small, opportunities may still exist if your product can be "piggybacked" on something else. A lot of program-specific utilities, file-converters, "help" accessories, and other "candy" gets to market by being packaged with big-ticket software or by being sold through to a portion of the aftermarket for that software, through well-established promotional and distribution channels.

But if (as I suspect is the case with your bowling program) a piece of software has a small intrinsic market, a fairly low practical selling price, and is "stand-alone" in character, publishers usually won't touch it. In this case, you have two choices: market the program yourself (a lot of software companies get started this way); or go to shareware, letting the program out into the market bearing your copyright, along with a message telling users to send you some money if they find the program valuable (or end up using it in a commercial setting) and inviting them to copy it and pass it on. The shareware route is an amazingly effective way to distribute software, and can saturate a small market with incredible speed, sometimes closing it out to competing commercial products. Darin Wayrynin, for example, of Phoenix, AZ, now controls a large portion of the world market for ST data-compression software, thanks to his shareware release of ARC (now in version 6.02). Other examples abound.

Though few ever get rich from shareware (some actually do!), the intangible rewards can still make it all worthwhile. You get to see your software used (and hopefully appreciated), you can achieve a modicum of fame, and in the long run, you just might catch the attention of a software publisher! Good luck!

Please send all correspondence to:
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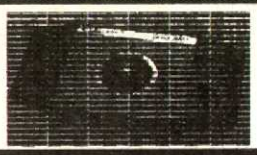

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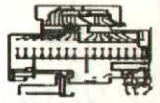

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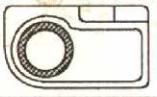

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HOT NEWS!

A Fall Harvest of News and New Products for your Atari!

2600 Connection

Calling all Atari 2600 Game System enthusiasts! *The 2600 Connection*, a bi-monthly newsletter covering the whole of the Atari 2600 scene, is celebrating its one-year anniversary! The *Connection* includes new game reviews, hints and solutions for classic games, and interviews with game manufacturers. For the growing number of 2600 game collectors, the newsletter also offers comprehensive "cartridge-ographies" of titles and product numbers. Where else could you find a complete list of 2600 carts produced by Imagic between '83 and '86? The Classified section and Letters column also provide forums where collectors and fans can buy, sell, trade, and discuss various aspects of their favorite game console.

Subscriptions to *The 2600 Connection* cost only $6.00 for six issues. Back issues are available for $1.50 each. To subscribe, send check or money order, payable to Tim Duarte, to:

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The Complete Atari 2600 Video Computer System Resource

2600 Connection

Summer 1991 | Published Quarterly | Issue Number 5

Swordquest:
FIREWORLD
Solution

In the Fireworld comic book, Konjuro relates to King Tyrannus how the twins' adoptive parents were also killed, and how they became the fugitive thieves they were when we first met them. Tyrannus, through a spell, offers the twins part of his rule, but they refuse and gently fall to Fireworld.

The Twins split up in search of water. With the Talisman, Torr summons Mentorr, who reveals the Chalice of Light and says it will quench his thirst and more. He then disappears.

Both Tarra and Torr discover armor and weapons, as well as creatures intent on doing them harm. They are eventually reunited and pass through a gateway of flame to find a chalice. Startled by a voice behind them, Torr drops the chalice, which shatters. They turn to see Herminus drinking from the true Chalice. He hands it over to them, stating that he no longer needs it, and an image of the crown can be seen at the bottom. After Herminus's departure, the twins quench their thirst and the Chalice begins to grow. They mysteriously find themselves inside the Chalice, which is the gateway to Wasterworld. Konjuro still watches.

Continued on Page 4

Interview with Absolute Entertainment's Alex De Meo

The following is an interview with Alex De Meo (Vice President/Producer/Game Designer) at the Absolute Entertainment headquarters in Glen Rock, NJ.

Q. How did Absolute come about?
Alex: The company was founded in 1986 by ex-Acovision employees. The development is done by the Imagineering branch and the publishing company is Absolute Entertainment.
Q. How many employees are there in the company?
Alex: There are 17 employees presently.
Q. What are the company's plans regarding the 2600?
Alex: We presently have no plans to release any 2600 cartridges in this country. (Those that were under development were completed and sold to other companies overseas and there are none in stock. Any future news might be given to this publication as an announcement or an exclusive blurb.)
Q. Have there been any revisions to any of the 2600 carts which might interest collectors?
Alex: No modifications have been made to any of the ones we released, i.e. SKATEBOARDIN', TITLE MATCH PRO WRESTLING, F-14 TOMCAT, & PETE ROSE BASEBALL.
Q. Are there any "Easter Eggs" (like programmer's initials or hidden rooms) in any of the ones released?
Alex: Let's see...there was nothing funny in TITLE MATCH. No, none to the best of my knowledge.
Q. Has the gambling scandal hurt the sales of PETE ROSE BASEBALL?

Continued on Page 3

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Win a FREE Game! See Pages 3 and 7 for more details!

Lexicor to Host Online Animation Class

Lexicor Software, creators of the Phase-4 animation software packages Chronos-3D and Prism Paint for the ST and TT computers, has begun a series of classes on CompuServe. The classes will be held each Saturday at 5 PM EST, in the Atari Vendors' Forum (GO ATARIVEN). Begun in August, the series will continue through December, 1991.

Classes are open to the public, with no special fees being charged. Users interested in learning more about animation are invited to attend and participate. Specific animation topics will be dealt with in in-depth lectures written by Lexicor's Lee Seiler, an EMMY award-winning animator.

All lectures, homework assignments, animations and picture files necessary for each class will be made available for download in the Lexicor Library (LIB 9) of ATARIVEN, prior to each lecture. Files will be supplied in a number of formats.

Especially welcome are novices and professional "pen and ink" animators considering a switch-over to computer-based animation and rendering. To join CompuServe, call (800) 848-8199 (in Ohio and Canada, (614) 457-0802).

Multitasking Now!

MultiGEM, new from Rimik Enterprises, is a multitasking system that will allow up to six GEM (or TOS) programs to run, simultaneously, on your ST, STe, or TT computer (TOS 1.2 or higher)! MultiGEM accomplishes its magic by running your programs as if they were desk accessories, each one occupying one of the ST's six desk accessory slots.

MultiGEM is said to be fully compatible with the majority of productivity software currently favored by Atari ST and TT owners, including Calamus, PageStream, LDW, Wordflair, Word Writer, 1st Word, and others. Certain GEM programs that do not observe operating system interface programming specifications will still run under MultiGEM, but may not multitask, or may prevent other programs from multitasking. Luckily, such "obstinate" programs are said not to be too common.

Even TOS programs can be multitasked, each in its own GEM window, under a special "shell" program called MULTIWIN.PRG that is launched automatically whenever you execute a .TOS or .TTP application. And best of all, MultiGEM costs only $99.95!

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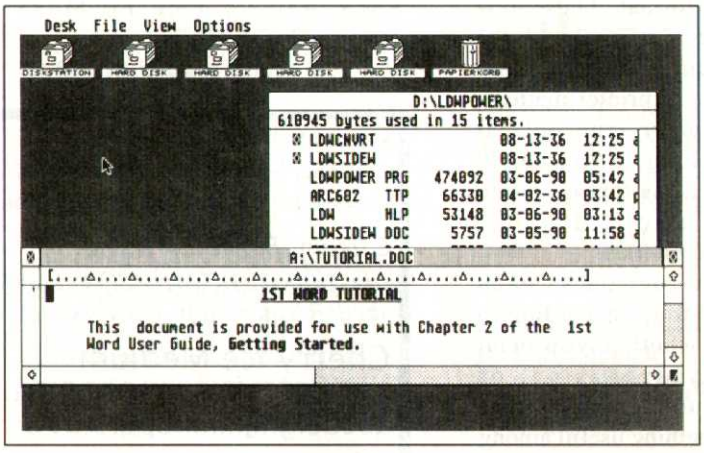

Under MultiGEM, applications such as 1st Word multitask in their own windows, giving you full access to the ST desktop.

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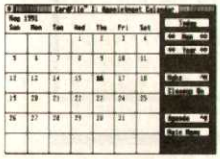

Its powerful built-in calendar can keep track of all your appointments, meetings, and important dates. Call up any day and plan out your agenda.

CardFile's Daily Agenda feature will remind you of any upcoming appointments for the next two days when you turn the computer on in the morning. There's even an option to print a daily or weekly agenda.

CardFile is very convenient. It runs as either a desk accessory or program. Its data is easily imported by most programs and it will even type an address directly into your word processor.

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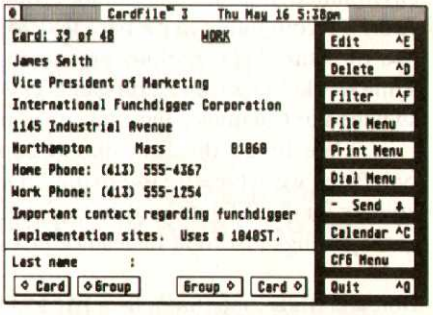

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Calamus Font Packs from Cherry

Cherry Fonts, of Canada, has announced the release of seven new font packages for use with any application that accepts the Calamus font format. These new fonts have been designed with the aim of providing "smooth, even weight-balance of printer matter." The fonts feature true optical character spacing, a "by-hand" approach to spacing that is akin to the methods used by long-established type foundries.

The new font packs each bundle several fonts, according to function. So whether you need ornamental, advertising, or script/display font combinations, you'll find something useful among these new designs! Font Pack #7 features Cherry Benjamin Gothic in four faces, good for body-copy and headlines. #8 features two ornamental fonts: Glissade (like Casslon) and Pirates, a striking "initial caps" font. #9 presents Fura, Cherry Fonts rendition of Futura, the popular sans-serif face. Packs #10, #11, and #12 each feature a script/display combination, five fonts per pack. Finally, Pack #13 is Cherry Max, comparable to Lubalin Graph.

To order, send U.S. $42.95 ($49.95 CDN) for each Font Pack, plus $2.00 shipping and handling. British Columbia residents, please add 6% provincial sales tax. Payment may be made by check, money order, VISA, or MasterCard.

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Borealis Magazine Produced with TT, Calamus

Look at what the Atari TT's doing now! The Canadian Parks and Wilderness Society is currently producing its in-house magazine entirely on an Atari TT030, using ISD's Calamus page-design software.

Borealis is a handsome, two-year-old quarterly devoted to environmental issues and outdoor topics. Editor David Dodge originally used Atari ST computers to prepare text for conventional typesetting, limiting the use of Atari DTP technology to mock-ups and layouts produced with TimeWorks' Desktop Publisher ST. But Dodge, and designer Rusty Brown, switched to Calamus page-makeup about a year ago.

"We loved the fact that Calamus let us match the Compugraphic typefaces we were already using." Dodge recalls. "And the speed of doing layouts on the TT lets us turn pages around much faster, and spend our time getting things just right instead of just getting them done!"

Borealis Magazine (Sample copy, $5.00 (U.S.))
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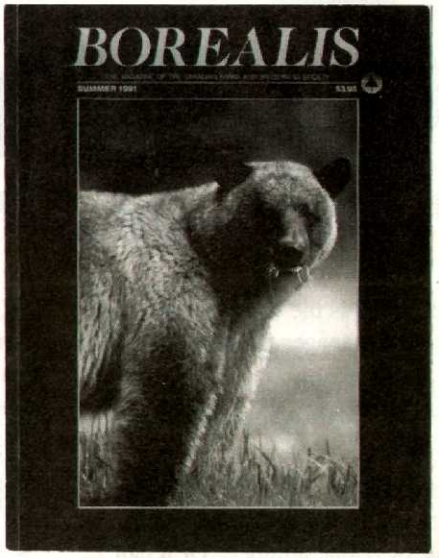
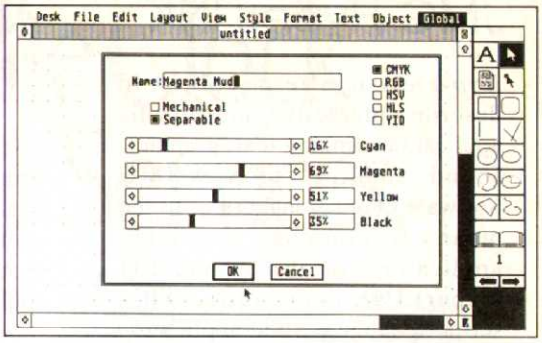


Produced on a TT030, Borealis *has been praised for hard-hitting content and a "high art" approach to environmental photojournalism.*

PageStream 2.1 is Here!

PageStream 2.1 lets you specify colors using industry-standard CMYK proportions!



After long and careful beta- testing, the production version of Soft-Logik's PageStream 2.1 has finally arrived. And wow — was it worth waiting for! While most of the more likeable features of earlier versions remain basically unchanged (shortening the learning curve for professionals currently using PageStream), the program has been enhanced in numerous ways. Most notable are the addition of new font-handling, color prepress, and image-handling capabilities.

The powerful new PageStream 2.1 can now employ PostScript Type 1 fonts on all printers, increasing the correspondence between proofs and final service-bureau output. New outline-font-handling capabilities are now available, and font outlines can be viewed on-screen. Ten Compugraphic fonts, as well as eight Soft-Logik fonts are included with the package. Image-importing features have been expanded: PageStream 2.1 can now import graphics in EPS, GEM, IMG, PCX, GIF, TIFF, IFF, MacPaint, Adobe Illustrator, ProDraw Clip, Aegis, IFF DR2D, and Mac and IBM EPS formats.

Additional drawing tools, including Bezier curves, have been added, and color capabilities vastly enhanced. Colors can now be specified using CMYK, RGB, HSV, and HLS definitions. Pantone Matching System colors can also be used, indirectly, by referencing them against their CMYK equivalents.

To round out the mix, PageStream's documentation, heretofore fairly weak, has been upgraded and updated, and now consists of a large and comprehensive user manual, plus a handy "Quickstart" guide. All in all, a completely professional package at a suggested retail of $299.95.

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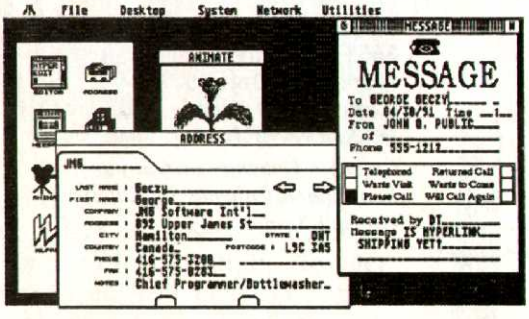
HyperLINK

By Turning Point Solutions



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JMG HyperLINK

Hypertext is a term coined to describe interactive, multimedia applications linking text, graphics, sound, and speech. Now JMG Software International brings us the means to compose hypertext applications on the ST and TT! HyperLINK is a multi-media scripting language and application generator which features a built-in relational database, text editor, graphics handler, sound manager, and speech manager. HyperLINK can be used to generate anything from database applications, to presentations, to interactive point-of-sale programs! Multiple HyperLINK applications can be simultaneously available on-screen, under the control of the HyperLINK "shell."

HyperLINK ships with numerous sample applications, including a message pad, Rolodex, baseball card database, and interactive map of Europe. These applications were created under HyperLINK, by linking together pre-fab program modules with various different types of data. Numerous modules for window-handling, flow control, processing, forms management, etc., are included with the package, and programmers may extend HyperLINK's already considerable capabilities by coding custom modules in C and loading them into HyperLINK via its "module-load" feature.

A product of Turning Point Solutions, HyperLINK requires one megabyte of RAM and a double-sided disk drive, and runs under ST medium or high resolutions. It is expected to ship in September at a suggested retail price of $199.

JMG Software International, Inc.
892 Upper James Street
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(416) 575-3201

Atari Professional Systems Group — "No Compromises"

"No compromises" is the banner of the Atari Professional Systems Group in unveiling their new Direct to Press publishing solutions. The APSG, a subsidiary of Atari Corp., in partnership with a consortium of hardware and software manufacturers, provides high-performance hardware/software systems for professional applications in areas ranging from prepress to video, multimedia, and music computing.

APSG Direct to Press publishing systems are built around the Atari TT030, Atari's top-of-the-line, 32 MHz, 68030-based workstation computer. Available in a tower configuration with 8 MB of RAM and hi-res monochrome and color monitors, the TT030 is capable of driving every phase of prepress work, from photo retouching of scanned images to word processing, type handling, illustration, vector graphics, page layout, proofing, and imagesetter film output. Further hardware options include the Atari SLM605 laser printer (used for proofing), optical scanners, and more.

Software tools provided by members of the APSG consortium include the superb image-processing packages Retouche Professional, Retouche CD, and tms Cranach Studio. Calamus SL and PageStream 2.0 provide powerful options for full-scale color page-layout, while Didot Professional can handle ads, brochures, and smaller pieces. A partial list of APSG Direct to Press software and hardware is shown below, and new products are being added to the line with impressive speed.

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1196 Borregas Avenue
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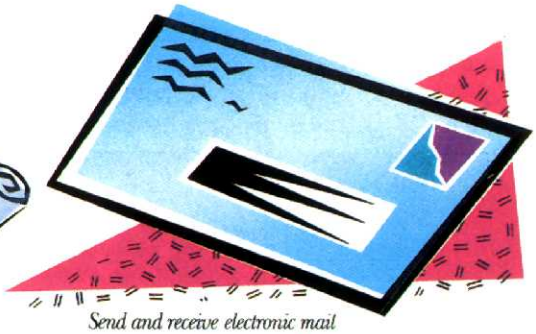

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LYNX GAMES

Checkered Flag

System: Atari Lynx

Summary: Realistic racing game with numerous tracks and control options!

Manufacturer:
Atari Corp.
1196 Borregas Avenue
Sunnyvale, CA 94089

Price: $39.99 (Available October)

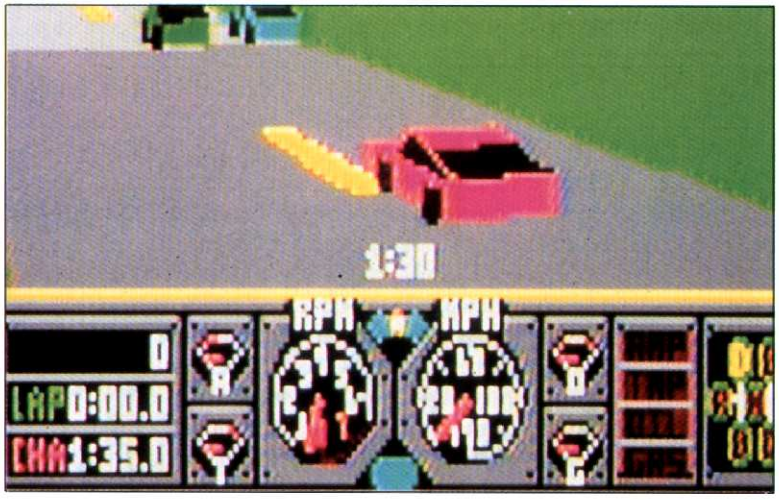
It's not the Indy 500, it's car-racing's version of the Tour de France. You are driving in a field of up to 10 cars, through terraiN that varies from Skull Valley to Woodland to Miami cityscapes. Variety is the name of this game, coupled with authenticity. Add computer-powered images that help you chart your course, and the ability to ComLynx up to six players, and you've got a killer racing game.

So, choose the color of your car, and let the judges know what sex you are (yes, it matters in the end). Choose an automatic, a 4-speed, or even a 7-speed transmission. Run a qualifying lap, or let your starting position be chosen at random (just remember how all-important that start is, with everyone jockeying for position!) for a single heat, or a tournament. How many competitors will you face, and on which of 18 tracks?

As you will immediately discover, the soundtrack is crucial. The mounting roar of the engine as your speed increases, and the whine telling you it's time to switch gears, are much more useful, in reality, than the dashboard. The sounds allow you to keep your eyes on the road — and those nasty roadside obstacles.

The designers of Checkered Flag managed to pack an amazing amount of information onto the small Lynx screen, without it ever seeming crowded. At the bottom of your screen are your dashboard and side-view mirrors. On the dash is your digital speedometer and tachometers, indicating your current gear and when to shift. Your current lap number, your standing in the race, and elapsed time are also displayed. But my favorite accoutrement is the map of the racecourse at the top of the screen, with the relative positions of you and your competitors. With the map as my guide, I can go all-out on those rare straightaways, and anticipate curves, adjusting in the nick of time for harrowing hairpin turns — not to mention stopped cars blocking the roadway.

Just like in a real car, you'll want to make most minor adjustments with the gas pedal. Downshifting and braking are more extreme measures. Slow down, for instance, if you feel yourself skidding out. And beware too many spin-outs and crashes — you may lose your side mirrors, as well as time. In the ComLynxed game, if you finish before other human drivers (vs. drones generated by the computer) a "camera mode" lets you see the remainder of the race from another human's perspective. So, "gentlemen, start your engines!" as the announcer says, moments before the flagman starts the race. And be you male or female, should you win, you will get the reward you deserve — a trophy, served up with a kiss, by a dreamboat of the opposite sex.



Hard Drivin'

System: Atari Lynx

Summary: True 3-D stunt-driving simulation. Hard to play, but worth it!

Manufacturer:
Atari Corp.
1196 Borregas Avenue
Sunnyvale, CA 94089

Price: $39.99

You say you're 9 years old and you want to drive? Well, rather than risk life and limb by hijacking Mom's Volvo (even money whether the traffic gets you or Mom does!) why not just ask her to get you Hard Drivin'? It's basically the same thing, except that with Hard Drivin', Mom's not around! Plus, you get to relive serious crashes on instant replay instead of in ether-induced nightmares on the operating table. Good deal, huh?

In Hard Drivin', you control a fairly amped-up street car (with automatic or manual transmission) from the driver's perspective. Your object is to survive guiding the car around a complex track: one loop of which offers speed-driving (and associated hazards), the other, a variety of stunts, including leaps and loop-the-loops. Your progress around the track is timed, and you're obliged to reach checkpoints before time has run out. This is no mean feat, since at first, it's a challenge simply to keep the car on the road. Next, you have to master "staying in your lane" (it really helps in avoiding oncoming traffic), and finally "staying in control at high speeds." Only after that, dare you try vaulting the leap of death at 60 mph!

Many games use graphic tricks to simulate the effect of 3-dimensions, and that's great, as far as it goes. But Hard Drivin' gives you the real thing: true 3-D perspective graphics at high speed. You can drive your car around pylons, weave on and off the road, get turned around and forget where you are ... the whole nine yards! You can even accelerate too quickly, hit the bottom of a ramp, and shred your bumper. Fun City! And beneath the graphics lies a mathematical simulation that makes Hard Drivin' the most realistic driving game around. Your car has inertia, responds to acceleration in predictable ways, and generally behaves as a real, four- wheeled vehicle should. At first, when you're spending all your time running into things (then watching your mistakes as they were recorded on instant replay), this verisimilitude can be frustrating. But later on, as you master the controls, you'll appreciate the way Hard Drivin' lets you trust your instincts about how things move around in the physical world.

Hard Drivin' lets you trust your instincts about how things move around in the physical world

Sound is used to great effect: digitized engine-starting sounds and engine whines inform you when it's time to switch gears, or clue you in that you've just passed a 60 mph suggested speed-limit sign at 90 mph. All in all, Hard Drivin' is a unique and challenging game that'll keep you occupied (and out of Mom's Volvo) for some time to come!

LYNX GAMES

Ishido, The Way of Stones

System: Atari Lynx

Summary: Contemplative Japanese board game with an oracular twist.

Manufacturer:
Atari Corp.
1196 Borregas Avenue
Sunnyvale, CA 94089

Price: $34.99 (Available October)

Do you seek truth or high scores? Answers to the puzzles of the universe, or to the puzzle on your screen? Both? It's up to you to choose your path on the Way of Stones. Ishido is a charming and challenging Japanese game, wherein you must match the color and/or shape of stones as you arrange them on a rectangular grid. Your goal can be as simple as emptying your pouch of stones, fitting them all into the emerging pattern on the board, or as complex as to arrange those same stones artfully, striving to achieve certain patterns that will grant you insight, by way of cryptic answers from the Oracle itself.

Will your path be solitary or cooperative? Or will you choose, perhaps,to challenge a fellow seeker? Will you score in the modern way, where every stone placed wins you points and an answer from the Oracle doubles your score? Or will you play in the ancient manner, where the only thing that counts is the number of Oracular utterances you are privileged to receive for having mastered your task?

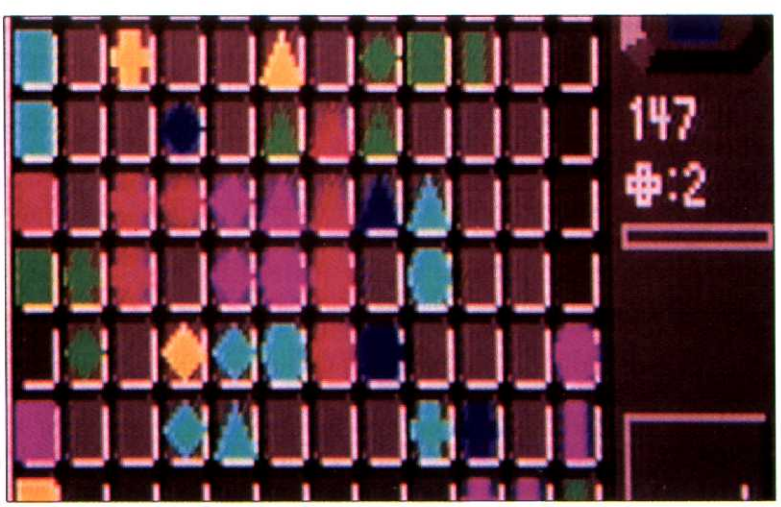
Ishido gradually reveals itself to you, even teaching you how to play. The rudiments of the game: picking up and putting down stones, are easy enough to grasp. And if you simply start by trying to place stones on the board as they are offered to you, the game will swiftly refine your understanding of the rules, by uttering various edicts. The first and simplest: "You must match all adjacent stones by shape or color."

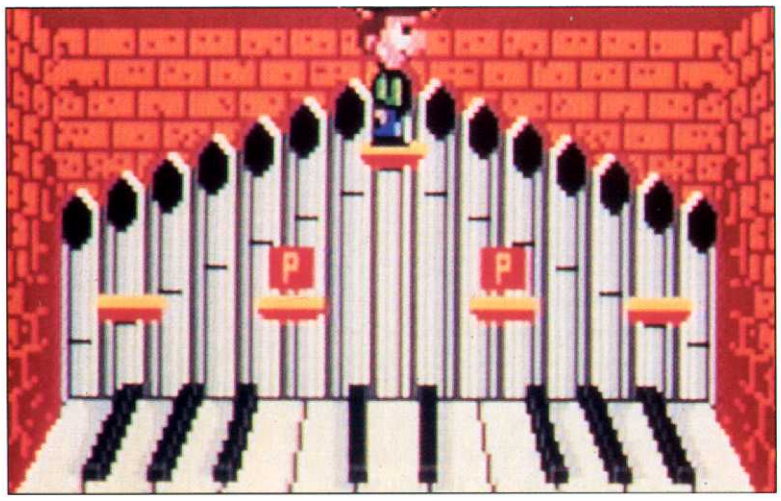
Stones come in six colors and six shapes, each of which appears twice in each color "suit." True to the contemplative and aesthetic spirit of the game, you may choose to play with one of several offered sets of stones, ranging from an ancient and beautiful Chinese set to a very modern geometric design.

As the game progresses, more complicated rules begin to come into play, and new edicts appear: "When making a 2-way match, you must match one stone by shape and the other by color." Eventually (unless you read the manual, it may take several rounds before the situation arises), you will see the ultimate rule: "When making a 4-way match, you must match 2 stones by shape and the other 2 by color."

Making that elusive 4-way match has to be one of your primary goals, for only when you have done so will the Oracle deign to speak, uttering its pronouncements in classic fortune-cookie prose. Indeed, when playing in the ancient manner, wherein you begin the game by mentally formulating a question for the Oracle, the object of Ishido is simply that: to get the Oracle to answer by making 4-way matches. "Play for points" options include a two-person challenge game, and timed tournament play.

Obviously unlike most Lynx games, Ishido promotes a quiet frame of mind — the decisive "snap" made by a stone as it is placed on the board being the only sound effect. Challenge and tournament play can surely raise the excitement quotient. But even then, when speed is of the essence, Ishido essentially comes down to just you and your stones. And the Oracle: a hovering presence, whose prophetic utterances I dare not quote.





Scrapyard Dog

System: Atari Lynx

Summary: Your chance to be Dog's best friend!

Manufacturer:
Atari Corp.
1196 Borregas Avenue
Sunnyvale, CA 94089

Price: $34.99 (Available October)

Quick! Jump! Duck! ... No, wait! Now, throw! Gotcha, you dirty rat! Literally. Rats and ravens, not to mention burnt-out cars and empty oil drums create the ambience of the scrapyard as you go to the rescue of your pet dog, Scraps, who's been abducted by Mr. Big and his henchmen. The last view you had of Scraps was of him yelping piteously from the back of a van, followed by a ransom note.

Timing is crucial in this scenario — in more ways than one. Not only do you have to crouch, jump and throw at just the right moment, but you have to get through each of four rounds in a limited time, and nab the note that gives you instructions on how to get to the next level. All of this, while picking up fallen money bags along the way, and avoiding hazards. Furthermore, there are checkpoints along your route in each round which you must get to within a designated period, or you'll get knocked back to the beginning every time you lose a life. Fortunately you get more familiar with the terrain as well as the nature and location of your lurking enemies along the way.

Most of your enemies are pistol-bearinganimals dressed in gangland costumes, but along with flying bullets, you have to avoid cranes and rolling barrels trying to trip you up. And all you have to defend yourself with is a bunch of old tin cans — unless you can gather enough moolah to buy stronger weapons. After all, there's no sense scraping together a ransom if you get killed before you reach your dog.

Special items are hidden in barrels or trees and if you check behind any doors you encounter, you may find yourself in one of the three secret bonus rooms. The Seek Room is like a scavenger hunt — you have to pick up items. But no rest for the weary — you also have to avoid enemies. The Guess Room will give you a bit of respite, however. Here five cans are shuffled. Pick the one with the arrow in it to receive a valuable prize. My favorite of the lot is the Music Room. Jump on "P" to play a tune. Then repeat the melody by jumping on the piano keys in the correct order.

Clobber the Scrapyard hoodlums and save your dog Scraps

Also hidden about the scrapyard are weapons shops, but they're not easy to find. If you luck out, though, you could significantly alter the odds by strengthening your offensive capabilities with guns, stunguns, and flame throwers, and your defense with shields, armor, and invincibility. Believe me, any of the above will be helpful in overcoming the boss' henchman at the end of each level.

The unusual junkyard environment and timing elements combine to make Scrapyard Dog unlike any other old-fashioned shoot-em-'up. You're truly the underdog, a denizen of a scrapyard. Add to this the doomsday music and the hangdog expression on Scraps' face every time you fail to rescue him, and if you're as much of a pushover as I am, you'll find yourself compulsively striving to overcome all obstacles in your path ... just a little faster, this time.

Turbo Sub

System: Atari Lynx

Summary: Look! Up in the sky! Down in the sea! It's a bird! It's a fish! It's ... Turbo Sub!

Manufacturer:
Atari Corp.
1196 Borregas Avenue
Sunnyvale, CA 94089

Price: $34.99

Outnumbered by intergalactic barbarians in an air battle over the ocean, you decide that discretion is the better part of valor. Loosing one last salvo, you break free and — literally! — dive for cover. Splashing beneath the surface of the water, your Turbo Sub adapts instantly to its new environment, handling as smoothly here as in the air. And it had better. The variety of airborne enemies was bad enough, but underwater, the barbarian forces are aided by natural hazards such as rock-formations: menaces to navigation against which your weapons are useless.

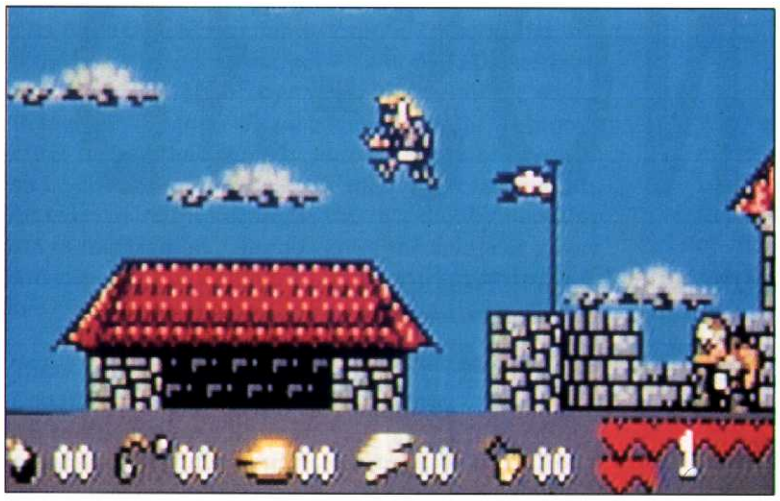
The scenario is familiar: The future of the Future (the 28th century, to be exact) is at stake, and your elite Turbo Sub unit has been ordered to eliminate the invading horde of barbarians. Will you succeed in restoring the peace? Or will you be defeated, leaving the planet to its fate?

Although the odds are stacked against you, you've got one ace in the hole. Your Turbo Sub, an amphibious combination of fighter plane and hunter-killer submarine, is renowned for its firepower. Its electro-plasma cannon can hose any barbarian vehicle you're likely to encounter. And its powerful Mega Bombs kill everything in sight (the catch being that you've only got a few of these). So you'll need to master the skill of catching those enemy Snub Fighters, Stealth Raiders, and other bogeys in your cross-hairs, and blasting away. But be careful you don't accidentally blow away a valuable Astro Foil satellite! Astro Foils are worth mucho points, and are converted by your computer to extra fuel or an extra ship, pending needs-analysis.

Your computer will also alert you to dive when you fly over an underwater gem-pod zone. Gem pods are the 28th century currency, and collecting them is a must, since they can be used to purchase weapons and defense enhancements at the underwater sanctuary that shows up at the end of each round. The array of special options is remarkable, and adds immeasurably to an already exciting game. Try getting sent on the to the next combat level with shields, range missiles, or tracking, an option that enables your computer to automatically target your weapons. This last option is the most expensive, and lasts for one level only, (unlike mega-bombs which last until you use them). Where will your gem-pods best be spent?

Splashing beneath the surface of the water, your Turbo Sub adapts instantly to its new environment

Turbo Sub doesn't stint on graphics or sound. The action is 3-D, fast, and furious, and digitized explosions blend with a punchy rock score to keep your battle-reflexes honed to maximum. The dual environment — air and sea — and the dual goals of accumulating points and money (the latter to prolong your survival), make for a game of infinite variation and challenge!



Viking Child

System: Atari Lynx

Summary: Let the skalds sing of your exploits, as you jump and jab your way to Viking glory!

Manufacturer:
Atari Corp.
1196 Borregas Avenue
Sunnyvale, CA 94089

Price: $39.99 (Available October)

Jump and jab, Viking Child of the North. Leap to the attack. Slay those enemies with your superior coordination. Good will conquer evil and you will free your family from the clutches of Loki and his minions in the nether reaches of Odin's world.

At your birth, the elders prophesied that you would restore peace to the Earth. But not if Loki, the evil god of Chaos has his way. Loki has kidnapped your family and secreted them in the depths of his wicked realm. And you must undertake a solo journey to rescue them, traveling through dangerous lands and overcoming all the resources that Loki puts in your way.

Your quest will take you through the labyrinth of Loki's realm. Each level of Viking Child is dominated by a master apprentice: one of Loki's favored monsters. And each level is, at heart, a puzzle intended to trick you. Brain and brawn must be applied in equal measure to accomplish your goal.

You begin the game armed only with a little dagger. Luckily, many of the beasts you encounter are carrying gold coins that you can use to arm yourself at the shops of mercenary arms dealers scattered throughout the land. For sale are bombs, bolas, firesprites, stuns, and potions, plus enhancements to your own powers including speed, a cloak of invisibility, the ability to glide through the air, shields, and extra lives. Of course, the more powerful the weapon or defense you wish to purchase, the more expensive it will be, and you can use up a lot of weapons fighting the numerous enemies you will encounter.

Start building your score by slaying enemies, and add to it by finding and picking up gems or discovering the secret bonuses within each level. Your score and the size of your hoard of gold are displayed at the top of the screen; the weapons in your arsenal at the bottom, with the currently-active weapon highlighted. Control are simple: Button A is used to stab, button B to jump, Option 2 to select from among your special weapons, and Option 1 to use the weapon selected.

Slay those enemies with your superior coordination and free your family from the clutches of Loki

Animation in Viking Child is terrific. Brian the Viking Child (that's you) is portrayed as a sort of comic-book hero, and the enemies, from animated trees to giant rhinoceri, are more funny than scary. Numerous sound effects are also used to add spice to the action: Brian's sword makes a funny little "boing ... boing" sound as he hacks and stabs at his foes, and everything from mudball-slinging trees to waddling trolls seems to have an effect tied to it. All in all, what with combat and puzzle elements, Viking Child will have adventuresome gamers amused for ages! •

CHRONOS-3D

Lexicor revives 3-D animation for the ST/TT platform

In animating the old story of a sorcerer-in-training who loses control of the brooms he brings to life, Disney's *Sorcerer's Apprentice* comments recursively on the magic of animation itself. Many of the great animated films of the past fifty years have followed suit, letting method and subject play off each other in similarly recursive ways (*Tron*, in which computer-generated images portray living computer programs, and *Who Framed Roger Rabbit?*, which uses a mixture of animation and live-action to create a world where "toons" and people make movies together, are good examples of this practice).

Animation is recursive magic: the magic of bringing things to life (or *back* to life), after the pattern of one's own vision. Very much in keeping with this theme, Lexicor's recent release of Rosetta-3D, Prism Paint, Prism Tablet, Prism Render, and the core keyframe animation package Chronos-3D, has revived interest in the ST and TT computers as professional animation workstations. So doing, Lexicor has built on the groundwork laid down years ago by pioneers like Tom Hudson, author of CAD-3D and Cybermate, while extending their vision in numerous and exciting ways.

Phase-4

Lexicor's "Phase-4" program for ST animation begins with the creation of 3-D objects. But instead of founding Phase-4 on a piece of object-generation software, the company has instead opted to provide means for translating and importing objects from CAD-3D and other systems into Chronos-3D. Lexicor's Rosetta-3D Translator accepts images, objects, and animation files in a wide variety of formats, and churns out equivalents in .3D2 and .DLT (CAD-3D 2.0), .3D4, .ANM, and .FLM (new formats introduced by Lexicor), PIXAR's "Renderman" format, and others.

Another source of .3D2 objects is, of course, CAD-3D 2.0 itself, as well as the numerous "clip-art" disks produced by Antic during the heyday of this powerful object-generating system. However, Antic Software's fortunes are presently unclear, and public-domain .3D2 material is not in great supply. For the moment, therefore, Lexicor is solving the problem by putting its own clip-art collections together in .3D2, .3D4, and other formats. As the Phase-4 system catches on, however, it will doubtless be necessary either to revive CAD-3D as a commercial product, or to create new tools for object-creation — a challenge to Lexicor or to some other, enterprising software house.

The Virtual Studio

Chronos-3D is phase two of the Phase-4 system. Chronos is a virtual movie studio, complete with a camera and lights, into which 3-dimensional objects can be imported, conveniently and quickly manipulated, and "filmed" on a frame-by-frame basis. Actually, this is a gross oversimplification. In fact, Chronos doesn't actually let you create frames directly, since this would be far too limiting. Instead, the program provides a multitrack motion sequencer that lets you create and edit independent, parallel motion patterns for every object or object group pertinent to your animation (includ-

By Atari Explorer Technical Staff

ing not only your 3-D "actors," but cameras and lights as well). Then, once the sequences have been adjusted to your liking, Chronos "plays back" the sequences, rendering draft or final frames directly to disk.

Chronos derives much of its power and flexibility from the fact that it can store the motions of each object in its universe independently from all others, and that all motion storage is abstract — wholly separate from object data, as well as any "imagistic" results of object interaction. The most trivial advantage of this approach is that it saves enormously on memory, since motion can be coded far more sparsely than frame images can. But even more interesting is the fact that by handling data in this fashion, Chronos gives the animator power to manipulate the abstract — motion in space and over time — in physical terms.

For example, though Chronos is fully capable of animating a hyper-complex spaceship, moving through the galactic void, the amount of time required to edit such an object's movements (or rather, to wait between edits as Chronos re-rendered the object in each new position), might be prohibitive. Instead, Chronos can temporarily replace the object with a self-generated, fast-rendering box (or simple "stand-in" object that you supply), let you edit its movements quickly, then substitute the more complex object for final rendering.

Chronos lets you "cut and paste" relative motion information. Thus it is possible, for example, to induce a camera to trace the movement pattern of an actor object, filming from that object's "point of view," or create a motion pattern for one object and apply this motion to multiple objects, which, if they have different starting points, will then move in parallel. This is an enormously powerful feature, particularly given the fact that in Chronos' "virtual studio," the normal constraints of physical reality do not apply. Instead, constraints are as you dictate: the camera can be affixed to a tripod or allowed to float free in space. Objects can respect one another's boundaries, or fly through one another like ghosts. In such an abstract world, time and motion really *are* the only anchors.

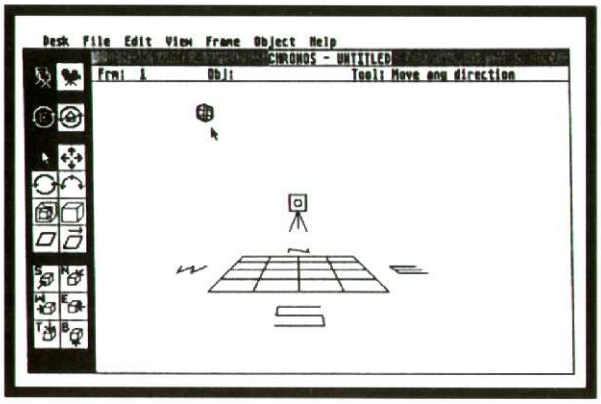


Figure 1. Chronos main work screen, at startup. Note camera, default solar light-source, and orientation grid.

Chronos-3D

Summary:
Incredibly powerful animation system loaded with features and capable of broadcast quality output.

Required equipment:
1 MB RAM. Works in all ST, STe, and TT resolutions. Compatible with ISAC and JRI Genlock color boards, Video Key, 68881 math coprocessor.

Manufacturer:
Lexicor Software
58 Redwood Road
Fairfax, CA 94930
(415) 453-0271

Price: $249

Keyframe Animation

Manipulating 3-D objects on a 2-D screen is always an iffy and time-consuming business, becoming more so as object complexity increases. Though Chronos provides a full set of tools for object manipulation (see below), its real power is in eliminating much of the grunt-work of motion-editing. We've already seen, above, how Chronos lets you cut-and-paste motion-control information. Two more of Chronos' labor-saving enhancements include automatic "tweening" of keyframes, and object-cycling.

In animation parlance, "keyframes" are frames where an object's direction or rate of motion changes. Within certain limits, Chronos is capable of extrapolating object motion between keyframes, and of generating the contents of these frames, automatically, applying a variety of "smoothing" options in the process. While certain complex, rapid, and unpredictable animations will certainly require the hand-editing of numerous keyframes properly-managed tweening can still significantly reduce the task, though the animator must develop a knack for predicting how Chronos will tween between closely-spaced keyframes. Meanwhile, tweening is immensely useful in controlling all forms of regular linear and rotational motion, as well as the type of "soaring" curvilinear motions typically used to control cameras and lights.

Cycling is the ability to

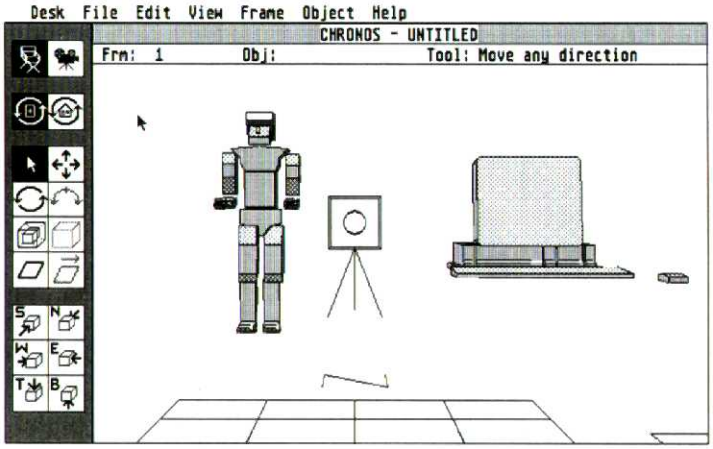


Figure 2. A pair of object-sets from CAD-3D 2.0, loaded at the universe's origin position. Objects have been shaded for clarity.

create a sub-animation that plays within an overall context of motion. For example, suppose you wanted to animate a ball that rotates on its axis as it moves through a complex series of maneuvers in space. It would be fairly laborious to hand-animate the spinning at the same time as the overall motion, since you would have to generate a keyframe each time the ball completed a quarter-turn (Chronos must deduce the direction of rotation (i.e., X, Y, or Z axis) from the starting and ending keyframes, and cannot do this over angles greater than 90 degrees). Instead, Chronos lets you load several copies of the ball object (automatically numbering them *ball1*, *ball2*, etc.), rotate and superimpose them, then add them to a cycle; creating, in effect, an animation. "Morph" frames can be inserted in the cycle, and Chronos will tween them, extending and smoothing cycle motion. Overall motion can then be applied to any object in the cycled group, and Chronos will automatically process the object-switching animation at the same time as it applies overall motion to the "object." Cycling techniques are useful for creating a wide range of complex, repetitive special effects, particularly locomotion effects in complex human and animal models; and can be used to create special effects like "motion blur." Cycles can be saved and loaded from disk.

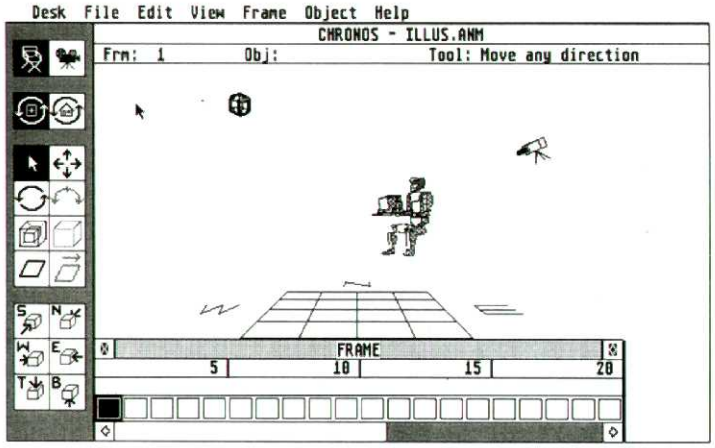


Figure 3. Having set up and oriented the objects, frames are inserted in the frame window. The camera is set to track on the monitor face.

Chronos Tools

Chronos offers five different forms of lighting, compatible with RenderMan light source standards: global illumination of neutral intensity, point source lights (used to imitate lamps and other conventional light sources), solar lights (used to imitate sunlight and similar effects), ambient lights (which have intensity but no directionality), and spotlights. With the exception of global illumination, light sources are represented by objects which can be manipulated freely as to position, direction (in the case of spotlights) and intensity. Spotlights can be further edited as to cone angle, drop-off angle, and beam distribution gradient. You can have as many lights in an animation as you like.

The Chronos camera can be moved around like any other object, from a "director's" viewpoint, or moved from its own viewpoint using a convenient dialog box featuring slider controls for horizontal and vertical rotation, zoom, and perspective. Additional keypad controls allow panning in four directions (movement without rotation). Desirable camera positions can be saved in up to eight "tripods," which are loaded and saved with the animation. Normalized North, South, East, West, Top, and Bottom views can be jumped to, instantaneously, by a single keypress.

The system's main object-manipulation tools are modeled after those in CAD-3D, and control linear object motion and rotation, both with and without axis constraint. Objects can be moved individually or collectively, in groups, and can be subjected to scaling, shear, compression, and other "forces." Rotational object motion can be made relative to an object's own center, or to a moveable "home" position. In determining an object's center of rotation, Chronos defers to the coordinates that came with the object when it was imported. In order that object rotation tools work "intuitively," therefore, it is necessary to exercise care and planning in object creation. While editing, objects may be rendered selectively in a variety of different ways, from quick-rendering wireframe boxes to fully-lit-and-shaded contour forms.

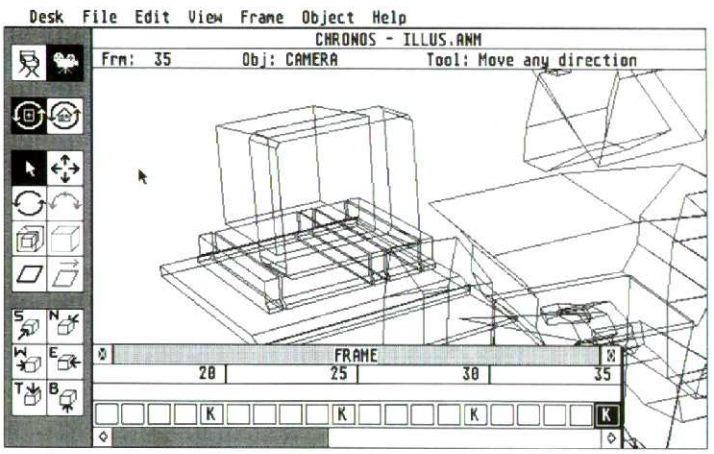


Figure 4. Five keyframes later, the camera has zoomed in at high speed, and has banked over the figure's shoulder.

Rendering and Playing

Chronos' final rendering system is fast and flexible, playing back an animation sequence and transforming it into a set of real images on disk. Chronos will render individual frames, selected subsets, or an entire sequence, applying a wide variety of display and shading options at the cost of speed. It is reasonable to expect that most animators will use wire-frame and/or box objects for preliminary renders, and apply hidden-line removal, Phong or Gouraud shading, and other options only to final output.

Final rendering of a complex animation takes a long time, even on a fast ST. Our 35-frame test animation required 15 minutes for final high-quality rendering at 24 fps in ST monochrome resolution on a 16 MHz Mega STe with caches enabled. In the higher TT resolutions, on color STe's, or on ST's employing the ISAC, JRI, or other color boards (both of whom Chronos supports), rendering of all but the simplest animations will take a very long time; though on the TT, additional color-handling overhead will be offset by dramatically higher processing speed. One thing is for certain, however: If the demonstrations we have seen are any indication, working with Chronos on such high-powered, color-rich systems will produce outstanding results of broadcast quality.

Final Notes

Chronos comes with a substantial ring-bound manual containing a comprehensive set of tutorials, a reference guide, and an index. The docs are thoroughly professional: clearly written, concise, and very well organized, making it possible for even neophytes to be productive with the system within a few hours. The program itself is obviously robust — there are no crashes or intermittent weird behavior to contend with, and menus and dialog boxes are clearly set up and labeled. For such a complex and powerful program, it's a very quick learn.

Chronos is copy-protected using a serial-port "dongle," which has resided on our office system in a daisy-chain arrangement with other peripherals for several weeks, without causing any problems. The software may thus be copied and backed up freely.

Lexicor offers a higher level of customer service and reduced prices on software upgrades for an annual fee of $25 — well worth it if you are considering using Chronos and its companion products for production work. This is not to suggest that beginners, or those who have only fooled around with CAD-3D, CyperSculpt, and other 3D products will find Chronos tough going. In fact,it's very easy to use.

Finally, between August and December of this year, Lexicor's Lee Seiler is offering a series of classes on CompuServe's Atari Vendors Forum, each Saturday at 5:00 PM EST, on the basics of professional animation. An award-winning animator and author of several books on animation, Seiler's lectures are beautifully presented, and provides a starting point for potential Chronos users to learn about the software.

We're impressed with Chronos, and recommend it without hesitation, both to beginners and professionals. While the software clearly looks forward to high-powered systems like the TT, it runs quite well on both ST's and STe's, even without graphics enhancement. This flexibility and uniformity will allow Chronos to serve several potential markets for animation products, from low end "hobby" applications to high end video and broadcast work. •

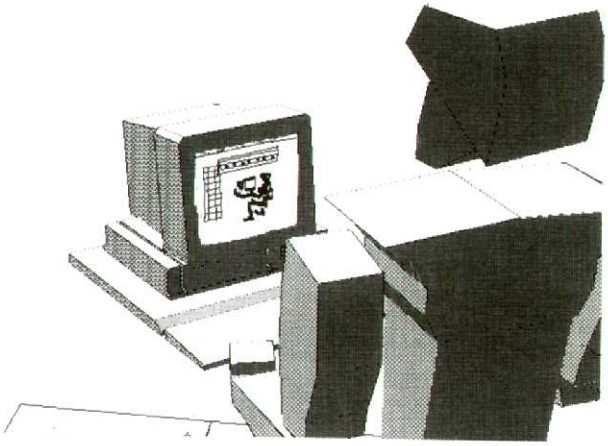


Figure 5. The same frame, now fully-rendered and output as part of an .FLM file, touched up with Prism Paint.

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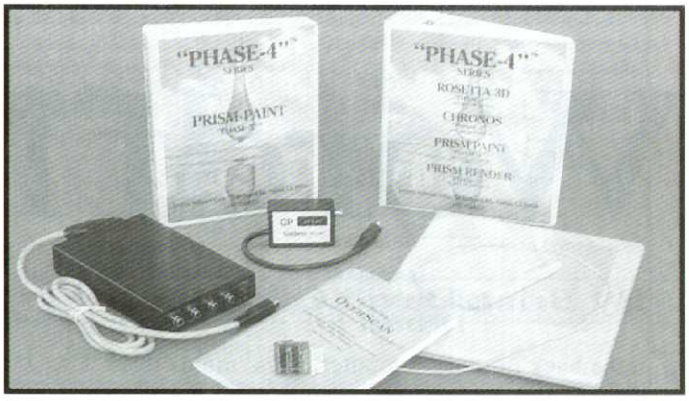

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CHRONOS

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IN NEVADA

This document-processor points the way to new levels of integration

Wordflair II

By Brian David Gockley

In the back of most computer users' minds lurks a murky, dim, and protomorphic idea of the perfect program. Seldom spoken of, often dimly perceived, rarely comprehended, yet always there, our idea of the perfect program changes and evolves over time as we become more and more familiar with the classes of application that are most important to us. As a writer, naturally, my own bent is towards word processors — programs that handle text. But as a businessman, I'm acutely aware of the deficiencies suffered by "regular" word processing software in two key areas.

One of these areas is in presentation. While many of today's word processors can handle fonts, multiple columns, footnotes, and other aspects of document appearance, few are fully equipped to handle graphics. The other area in which most word processors are deficient is in data-handling information-processing. While many products offer file merge, mail-merge, "boilerplate" insertion, etc., as well as rudimentary mathematics functions such as decimal tabs and columnar addition, these features are often underpowered, constraining, and difficult to use.

Traditionally, full-featured desktop publishing software, relational databases, and spreadsheets have been employed to stop these gaps in word-processor functionality. But for many common tasks, it seems pointless to generate text, data, graphs, and illustrations in separate programs, then import the results into a complex DTP system for final formatting and output. What if you just want to write a simple report incorporating experimental data, calculated results, graphs generated from those results, and a few basic illustrations? Do you really need to master WordPerfect, LDW Power, DynaCADD, and Calamus?

Not any more. One recently-released program, Wordflair II, by Goldleaf Software, comes very close to

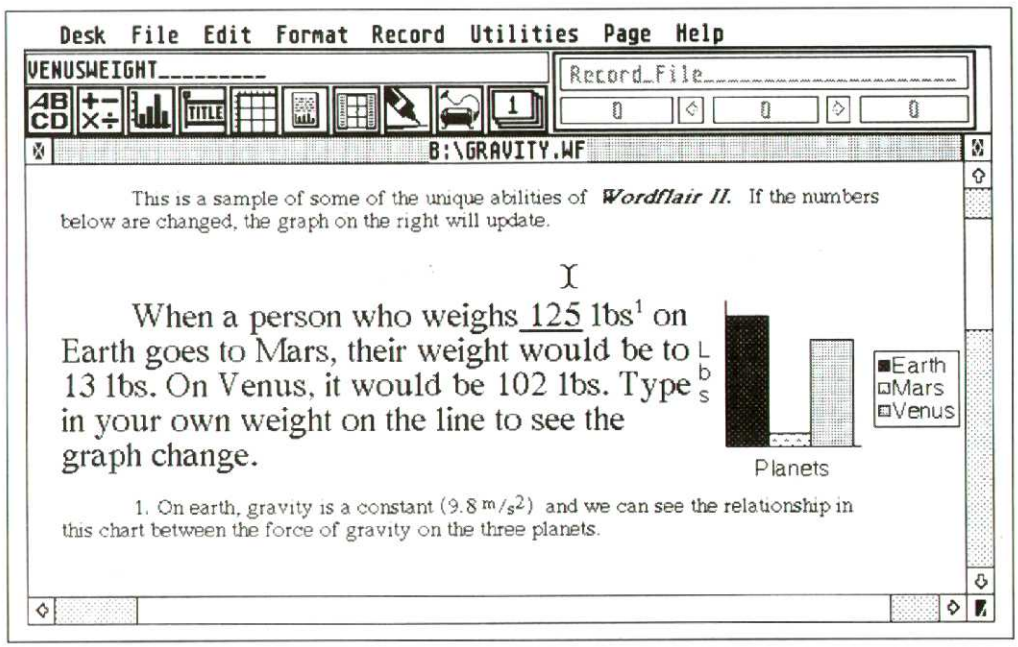

Figure 1: Here's a sample of the kind of dynamic linking you can do with Wordflair II. Its spreadsheet-like abilities are perfect for creating interactive tutorials, like this.

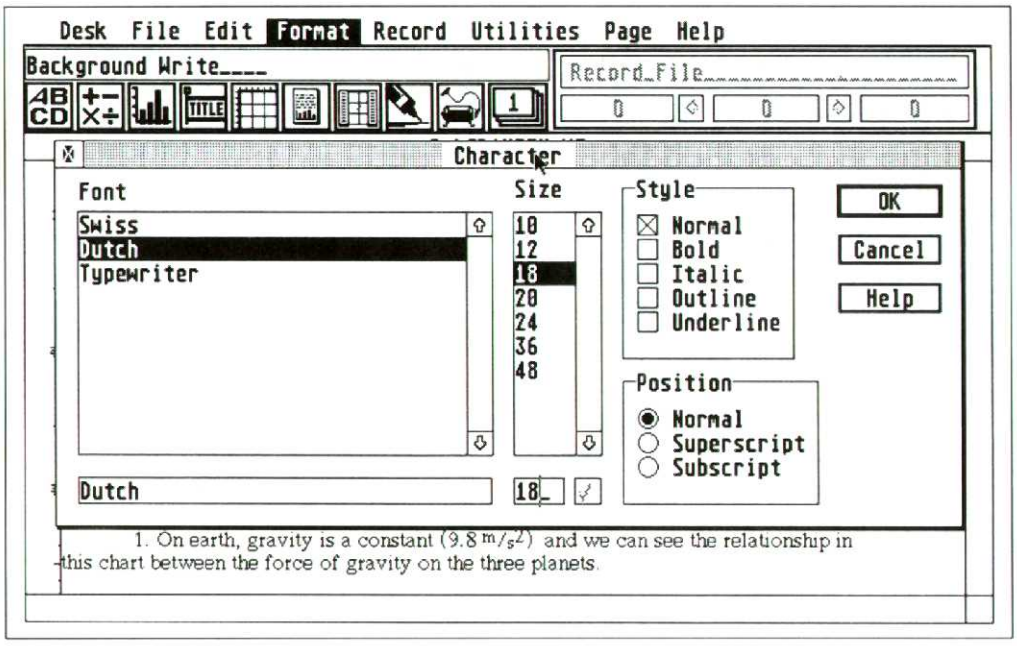

Figure 2. Wordflair II's font- and typeface-control dialogue box. With FSM/GDOS installed, you can type any point size into the lower box and, by clicking on the check-mark, make it permanently available.

my ideal of what the perfect program should be, combining the features of a word processor with DTP, spreadsheet, graphics, and database functions. In so doing, Wordflair II improves productivity and makes for beautiful printed copy.

How Wordflair Grew

Wordflair II was originally conceived as an upgrade to Wordflair I, released two years ago. However, as progress on the upgrade advanced, GoldLeaf's engineers realized that were they to enhance the program as significantly as they wished, it would no longer run well on a standard 520 or 1040 ST with one floppy drive and a color monitor — the most popular "entry-level" system configuration. They therefore elected to create what was essentially a new program, Wordflair II, promising at the same time to continue to enhance and upgrade Wordflair I for owners of entry-level ST systems.

In addition to a thorough redesign of Wordflair's interface and dialogue boxes, several important and powerful enhancements have been implemented in creating Wordflair II. The program is capable of numerous tasks, ranging from basic letter writing, newsletters, and mail-merges to presentation graphics, charting, and the calculation and printing of complex invoices, inventory, and billing records. Wordflair II is easy to use, powerful and fun; representing a radical and vital departure from standard application program categories.

Most of Wordflair's functions are controlled through ten main icons, each of which intuitively suggests what it does, and even seems slyly to recommend some new and different uses. Click the mouse on one of the icons and you can mount a named "spreadsheet" cell anywhere on the page. This cell can accept a value or a formula referencing other cells at arbitrary locations in your document. Thereafter, when input values are changed, cells containing formulae will recalculate, automatically (see Figure 1). Further icons let you link display cells dynamically with database records; import images in one of a wide variety of supported graphic file-formats and mount them anywhere on the page; generate graphs and charts of numeric data; and even hand-draw lines and arrows to tie tables, captions, and graphics together.

Obviously, this isn't just a word processor, so what do we call this amalgam? Goldleaf calls it an integrated document processor, but that may be too refined, maybe a bit too esoteric. Not that the program lacks grace, but power, flexibility and functionality are its dominant concerns. I really think Wordflair II may be the first of a brand-new software category. Swiss Army knife programs, Jack-of-all-Trades programs, maybe Universal Idea Developers, or T.O.P.*Y.E.N.s (The Only Program You'll Ever Need)?

Still, fitting elements of four types of program into one package has forced the programmers to make a few compromises. Many programs recommend a monochrome monitor, a hard drive and a memory upgrade. Wordflair II, which requires at least 1 MB of RAM and works far better with the recommended 2.5 MB or greater, is among them. However, Wordflair II is the first program I've heard about that excludes users with versions of TOS prior to 1.4 (Rainbow TOS). This may indeed be problematic for Mega ST owners, though it should be mentioned that Atari offers the requisite TOS upgrade (ROM chip replacement) for only $99. Furthermore, as noted above, Goldleaf is maintain-

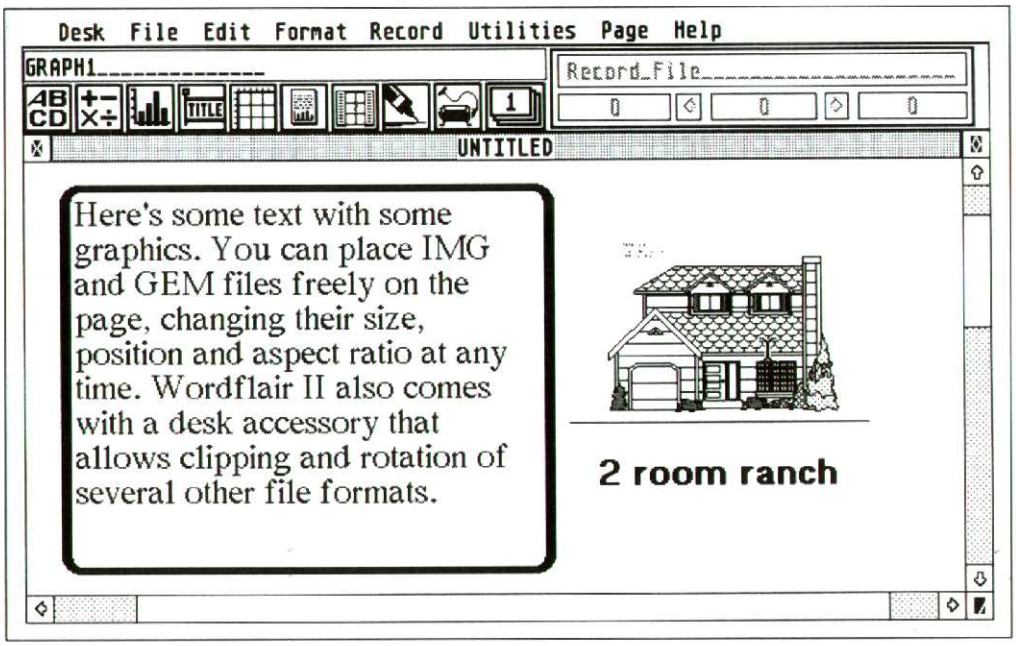

Figure 3. Though Wordflair II is not a complete desktop publisher, it does very well in its own right. Multiple point sizes and text attributes, plus graphics, make for some great bills and flyers.

ing Wordflair I in its product line, and continuing to upgrade it for users of older STs.

Wordflair II Features

First and foremost, Wordflair II is a word processor, with a collection of standard features common to high-end exemplars of this genre of program. In the area of font management, Wordflair excels, largely because it is designed to function under Atari's GDOS extension to the ST's GEM operating system (see Figures 2 and 3). At the moment, Wordflair is shipping with standard GDOS, for which numerous fonts are available. However, as has been widely reported, the program is also fully "knowledgeable" about the next version of GDOS, due for imminent release by Atari.

Wordflair's spectacular font-handling, graphics, and spreadsheet-like ability to perform calculations, makes possible the creation of an infinite variety of graphically unique, dynamically-manipulable business forms.

This new version of GDOS, FSM/GDOS, manages to be fully back-compatible with standard GDOS while adding new "font scaling" abilities to the system (for a review of FSM/GDOS, see Atari Explorer, March/April 1991, page 52). In Wordflair II's case, installation of FSM/GDOS will both increase throughput, and markedly increase the apparent resolution of fonts on-screen, making for a closer correspondence between "what you see" and "what you get." Goldleaf has promised to make FSM/GDOS available to registered owners of Wordflair at the lowest possible price, as soon as the product is released. In the meanwhile, Wordflair comes with a host of printer drivers, fonts, and other GDOS software accessories, including a driver for the popular Canon BJ-10E Bubble-Jet printer.

Beyond font-handling, Wordflair II offers a wide range of advanced word-processing features, including impressive forms-generation and mail-merge capabilities. The impact of these features is itself enhanced by Wordflair's spectacular font-handling, graphics, and spreadsheet-like ability to perform calculations, making possible the creation of an infinite variety of graphically unique, dynamically manipulable business forms. Unique among ST word processors, Wordflair II allows incremental merging of a selected range of records into a prepared form; enabling the process to be stopped periodically for page alignment, paper jam clearing, toner refill, ribbon change, etc.

Underlying the mail-merge system is Wordflair II's database module, upon which much programming effort has clearly been lavished. The program can import comma- or tab-delimited ASCII files from a wide variety of applications (including, of course, those output by other database programs), and link them together into database files in its own document format (see Figure 4). Step-Ahead Software has already altered the

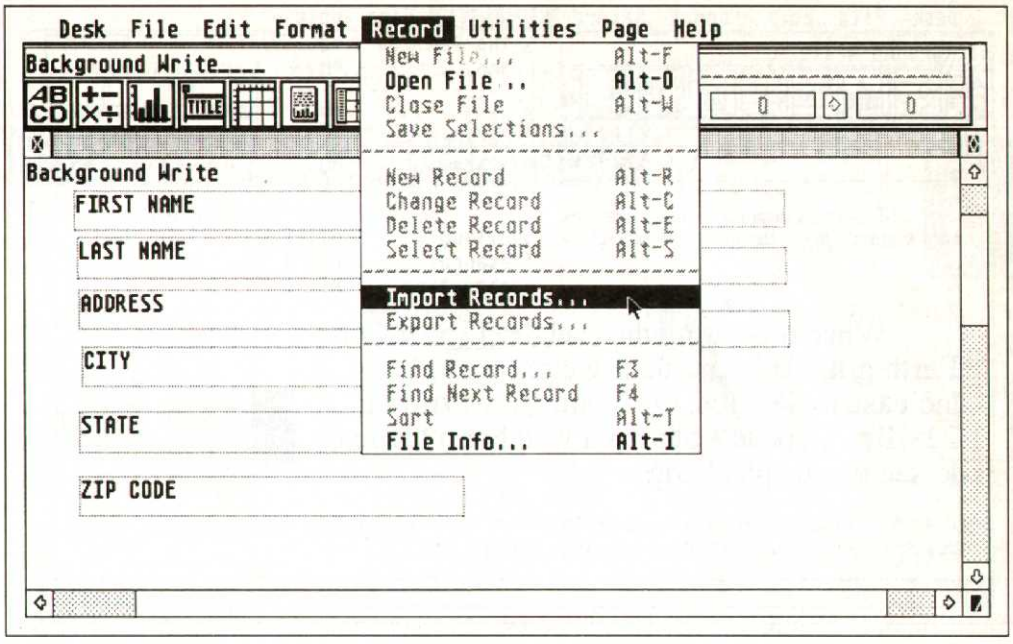

Figure 4. Here is a snap of a freely-created group of database fields. As the drop-down menu shows, Wordflair II can import databases that have been saved in ASCII format.

method by which their popular Tracker ST people-tracking package saves data, to conform with Wordflair II standards; and other manufacturers are likely to follow.

On the more literary side, Wordflair II incorporates the Proximity Linguabase from Merriam Webster, which handles spell-checking, hyphenation, and synonyms in a very advanced way (see Figure 5). Wordflair's incorporation of this excellent product puts it head and shoulders above other ST word processors of our acquaintance. The spell checker, in particular, is fast, easy to use, and comprehensive.

Wordflair Graphics

Though the graphics ability of Wordflair I was impressive, the earlier program had a few frustrating limitations. For example, prior versions of Wordflair were incapable of preserving the original proportions of an imported picture. In Wordflair II, however, you can preserve the ratio of the graphic in its original state, making for predictable and attractive layouts. Picture-handling, in general, is quite sophisticated. Among other features, Wordflair II lets you "mask" a graphic, temporarily; avoiding the need for the system to re-draw it — a time-consuming process — as you move around and make small changes. Under the Wordflair II system, a graphic is separate from the object that contains it. This allows convenient cropping, and lets you modify and exchange graphics within a region of whitespace, without altering the whitespace, itself. As noted above, Wordflair II can import graphics in a wide variety of ST formats. As an aid to locating graphics and other "import" files, Wordflair II features a "look up" dialog box that assists in making the search.

Wordflair II also incorporates a variety of methods for generating its own graphics, including the ability to hack up line, pie, and bar graphs from document data. The graphic charting ability has been expanded to handle a full 12 data sets, so that, for example, a whole year of financial figures can be graphed. Managing Wordflair II's graph-generation features is simple, and care has been expended on making the controlling dialog boxes both slick and easy-to-use.

This attention to cosmetic and ergonomic issues, in fact, extends to every aspect of Wordflair II. For example, in Wordflair I the charting box showed a scrolling list of all of the calculation regions on the page. This was very handy, as it enabled you to point and click the links that you wanted to make for your graph. In Wordflair II, the concept of scrollable lists has been applied to every setup-region box, allowing point-and-click linking or pasting in all of them.

Keyboard equivalents for menu commands have been added to Wordflair II with a vengeance. Only 20 of the 72 drop-down menu commands are left without them (including 9 "Help" entries, which don't really count since they come up both when the Help key is pressed). Help notes are also included — in context — within certain dialog boxes.

A Few Caveats

So what's the catch? After all this frothy praise, are there any negatives? Well, just a few.

The hardware needs of the program are somewhat intimidating, both because Wordflair II requires TOS 1.4 or later, and because at least 2.5 MB of RAM are required to use the program fluently. Moreover, though the program can, in fact, be run from floppies, its overlay-structure is far more amenable to use with a hard disk.

Wordflair's memory requirements can, on mar-

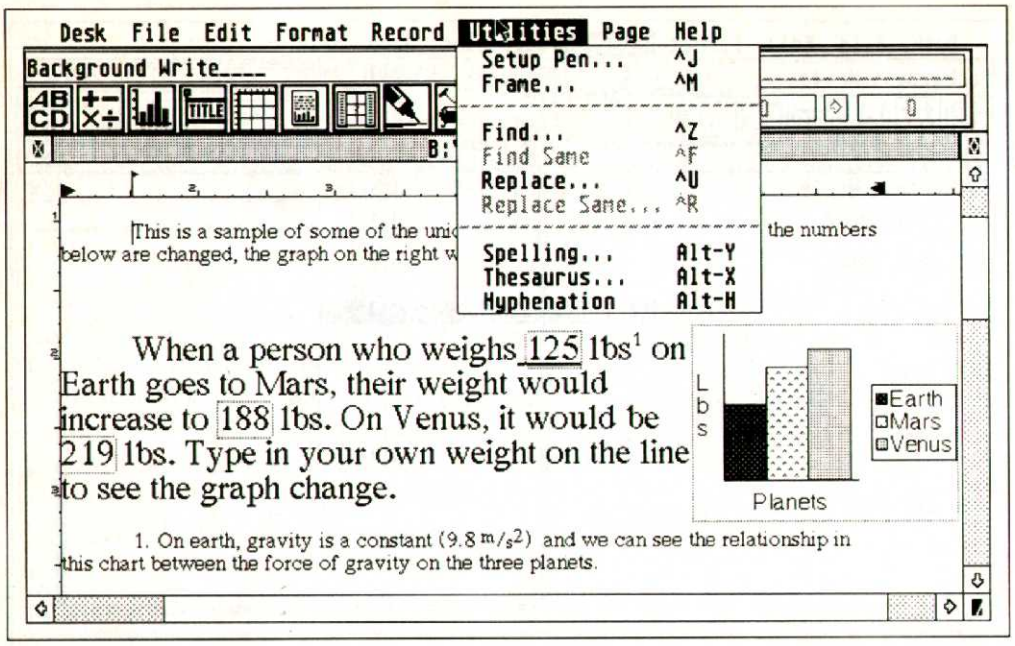

Figure 5. This menu accesses the pen and frame setup options, as well as the spell checking, thesaurus, and synonym databases.

ginal systems, limit the number and type of \AUTO programs and desk accessories you can load before creating conflicts. I found a few strange problems that I was rarely able to repeat, but I found that for perfect sanity, it was best to be sanitary and unload the \AUTO folder. Perhaps associated with the memory problem is the problem of speed. When working with documents over ten pages or so, the program starts to really slow down. Goldleaf recommends breaking up the document into chapters if it is going to be longer, but it would be nice if they could overcome this difficulty in an upgrade.

Other quibbles: you still can't have more than one document at a time open, and that really hurts. Cutting and pasting between windows has always been key in the editing process. There is indication that Goldleaf is working on this, since they made the document window in Wordflair II sizeable, though not moveable. In the area of graphics, both the pen and frame functions could use some beefing up. It would be nice to see Wordflair II incorporate all of the standard, circles, arcs, boxes, fills, and other drawing aids common to full-fledged graphics programs. Finally, the visibility of the text-entry cursor could be improved.

These small problems aside, however, Wordflair II must be considered an outstanding product. Goldleaf is to be commended for the quality of this upgrade, and to the speed with which it has been brought to market, both of which strongly reflect the degree to which Goldleaf has paid attention to users of earlier versions. And Goldleaf clearly intends to support Wordflair II to the hilt. Technical assistance is exemplary, available both by telephone and on the GEnie information service. Two technicians now staff Goldleaf's help line, full time.

A New Level of Integration

All in all, Wordflair II seems to be one of the most exciting and evolved programs in the Atari market. It is an excellent business tool, a great program for the home, and an extremely well-rounded and fun word processor. It looks great on the screen and on the printer. I ran it on every Atari machine I could and it was unflappable. If there was an award for top program of the year, Wordflair II would be the front runner, in my estimation. It truly represents a new level of integration. •

Wordflair II

Summary: Document-processor with graphics, database, and DTP features. A uniquely powerful and well-integrated product.

System requirements: Atari ST or TT computer with TOS 1.4 or later, 1 MB or more RAM. 2.5 MB RAM, monochrome monitor, and hard disk recommended.

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#768/938/1165 - NeoDesk Icons
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PageStream File to 300 DPI .IMG conversion
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#870 - Atari, Baby Teeth, Lucida, Old English
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#45 - 130XE Utilities
#73 - Turbo BASIC Documentation
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#115 - Labeling Program (Disk/Mail/VCR)
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#183 - Script 80 V2.0 - 80 column word processor
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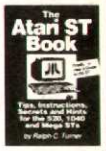

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INTERVIEW

The President of Goldleaf Publishing has a vision for Atari text-processing and direct-to-press DTP

Lauren Flanegan-Sellers

By Brian Gockley

Lauren Flanegan-Sellers, President of Goldleaf Publishing, who along with John C. Fox, Goldleaf's co-founder, is the driving force behind Wordflair and the Goldleaf-ComputerBild Publishing System, is a native Californian who grew up in the Bay Area. Educated in philosophy and chemistry, Lauren is fluent in French and reads several languages. She has been involved with computers for over fifteen years, both as a software developer and as a distributor of commercial software and hardware.

Lauren's business philosophy grows out of long experience in international marketing. A strong believer in global marketing, she feels that the American tendency to ignore foreign markets and products is provincial, stifling growth and solutions. Likewise, as a computer professional, Lauren advocates developing software for high-performance, cost-effective platforms, rather than taking the more conservative approach of developing only for "standard" systems.

These attitudes have combined to evolve the relationship, begun in 1986, between Lauren Flanegan-Sellers and Atari Corp. At that time, Sig Hartmann, then Atari's Director of Software Development, convinced Lauren that ST technology, Atari's growing world market share, and relative lack of U.S. third-party support made an attractive combination for software development and distribution. As a result of this meeting, Lauren's idea for an ST version of Wordflair took root.

As the first version of Wordflair moved closer to completion, it was decided that Lauren should take Wordflair and try to distribute it on her own. The program was first shown to the public at 1989 Winter Comdex, under the banner of Lauren's newly-formed company, Goldleaf Publishing. In the two years since then, Goldleaf has emerged as a major player in the Atari market. Beyond Wordflair and the recently-released Wordflair II, the firm has picked up distribution rights to a number of popular European software titles, and formed alliances with several North American companies, including ISD, Soft-Logik, and Step-Ahead Software. Perhaps most significantly,

Goldleaf has become a marketing partner, with Atari, for a turnkey prepress system based on the Atari TT030.

I spoke with Lauren on the phone at her Bay Area office, where she regularly spends 12-hour days.

Brian Gockley: What accounts for your rise in the Atari market?

Lauren Flanegan-Sellers: Hard work and commitment. We have a long-term view of the market, so we're spending a lot of time cultivating relationships. In business, relationships are the most important thing: with customers, with developers, and especially with resellers. We have to put in a lot of time and effort, but we get letters every day thanking us for our support. We have to plant the seeds in 1991 and 1992, for harvest in '93 and '94. We plan on being around a long time.

BG: How can you have that kind of confidence in the face of today's market?

LFS: Well, even though the Atari market is small by comparison with that of IBM and Apple, we are very impressed with the TT030 and some of the new machines Atari has in development. We think that the TT030 is a solid, well-made, and well-priced computer — one that makes a very viable platform. And the TT030 is not the end of the line, by any means.

We're also convinced that we need to expand our product line and support multiple platforms. That's why we've worked out the licensing and distribution agreements with companies like 3K ComputerBild and HiSoft. We have a line of low-end software from 1040 users on up. Additionally, we are creating new markets outside the traditional Atari community and have reached out to high-end publishing customers like service bureaus, newspapers, and graphic-design houses. The new high-end software from Goldleaf and the Professional Systems Group will create a whole new market for the TT and high-end Atari computing.

BG: What other platforms are you looking at?

LFS: Right now we're working on a UNIX version of Wordflair II. We're making it a sort of test product to see how our efforts might pay off. In the publishing field, our Image Speeder is built around a TT030, but we're going after other platforms as well.

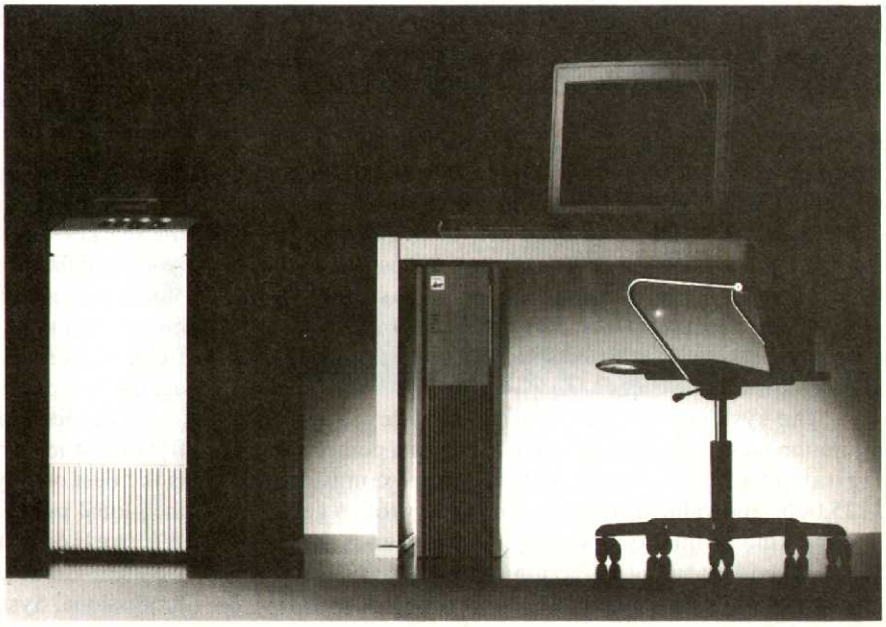
BG: How has your relationship with Atari been?

LFS: Excellent. We think that they have made some very positive steps in addressing the market situation. They've put some very good people in key areas, and are starting to target the vertical markets where they're strong. Putting their low-end products into mass distribution while re-authorizing their dealers for higher-end systems is an excellent step towards shoring up their reseller structure.

BG: Tell us about your relationship with Atari Professional Systems Group.

LFS: Professional Systems Group is a division of Atari Computer Corp, and also represents an informal partnership comprising Atari, Goldleaf, ISD, and Soft-Logik. It's far better for us to pool our resources than compete with one another. There may be areas where some of our products compete, but we're trying to foster a solid, heathy business partnership where we all benefit — we don't need to compete as humans or as companies. Atari has been very cooperative in coordinating their ideas with us and in supporting us.

The Image Speeder publishing workstation, marketed by Goldleaf Publishing.



BG: What kind of software is the Atari Professional Systems Group developing and marketing?

LFS: The new software for the TT030 is outstanding! Truly state-of-the-art. Software solutions from the Professional Systems Group cover every facet of prepress, and are superior to anything currently running on Mac or PC platforms. We picked up a lot of interest at CEPS (the Corporate Electronic Publishing Show, held in Chicago in April), and a lot of good press. After the Seybold Exposition we think we'll be very busy. Any graphic-design shop, photography studio, magazine, or publishing house can look at our stuff and immediately recognize the quality.

BG: What about hardware?

LFS: The most significant product we're marketing is the Image Speeder publishing workstation by 3K ComputerBild. Essentially, the system is a TT030 in a tower case with third-party peripherals and some custom screening and video display boards. The monochrome version has 8 MB of RAM, a 200 MB hard drive and a 44 MB Syquest removable-media drive. The color version has 26 MB of RAM, a 600 MB hard drive, and 88 MB Syquest. The color version's custom-screening card is slightly different, too. Input devices for the system include an Epson ES 300 C color scanner (600 dpi) and an Optotech high-end scanner/digital camera (5,000 dpi). The system outputs to an Atari SLM605 laser printer, Mitsubishi dye-sublimation color printers, and Linotype/Hell imagesetters.

Our software includes Retouche Professional, Retouche Professional CD, Didot Professional, Sherlook Professional, and Wordflair II. These products work together to provide a complete software solution, comprising text-handling, line art, to page layout, autotracing, halftone-generation, image processing, and 4-color separation. Depending on a customer's preference or requirements, alternative approaches to aspects of the prepress process are available from ISD Marketing and Soft-Logic.

The system is available in an entry-level configuration starting at around $10,000, up to a complete digital prepress system costing approximately $125,000. The value of this system is that we are getting the kind of quality that people have been paying $250,000 and up for, at a fraction of the cost. In terms of positioning, our capabilities lie midway between Mac IIfx systems at the low end, and Crossfield and Scitex at the high end, but at prices closer to the Mac range.

BG: You recently announced your decision that Goldleaf Computer-Bild Publishing Systems will be available only through authorized dealers who attend regular training sessions. Why is this?

LFS:We've put together an extremely powerful and complex suite of products that require extensive training to sell and use. Basically, there will be three tiers of dealers. Level Three dealers can sell any of our low-end products. The high-end products are restricted to the Goldleaf-ComputerBild System Houses, of which there are two levels. Level One dealers are Linotype/Hell resellers, whose complete line of imagesetters we will support, and who are generally better-capitalized than the standard Atari dealer. Consequently, they will be able to offer training and support to Level Two dealers. Level Two comprises Atari/Aegis dealers and other desktop-publishing VARs that we bring into our reselling program. To minimize the capital requirements for Level Two dealers, we require them to buy our Linotype/Hell products, the Image Speeder, and our software from Level One dealers. None of these products will be available through mail-order or any discount channel. We expect that the high-end value of our prepress system and its resulting enhanced profit opportunities will attract many new resellers to the Atari market.

> "We think we can stake out a high place in the DTP field, and can create enough momentum to hold our own against any platform."
> – Lauren Flanegan-Sellers

BG: Any closing remarks?

LFS: Here at Goldleaf Publishing we try to be diligent, hard working and positive. If we thought that the market was dead we'd get out. If people are bellyaching about things, then they should get out, too. Your choice is either to improve the situation, or move on. We think we can stake out a high place in the DTP field, and create enough momentum to hold our own against any platform.

The idea for Wordflair came to me back in 1983. It's one of my favorite projects, and I think that it, too, is the best on any platform. We're very positive about the global market, and are rapidly expanding our staff. We believe the partnership between the Goldleaf-ComputerBild Publishing System and Atari's Professional Systems Group is a real win-win. •

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Informer II 2.03

By David Plotkin

Informer II is an easy-to-use database package that allows for multiple views of your data, lets you include graphic images in database records, and offers numerous print format options. The program is fully button- and menu-driven, and includes such advanced features as table look-up, complex sort and sublist criteria, and math functions. All the functions required, in fact, to use Informer II for a wide variety of personal and business database-management tasks.

Two Views on Data

The program lets you look at your data in two ways. In column format, data is arranged in a grid, with fieldnames at the top of each column and records below, one per line, much like in a spreadsheet. Hidden columns and additional records can be viewed by scrolling the grid window right or left, up or down using the standard GEM arrow buttons and scroll bars.

Informer II offers numerous ways of rearranging and customizing this display. Rows (records) and columns (fields) may be rearranged by clicking and dragging with the mouse. Columns may be narrowed, widened, or hidden temporarily. This flexibility is important not only for convenient review of data on-screen, but also for constructing tabular report formats, which duplicate current column formatting. Columns can also be deleted, though deletion changes the identifying markers used by Informer II's math functions. Care is thus required when making such global modifications to a database in which these functions are employed.

The second data format is the "form" view, used for data input (the column view cannot accept data). All fields in the database are present on the form viewscreen, and can be moved about freely and sized with the mouse. Fields can be shown with or without their headings. Any Degas (compressed or normal), NeoChrome, or screen-dump file can be used as a background for the form view. This lets you set up the input screen to look just like a paper form, though it can be tricky getting the background image to align just right with the fields.Switching from column view (used

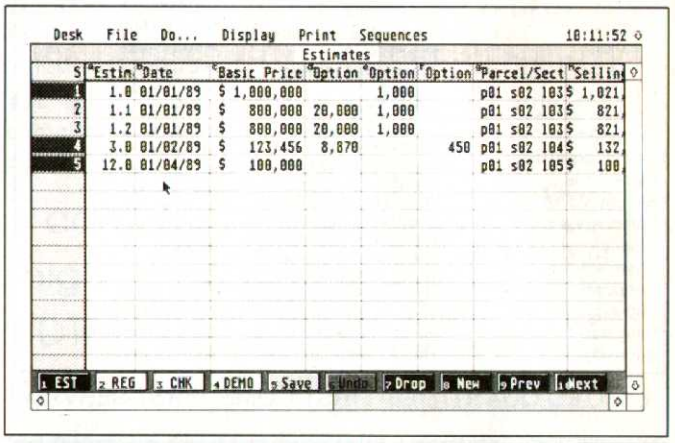

Figure 1. Informer II makes it easy to develop a database "application" that incorporates mathematical formulas. This cost-estimating system, displayed in column view, may look a bit cryptic, but lets its developer generate forms like the one shown in Figure 2.

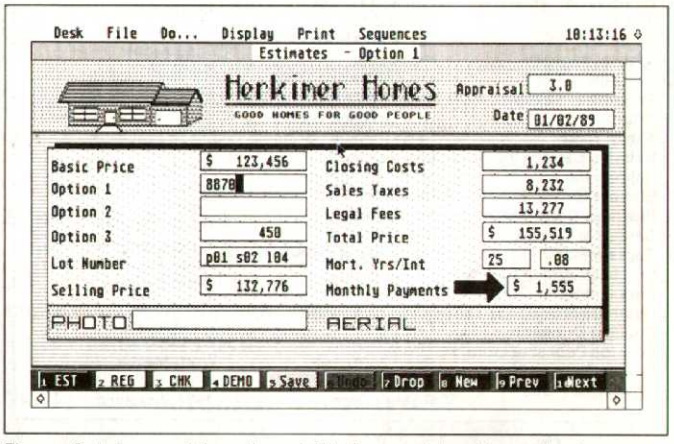

Figure 2. Informer II has the ability to combine formatted data and background images. Here, a database record is overlaid on a Degas picture, creating a unique and attractive form for printing.

This easy-to-use database package lets you include graphics in database records!

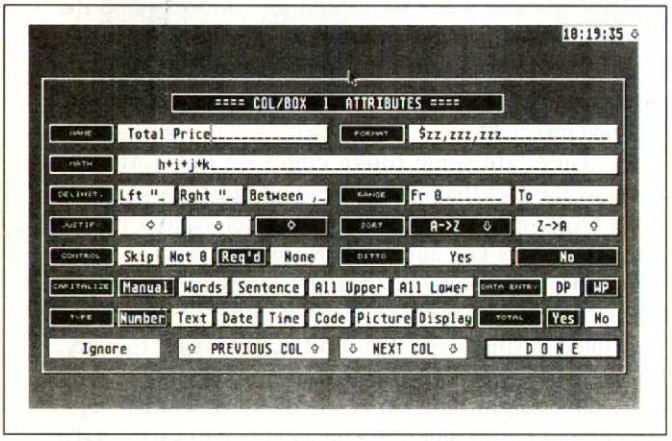

Figure 3. Numerous attributes can be specified for any field, giving the Informer II user fine control over report and form appearance, and database behavior.

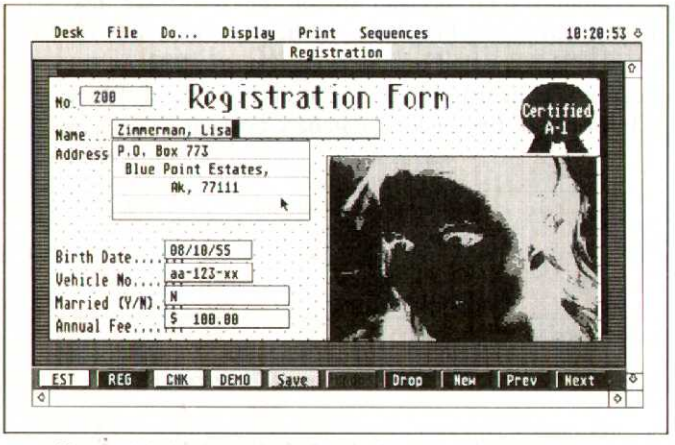

Figure 4. Informer's unique ability to include graphics as part of a database record is demonstrated in this person-tracking application, incorporating scanned photographs.

mostly for examining data and generating tabular reports) to form view (used mostly for entering and editing records) can be done in a variety of ways. The most straightforward is to click on the row for the record you want to modify. This takes you to the form view, with the information from the selected row showing in the screen fields. The field (column) that you clicked on will contain the cursor, ready for editing.

Information, Please!

Informer II fields can contain many different types of information, including text, time, date, numeric and graphic data. In form view, a text field can be stretched over several screen lines, but word wrap is not automatic. A graphic field references an external graphic file in Degas, Neo, or screen-dump format. Informer can be configured to display only the filename referenced by a graphic field (ALT-click to see the picture), or to load and display the picture automatically, either in full-screen view, or clipped within a bounding box. Color pictures viewed in the latter fashion take on the colors in the current pallette; whereas the full screen permits Informer to display color pictures in their original colors.

A variety of automatic formatting options make data-entry and report-generation a breeze. Time and date fields can be filled out with a single keystroke, using the current system values. Ranges can be set to prevent spurious input of various different types of data. Field attributes let you determine how a field will be displayed. Text fields may be justified and capitalized, automatically, and numeric fields can be flagged for totalling. You can even set the sequence in which fields are sorted, recalculated, and presented for input.

Because Informer II stores databases entirely in RAM during use (except for referenced external files), its capacity is somewhat, though not severely limited. A database can contain up to 52 fields, and a record a total of 9,216 characters of information, though most databases will require far fewer fields and less space. A database of up to 6,000 records can be maintained on a 1-Megabyte ST (depending on record size).

Again because Informer II is RAM-based, its speed, is very great, particularly in searching and assembling record subsets. A database containing a few hundred records can be searched almost instantaneously. While searching larger databases will certainly require more time, Informer II easily outperforms more capacious disk-based database systems by a wide margin.

Math and More

One of Informer II's most powerful features entails the spreadsheet-like ability to store a mathematical expression in a numeric field — one that can reference other fields in the database, which may themselves contain either expressions or values. Complex mathematical relationships can thus be engineered, and results recalculated automatically when any of the contributing values or expressions are altered.

Table look-up — another feature familiar to

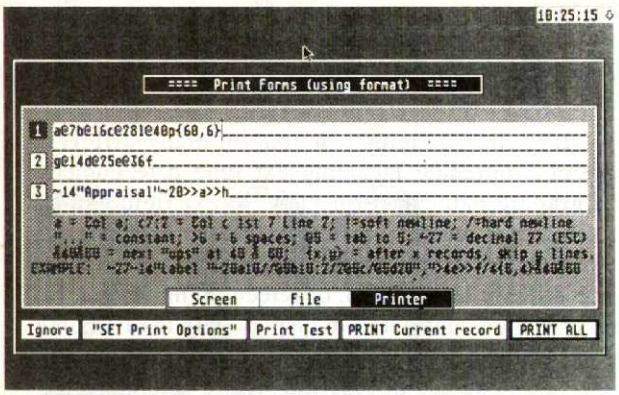

Figure 5. Though powerful, Informer's "free form" report-formatting system looks obscure. Luckily, single-form screen-dumps and tabular reports can be formatted with only a few clicks and drags.

spreadsheet users — is also supported. Informer II can contain up to four tables in memory, each framed as a database in column form. The value of a field in the main database can be derived by using the value of another field in the same record to index a location in one of these tables — a location that can contain text, numeric, or other data. For example, you could have Informer II look up and display a description of an inventory item from a table, based on a part number stored in each record.

Sorting, Searching, and Printing

Naturally, Informer II lets you search your database according to various criteria, assembling subsets of matching records. A search criterion can contain up to four conditions, conjoined with AND and OR, and a full set of numeric and string comparison operators are supported. Once a sublist has been isolated, most operations, including further searches, work on just that sublist, so it's easy to refine subsets through several search passes. Naturally, you can also reverse the process, regaining access to your database as a whole.

Once a record subset has been isolated, Informer II offers three classes of printed output. The first, a standard ST screen dump of an individual database record in form view, works only with printers normally compatible with the ST's ALT-HELP screen dump feature. The second kind of printout is tabular and text-based. Essentially, it copies the format of records in column view, respecting the width of columns as presently set, ignoring "hidden" columns, etc.

Finally, up to four "free-form" report formats can be designed and stored with the database. The design procedure involves specifying codes for field order, spacing, text constants, and other variables; and though sufficiently powerful to produce almost any imaginable format, from labels to invoices, it is fairly difficult to use. Simpler would have been a graphic approach that simply lets you place fields and text constants on the screen, but this is not supported, though Soft-Aware plans to support such a feature in upcoming versions. Meanwhile, plan to use up a lot of paper getting your layouts just right.

There are some rough edges on this software, such as the fact that oftentimes you must leave a field after an error has occurred and then return to it before the system lets you enter data there. The manual could also stand improvement. Though lengthy and complete, it is poorly organized, contains a number of errors, and is printed in small type that is difficult to read. Happily, the manual is currently under revision, as well.

Overall, Informer II is a really excellent package, combining power and some unusual features to make it really useful for most everyone, from home user to businessperson. The table lookup and multiple views are especially noteworthy, and there are many small touches that allow you to customize the package for your own needs. A full demo of version 2.03 is currently available on GEnie, and Soft-Aware informs us that they're busily working on a "radically enhanced" Informer III, expected in the beginning of 1992. In the meantime, I heartily recommend taking a careful look at Informer II if you need a database package. •

System: Any Atari ST or TT computer

Summary: Fast, powerful, flexible, and easy-to-use database, capable of handling both standard data and images.

Manufacturer:
Soft-Aware, Unlimited, Inc.
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Price: $99.95

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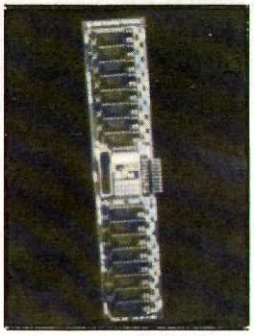


XTRA-RAM ST

Upgrades your ST's memory easily. Complete with testing software and comprehensive manual.

No Need To Send Away Your ST

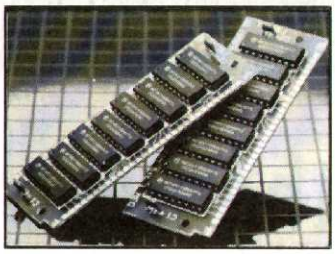
Upgrading the RAM memory of your Atari ST (520ST/M, 520STFM, 1040ST, Mega 1ST or Mega 2ST) usually means sending your ST away or doing a large amount of soldering yourself. Frontier's XTRA-RAM ST is installed by you, in your home or office.

Easy To Install

Installation takes around an hour and is carefully explained in a detailed 32 page manual which is written with the non-technical ST user in mind. If you have any problems during the installation process, PDC's technical staff are always available on the phone to offer assistance. Most STs will require absolutely no soldering to fit the XTRA-RAM ST. Some newer models will require a small amount of soldering. Contact PDC for more details.

No Need To Stop At 1MB

Most RAM upgrades for the ST leave you at 1MB and that's it! Not so with the XTRA-RAM ST. You can buy the ½MB upgrade now safe in the knowledge that the XTRA-RAM ST can be upgraded later without any messy trade-ins. You just replace one set of memory chips with another without any soldering whatsoever.



XTRA-RAM STᴱ

Easy to fit without soldering - no need to send your STᴱ away.

Upgrade Your STᴱ Yourself

Frontier's XTRA-RAM STᴱ has been designed to work with the memory upgrade facilities built into your STᴱ to make upgrading the memory straightforward and painless.

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Introductory special, prices slashed. Hurry, limited time offer!

MONEY BACK 10 DAY GUARANTEE

Forget-Me-Clock II

Automatically sets your ST/STᴱ's system time. Now all your files will be properly date and time stamped.

Just Plug In And Go

With the Forget-Me-Clock II plugged into your ST or STᴱ's cartridge port the system clock (used by the Control Panel) and keyboard clock will automatically be set at turn on or reset. No longer will you have to waste your time setting your ST's clock.

Full Pass Through

Frontier's Forget-Me-Clock II is a clock cartridge unlike any other. All other clock cartridges for the ST or STᴱ will tie up the cartridge port. The Forget-Me-Clock II has a full cartridge pass through - any other cartridge for the ST can be plugged into it while it is plugged into your ST. The Forget-Me-Clock II remains totally invisible so that the other cartridge can be used normally, but it still automatically sets the system and keyboard clocks in your ST or STᴱ.

No Need To Open Your ST

Installing some clock cards for the ST means that you have to open your ST's case and pry computer chips out of their sockets. The Forget-Me-Clock II is a cartridge which plugs into the port on the side of your ST or STᴱ which means that its installation couldn't be simpler - you just plug it in and turn on your ST.

Prices

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*** NEW! XTRA-RAM Deluxe. Upgrade any ST up to 4 Megs using standard SIMMs! ***		
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Forget-Me-Clock II cartridge	$69.95	$49.95

No credit card surcharge (Visa/MC accepted). Add $5 for shipping/handling on entire order. WA residents add 8.1% (including shipping). Prices, contents, and availability subject to change without notice.

Satisfaction Guaranteed

Totally Compatible

The extra RAM memory that the XTRA-RAM ST and XTRA-RAM STᴱ gives to your ST or STᴱ is totally compatible with all of your programs. The memory controller chip 'logs' in the extra memory and makes it available for your programs. You will automatically get more valuable memory space for DTP, word processing, MIDI, running the Atari laser printer and everything else that you use your computer for.

Software Included

Every XTRA-RAM upgrade is supplied with a free RAM testing program (so that you know with certainty that your installation has worked), RAM disk and printer spooler software.

Every Forget-Me-Clock II cartridge is supplied with time and date setting software for the Forget-Me-Clock II's clock together with a small auto-run program which automatically sets your ST's system and keyboard clocks every time you turn on or reset your ST or STᴱ. Built into the setting software is the facility to stop the Forget-Me-Clock II's clock to save on battery life when the Forget-Me-Clock II is not being used.

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All Frontier Software products are designed and manufactured specifically for the ST and are supplied under PDC's ten day money back offer which means that it you don't like the product for any reason you can return it for a full refund within ten days of purchase. All Frontier's products also carry a full twelve months' guarantee (two years with the Forget-Me-Clock II). Unlike some ST and STᴱ upgrades, Frontier guarantee that each XTRA-RAM for the ST or STᴱ only uses brand new memory chips - making your ST or STᴱ and its memory upgrade more reliable both now and in the future.

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Presenting the Second Annual

Creativity Contest!

ISD Marketing, North American publishers of Calamus and the powerful vector-graphic illustration package, Outline Art, are teaming up with Atari Explorer to sponsor the Second Annual Outline Art Creativity Contest! Five winners will be chosen among entries received by ISD between now and November 30, 1991. Prizes include $1,500.00 worth of AGFA Compugraphic fonts for use with Calamus or Outline Art; Calamus SL, the "new and improved" version of DMC's Calamus DTP package; subscriptions to Atari Explorer, and more! Safari, MS Design, and Cherry Fonts will also offer prizes! But even that's not all: the winning graphics, selected by a panel of graphic-arts experts from ISD and Atari Explorer, will be published in an upcoming issue!

Last year's contest was a big success, drawing thousands of entries from amateur and professional Outline Art users. Because Outline Art is such a powerful and flexible system, numerous styles of entry were submitted. Winning entries ranged from precise mechanical drawings, to classic cartoon illustration, to high-tech logotypes! Check out the winners on the next few pages, then get your copy of Outline Art in gear, and see if you have what it takes!

Robert Gillies' whimsical "Jitney" was 1st Prize Winner in ISD's 1990 Outline Art Contest.

All About Outline Art

Outline Art is a stand-alone drawing package, compatible with the Calamus desktop publishing system, that facilitates the creation of object-oriented vector graphics. The term "object-oriented" means that an Outline Art graphic is composed from various elements or *objects*, ranging from basic geometric forms, to freehand outlines, to scanned and converted line-art, all of which can be manipulated (e.g., resized, rotated, flipped, etc.) independently of one another. Because the objects making up an Outline Art drawing are all independent, it's easy to alter various components of a picture to suit your needs, or your aesthetics, opening the door to enhanced creativity!

The term "vector graphics" is a little harder to explain, but just as important. Many ST drawing packages (Degas Elite is a good example) create and save pictures in "bitmap" form, recording the actual pattern of screen dots that comprise the image at a particular resolution. Because the appearance of a bitmap image is tied to the size and number of dots that make it up, bitmaps can't easily be enlarged or reduced. When a bitmap picture is enlarged, it becomes more jagged and "blocky." When reduced, information is lost, so that if the reduced image is enlarged again, the resulting picture is coarser than the original.

"Vector graphic" systems, such as Outline Art, overcome this problem by recording images in a more abstract form that is not directly tied to display resolution. Data for an Outline Art graphic is actually a mathematical description of the line segments and simple curves (vectors) making up the graphic's outline, along with raster percentage information describing the density of filled sections of the drawing. Because it is not tied to specific display resolution or other characteristics, a vector image can be reduced with no loss of information or enlarged without becoming "jaggy."

Produced by Ditek (the same people who wrote Calamus), Outline Art can output graphics in .CVG (Calamus Vector Graphic) format. These graphics can thus be imported freely into Calamus, for use in document design. Since one of Outline Art's most well-developed features is its ability to handle text (any Calamus font can be accessed to generate textual contents in an Outline Art graphic), there is a high degree of cooperation between the two programs. Ditek has maximally exploited the relationship between Calamus and Outline Art by making Outline Art's user interface

Prizes!

1st Prize: $1,500.00 worth of AGFA Compugraphic fonts for use in either Calamus or Outline Art.

d Condensed Itali
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2nd Prize: Calamus SL

CALAMUS SL

3rd, 4th and 5th Prizes: $100 connect time credit, to be applied to your CompuServe, GEnie, or Delphi account.

CompuServe GEnie

In addition to the above prizes, ten entrants receiving Honorable Mention will receive a free, one-year subscription to Atari Explorer Magazine (or an extension of an existing subscription, as appropriate)!

ATARI EXPLORER

Joey Sherman's eerie "The Gunth" took 2nd Prize in the 1990 Contest.

similar to that of Calamus in most respects.

Outline Art's special features include the ability to generate a virtually infinite range of halftones; to rotate text in minute increments; and to run text, halftone sections, and other objects around complex control paths, generated by hand, or algorithmically with Outline Art's built-in calculator. The calculator offers hard-wired functions for a range of transformations and basic geometric forms (conic solids, spheres, etc.), and additional functions can be programmed and saved, as required. The combination of control paths and calculated mapping gives Outline Art much of the illustrative power of a Computer-Aided 3-D Drafting package, and offers great freedom in designing logotypes and other singular graphics that "pop off the page." The current revision of ISD's DynaCADD, a full-fledged 3-D drafting package, can accept files generated by Outline Art and use them for further processing, printing, and output to plotters, sign-making apparatus, etc. ●

Contest Rules

1. The ISD Marketing, Inc. Outline Art Contest is a skill-based contest, open to any properly-registered owner of Outline Art, published by Ditek International. If you have not registered your copy of Outline Art, it is important that your entry be accompanied by a properly-filled-in registration card.

2. Employees of CompuServe, GEnie, DELPHI, ISD Marketing, Inc., Ditek International, DMC, Atari Explorer, Atari Corp. and all Atari Subsidiaries, SysOps, GameOps, their affiliates, subsidiaries, advertising agencies, and immediate families are ineligible to win prizes.

3. This contest is subject to all local, state/-provincial and federal regulations and is void where prohibited by law. All taxes are the sole responsibility of the winners.

4. From August 20, 1991 at 12:01 AM EST to November 30, 1991, 11:59 EST persons who meet the above eligibility requirements can enter the contest.

5. Entries may be submitted on disk by mail to:

ISD Marketing, Inc.
P.O. Box 3070
Markham Industrial Park
Markham, Ontario
Canada L3R 6G4

Mailed entries must be postmarked no later than November 30, 1991, and must be received by ISD no later than December 15, 1991 to qualify for entry.

Alternatively, entries may be uploaded to ISD at one of the following Email addresses:

CompuServe: 76004,2246
Delphi: ISDMARKETING
GEnie: ISD

Entries will not be accepted by courier. Use only regular or electronic mail. Only entries properly sent to ISD within the time-frame indicated above will be eligible for consideration. Do not send entries to Atari Explorer Magazine.

6. Winners will be selected by the following panel of judges: Geoffrey Earle, General Manager of Atari (Canada) Corp., John Jainschigg (Publisher/Editor) and Marc Needleman (Art Director) of Atari Explorer Magazine, and Mario Georgiou (Graphic Artist) of ISD Marketing, Inc.

7. The decision of the judges is final and not reviewable by any other person, agency, or tribunal. Winners will be notified by CompuServe, Delphi, or GEnie Email and/or regular mail on or about December 31, 1991, and their names will be published online in the Atari Forums on CompuServe and Delphi, the Atari RT on GEnie and in Atari Explorer Magazine, along with their winning submission.

8. This contest may be publicized outside those venues indicated above. No prize may be ex-

Outline Art

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Summary: Powerful vector-graphic design package, compatible with Calamus and other software

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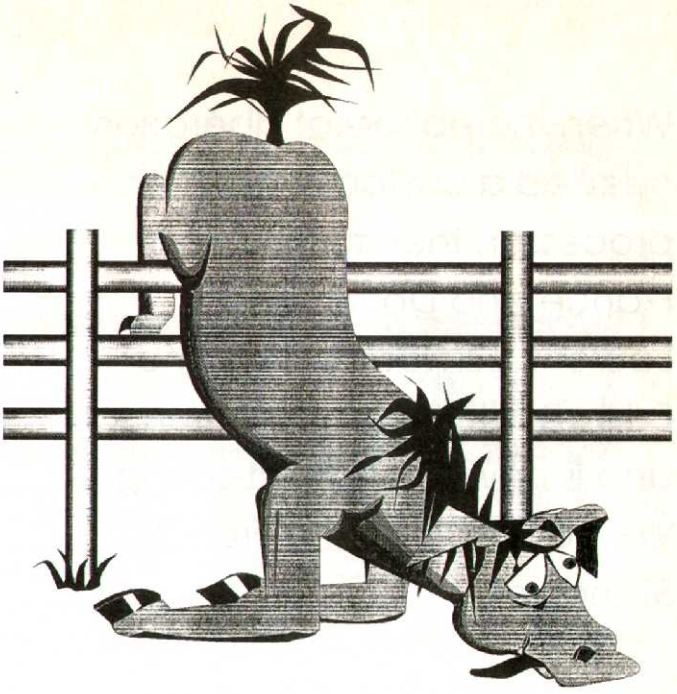
ISD Marketing, Inc.
2651 John Street, Unit #3
Markham, Ontario
Canada L3R 2W5
(416) 479-1991

Price: $289.95 (U.S.) (Includes CONVERT2X, Calamus vector-graphic (.CVG) to Encapsulated PostScript (.EPS) converter.)



3rd Prize in 1990 was won by Teresa McMahon, for "Friday," an example of traditional cartoon illustration with a 3-D twist.

changed, substituted, modified, or redeemed for cash. Prizes are not transferable. Prizes won by entrants under the age of 18 will be awarded to the winner's parent or legal guardian. All prizes will be awarded and mailed to the winner's address contained in their Outline Art Registration form. By acceptance of their prizes, winners consent to publication of their names, likenesses, and/or User ID without further compensation for advertising or promotional purposes. Prizes not claimed after 21 days of the day of notification, for any reason whatsoever, will be forfeited. Prize winners may be required to execute an affidavit of eligibility and publicity release within 21 days of notification. Non-compliance within this time period will result in disqualification and an alternate winner will be selected if possible.

Dave Webber's "First Night" took 4th Prize, a simple and elegant example of logotype design.

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EURONEWS

Le Rédacteur V3.

Word Processing, The French Way

When the editors at Libération needed a custom word processor, they turned Atari France and Dominique Laurent. *Le Rédacteur* ("The Editor") later went commercial, and is now the hottest-selling WP package on the French ST market.

By John B. Jainschigg

With over 250,000 daily readers, Journal Libération is one of the largest newspapers in Paris, cornerstone of a cooperative with globe-spanning interests in print and interactive media. Hip, commercially and politically savvy, Libè has a reputation for staying on the leading edge of technology. The paper is also known to cooperate well with high-tech firms that can supply the expertise to help it reach its goals. Quick to grasp the significance of videotext, Libération was among the first to promote interactive information services on the French national telecommunications network (Minitèl). *La Messagerie Libération* ("BBS Liberation"), developed in conjunction with the system-programming house CTL Telematique, now clocks several thousand user-hours per month, at about 50 FF per hour (about $10), and has spawned a horde of imitators, worldwide.

So when Libération's editors decided, several years ago, that they were sick and tired of slow, hard-to-use, expensive word processing solutions from Apple and IBM, they went to Atari France and to the programmer Dominique Laurent. And they said: "Make us a word-processor that editors can use. Make it fast, because we always write on deadline. Make it secure, because we write for a living and can't afford to lose text. Make it compatible with existing word processors, because our freelancers and correspondents use all sorts of different packages. Give us special features like text-analysis, but no silly extras. And please, please optimize the thing for the production of *French* prose!"

Et voila! *Le Rédacteur* was born. Libè broke in the first version of the program by putting it on the desks of more than eighty editors, polling to see what features were being underutilized, which others had to be enhanced. (These days, according to Henry Tsao of Libération's information-processing division, the newspaper has upwards of 150 Atari ST and TT workstations installed.)

Simultaneously, beyond the walls of Libération, a group of 50 ST users were being polled to learn what

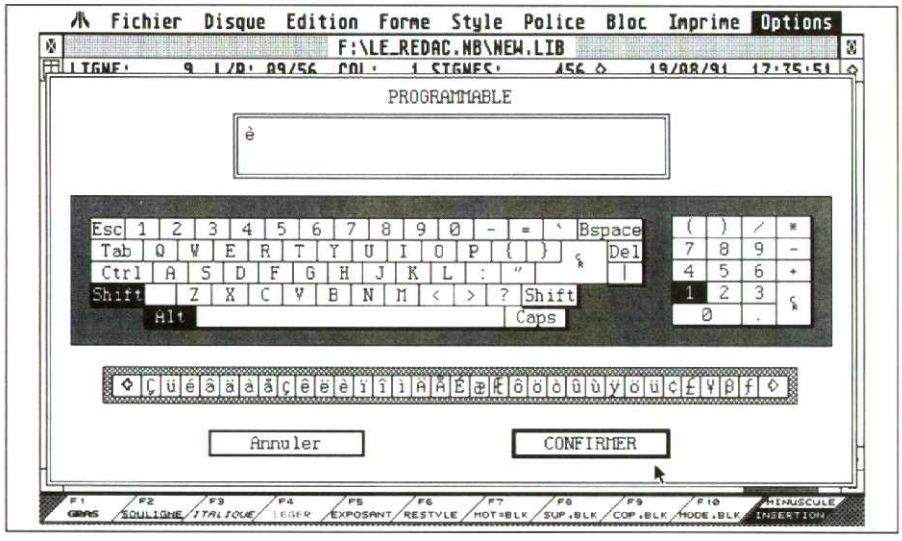

Figure 1. *Le Rédacteur's* keyboard-redefinition dialogue is fully interactive.

they wanted in a general-purpose word processing package. Beyond what M. Tsao calls "le noyeau" — the kernel of the text-editor — civilians wanted features like fonts and multiple printer drivers. The present version of *Le Rédacteur* (version III, distributed by Logisoft of Toulouse, though earlier versions were distributed by Atari France as well) is thus very much a democratic product. And as a result of this practical and painstaking development process, *Le Rédacteur* is now the best-selling ST word processor in France, winning kudos from magazines and users from the halls of *Quai d'Orsay* to the shores of *Normandie*.

C'est Comment, Alors?

Le Rédacteur is distinctly French, and nowhere is this more clearly evident than in the introduction to its user manual. Begun with a provocative quotation from Roland Barthes' "Writing: Degree Zero," the programmers commence as follows: "In principle, the authors should take this opportunity to thank you for having purchased this program or pump up all the great features of this nth-generation word processing package ... but the fact is," they continue, "this program actually suffers from several defects." Among the "defects" they enumerate: "Developed by the French, the program will never be available to foreigners, *except in translation*. As a word processor, it will not function as a graphics package or flight-simulator. Its speed is such that it's impossible to drink a cup of coffee while doing a search-and-replace or saving a file." And finally, my favorite "defect": "Developed for the ST, mostly in 68000 assembler, it can't be used on a PC compatible."

Tongue-in-cheek, *naturellement*. But if you read between the lines, you quickly see that French ST users are much like their American counterparts: proud, sure of what they want, intolerant of low-tech and slow-tech, and fiercely loyal to their machines. And the software itself is similarly no-nonsense. *Le Rédacteur* is a powerful and comprehensive package that concentrates on filling the special niche for which it was designed.

Le Rédacteur comes on two diskettes — mono and color versions — and features a GEM-based INSTALL program that gets it on your hard disk in a hurry, building a system of directories to contain fonts, the printer module, and the editor itself. The program can also run conveniently from floppy, though a two-drive system is preferable, since printing, reconfiguration, and other functions necessitate periodic access to the working disk.

Rédacteur's editing module, REDIGER.PRG, starts up in a manner superficially reminiscent of 1st Word. Like that most venerable of ST word processors, REDIGER asks for a filename before opening a document window. Behind that window, the application's desktop features a "special character" box for entering characters that can't conveniently be accessed from the ST's keyboard. At the bottom of the screen, a line of buttons, corresponding to function keys, provide point-and-click access to major program features.

Le Clavièr

Le Rédacteur supports a simple scheme for the production of accented characters from its default keyboard configuration, but also permits extensive re-mapping of its keyboard to allow users to enter these characters directly, in a manner they prefer. Unlike, for example, WordPerfect's mapping scheme, which allows users to assign a special character to a CTRL-key or ALT-key combination, *Le Rédacteur* goes a step further, exploiting the ST's intelligent keyboard architecture to let the user assign single characters to any key pressed with CTRL, ALT, SHIFT-CTRL, or SHIFT-ALT. This provides a sufficient number of permutations to handle regular accented characters in reasonable ways. Assigning keyboard equivalents is accomplished by means of a graphic dialog box that employs an interactive picture of the ST keyboard (see Figure 1).

Rédacteur's keyboard redefinition feature treats regular key assignments as unreconfigurable, even though the table-driven ST keyboard is, in fact, completely reconfigurable in software. The decision to do so is a reasonable one, since changing basic key-code associations is something that should probably be done systemwide, rather than under the control of an applica-

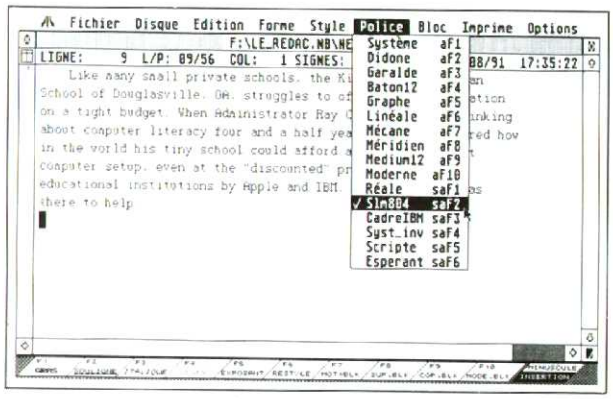

Figure 2. Fonts are selected from a convenient pull-down menu, or by associated keyboard commands.

tion. Still, I can imagine one feature the designers of Rédacteur might consider adding: the ability to reconfigure a QWERTY ST keyboard to French AZERTY or the reverse.

Les Polices

Le Rédacteur features 19 program-specific fonts that can be given a subset of the normal range of ST attributes (bold, italic, underlined, ghosted), though fonts cannot be resized. In addition, *Le Rédacteur* supports six variations of interlinear spacing, from 12 to 32 points, plus such attributes as justification (on full-text or paragraph level), pagination, and hyphenation. The design of the fonts is quite good, emphasizing legibility, and font-file size is quite small by comparison with, for example, GDOS.

Font-selection is carried out from a menu or by SHIFT-key menu-item equivalents (see Figure 2), rather than from the scrolling dialog box favored by more font-intensive word processors such as MicroSoft Write. Rédacteur's font-handling system is convenient for users who desire to employ fonts primarily to spice up a document, though it will disappoint those who seek point-size flexibility and typeface variety.

Le Rédacteur comes with GDOS, plus a collection of GDOS fonts and drivers for five popular printers (Atari SLM804, Epson FX80, etc.). Regular printer drivers are also supplied for a wide variety of hardware.

Comment le Saisie?

So far, so good — though basically a yawn for American ST owners accustomed to MicroSoft Write, Wordflair, or other WP packages that do WYSIWYG in

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860 Go Up: Lode Runner clone (M)
138 Grand Prix **2.1** car racing (C)
884 Hollywood Squares TV show (C)
142 HRS: Adult graphic adventure (1CD)
895 Mini-Golf & Shanghai clone (M)
859 Mystic Mirror: 2 player Dung. Master (C)
985 Name this Tune + 100 tunes (CJ)
139 Nude shoot 'em up (1C)
133 Nude strategy games (C)
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1141 Scramble cave arcade clone (C) **NEW!**
1000 Skate Tribe: best action/grafix in PD (CJ)
880 Sorry! Excellent board game (C)
155 Strip Breakout (C)
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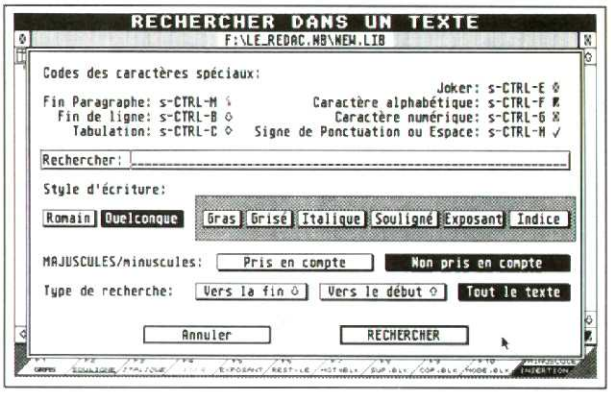
Figure 3. *Le Rédacteur's* search-and-replace feature is exceptionally flexible and powerful. It supports wild-card expressions, and allows searching for attributes.



a big way. But in eliminating the overhead that would be required for a more powerful visual front-end, the designers of *Le Rédacteur* were able to throw processing power behind the program's major features: speed of data-entry and editing, and overall capacity.

Le Rédacteur accepts and deletes text as fast as the most down-and-dirty, TOS-based, programmer's text-editor you've ever seen. At my own maximum typing speed of upwards of 120 words per minute, inserting text in the middle of a several-page-long document, I wasn't able to force the program to buffer even a single character. Nor was I able to pull appreciably ahead of Rédacteur's management of word-wrap, automatic reformatting, and all the other housework involved in keeping a full-fledged document in order. Scrolling, whether by GEM scroll-bar or under arrow-key control, is fast as lightning; backspacing so rapid that you must develop a light touch in order to avoid unintentional deletions.

Block-highlighting and manipulation, including copies and deletes, is similarly rapid. The search-and-replace feature is exceptionally well-developed, offering the opportunity to search by word or phrase, employ special characters and wildcards ('jokers') in search criteria, perform case-sensitive and non-case-sensitive searches, and even include or ignore lines with certain combinations of attributes (see Figure 3). A high-powered macro facility is offered, that permits chaining of macros up to several hundred characters in length. The overall editing environment supports up to four open documents, simultaneously, and permits cut-and-paste editing between them. Document size is limited only by available memory, and the manual

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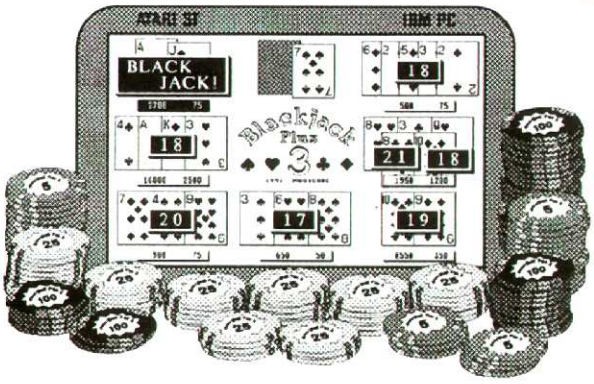

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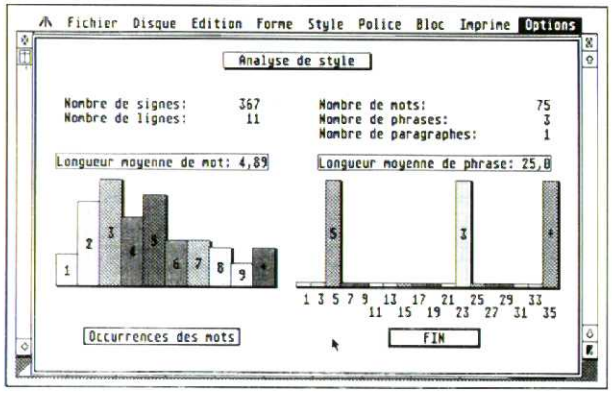


Figure 4. The text-analysis feature provides an instant histogram of word and sentence lengths.

states that a Mega ST4 running *Le Rédacteur* can handle a document up to 1,000 pages long.

As a result of these well-implemented standard features, *Le Rédacteur* is a pleasant and productive environment to work in — ideal for those involved in the composition and editing of manuscript.

Et les Gadgets?

In keeping with its overall bent as an "editorial" word processor, *Le Rédacteur* offers convenience features such as the ability to format disks and create folders from within the application; security features such as periodic auto-save of the current document, and screen-save; plus a few really oddball and useful features — things I've never seen before (or have seldom seen) in American products.

A French ST Lexicon

Attribute: *Style*
Cancel: *Annuler*
Clipboard: *Presse-papiers*
Data-entry: *Saisie*
Dialog/Alert box: *Boite de dialogue, d'alerte*
Directory: *Dossier*
Disk drive: *Lecteur des disques*
File: *Fichier*
Font: *Police*
Hard disk: *Disque dur*
Keyboard: *Clavièr*
Monitor: *Moniteur*
Mouse: *Souris*
Okay: *Confirmer, Okay*
Printer: *Imprimante*
Program: *Logiciel*
Screen: *Ecràn*
Search and Replace: *Chercher et Remplacer*
Window: *Fenetre*
Word processing: *Traitement de texte*

Several of these special features make use of an indexing subsystem that works automatically as text is entered, assembling a hash-table of all the words in a document, along with their locations. Because this data is assembled in realtime, it is always current, and permits related features to operate "instantaneously." The indexing feature lets you generate, review in a window, and save an index for the current document. The "occurance-analysis" feature instantly shows you how many times each word in a document is used, and this information, too, may be saved to disk. Finally, a full text-analysis feature is available, which instantly provides you with figures for word count, sentence count, paragraph count, and histogram displays of average word and sentence length (see Figure 4). (I suspect, also, that the program's search-and-replace function may make use of the system hash-table — something which may account for its unearthly speed.)

Another of *Le Rédacteur's* unusual and useful features is the ability to selectively save cross-sections of a document, based on visible criteria. It is possible, for example, to save only the boldface lines in a document, or only the lines that begin with numbers. This can be impressively useful to editors who wish to embed text in outline form, use numbers to offset sections of a manuscript, or apply other regular frameworks to text in various stages of production.

Enfin?

The point of this article was to introduce American ST owners to a typical foreign ST product — to give them an idea of the similarities (and the interesting differences) between a product such as *Le Rédacteur* and American products in a similar vein. Those interested in *Le Rédacteur*, and other products by Logisoft, are encouraged to write to the company and request further information. American prices have been established for major products in Logisoft's line (*Le Rédacteur*, for example, is $95, suggested retail), and the company is actively seeking American distributors for a wide variety of software packages, including *Le Rédacteur*.

Until American versions are available, however, I can still recommend *Le Rédacteur* as an excellent basic word processor for academics, journalists, and translators — particularly, of course, those who work with French manuscript. •

For further information:

Logisoft
15, rue Belleville
31200 Toulouse
FRANCE

Atari Corp.
9, rue Sentou
92150 Suresnes
FRANCE

Multidesk, Lookit!, and Popit! Make ST computing easier and more productive

3 Utilities from Codehead

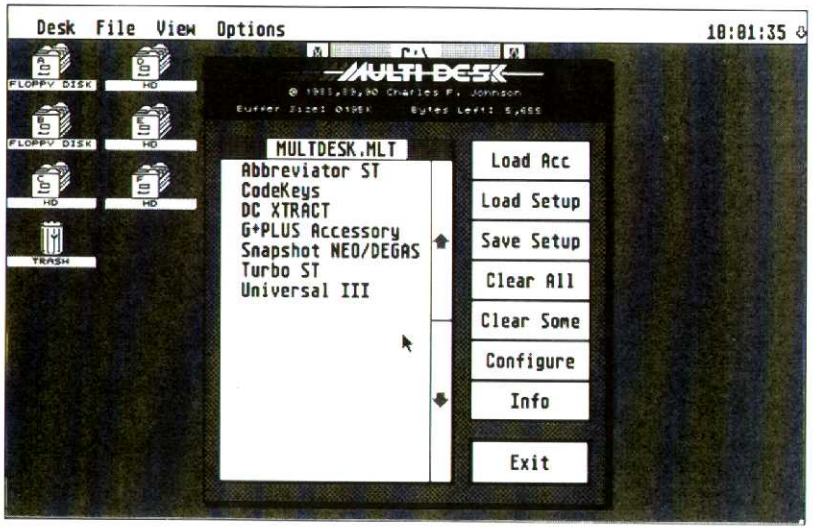
By Dave Plotkin

Multidesk

Codehead's Multidesk utility, recently upgraded to version 2.0 and now pending upgrade to version 3.0 (a.k.a. Multidesk Deluxe), is a powerful system for overcoming the six-desk-accessory limit imposed by the ST's GEM operating system. Multidesk lets you install as many desk accessory programs as memory allows, accessing them from a tiered system of menus. One mouse-click brings up Multidesk's menu of available accessories, and a second activates the accessory itself.

Multidesk also lets you unload, load, and activate accessories without rebooting! In fact, the primary improvement offered by version 2.0 is that removing and adding desk accessories is now much more flexible than before. Previously, to remove a desk accessory and free up buffer space to add others, you had to clear all the desk accessories loaded, then reload the ones you still wanted. Though still necessary, this procedure is automated in the new version. Just highlight the accessories you want to remove, and click on "Clear Some." Because accessories are still cleared and selectively reloaded, you must be careful to save any data associated with the accessories before executing this function. The manual is quite clear on this, and Multidesk also presents an alert box to warn you before executing the procedure.

Multidesk 2.0 tries to be memory efficient by letting you decide how much memory it is permitted to employ in storing desk accessories. In prior versions, expanding this buffer space involved — once again — unloading all accessories, enlarging the buffer, then reloading. In version 2.0, this procedure has been automated, in the same fashion as described above. Thus it is possible to add an accessory even when there is insufficient buffer space to do so, provided that before permitting Multidesk to clear memory, resize its buffer, and reload, you take the precaution of saving



The Multidesk dialog, from which you can select any loaded accessory or modify your setup.

Product: Multidesk 2.0

System: Any Atari ST or TT computer

Summary: Break the six-accessory limit with this powerful utility!

Manufacturer:
Codehead Software
P.O. Box 74090
Los Angeles, CA 90004
(213) 386-5735

Price: $29.95.

any data associated with the accessories currently active.

Itself an accessory, Multidesk loads from the root directory of your boot disk. A configuration file can also be saved to the root directory that defines your desired buffer size and names the accessories that Multidesk will load at boot time, along with the pathname of the directory in which they reside. Note that as a result, regular accessories may now be stored anywhere on your system!

Multidesk works well — that is, it appears to competently arbitrate the behavior of GEM with respect to desk accessories, while giving its clients access to the system facilities they require to function. This is no mean feat, and is clearly the result of some very impressive programming. The new version of Multidesk even cooperates with Codehead's Popit! to place DAs loaded under Multidesk under hotkey control! Multidesk Deluxe, expected in early September, further extends the program's capabilities by letting you distinguish between accessories that must be memory-resident, and those that need not be, keeping the latter on disk until required, then loading them individually (much in the same way Atari's Extended Control Panel handles non-resident CPX's). Since only one buffer need be maintained to support all non-resident accessories, and since most accessories can be treated as non-resident, this enhancement vastly increases Multidesk's overall capacity. Up to 96 accessories can reportedly be made accessible in this fashion. Price is expected to be around $44.95, and Codehead plans to offer upgrades to registered owners at a reduced rate.

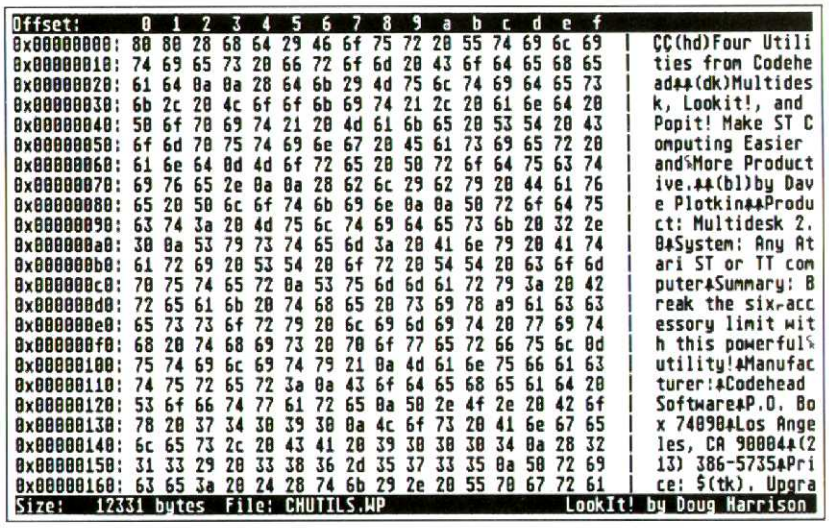
CODEHEAD SOFTWARE

Lookit! and Popit!

Just when it seems that you've got all the neat utilities you'll ever need, Codehead Software comes along to show you something else you can't live without. Written by newcomer Doug Harrison, Lookit! is a sophisticated file viewer/printer, while Popit! lets you summon any desk accessory (even those buried in Codehead's Multidesk) with a single keystroke. The utilities are sold together in a single package, and both have become fixtures of my machine.

Lookit!

Though described as a file viewing/printing utility, Lookit! is far more flexible and powerful than the desktop's SHOW/PRINT function. It can be in-



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Lookit lets you examine and change any file, in text or binary format. Here, this article is examined as a binary file.

stalled to replace that function, executing automatically whenever an uninstalled, non-executable file is double-clicked; though most people will probably elect to use Lookit! as a normal program. Lookit! has two screens: a menus-and-dialogs screen, used to configure the program; and a TOS-type screen for viewing files.

Menus and dialog boxes on the control screen are enhanced by what Codehead calls the "*Interlib* library." Though the interface can easily be driven with the mouse, keyboard equivalents have been implemented for all major menu and dialog-box functions. Dialog boxes are given certain new features, such as scrollable single-line text fields. And pathnames have been made dynamic: when using the File Selector, you can "back out" of the directory you're presently looking at by clicking on any parent directory in the path expression, including the root directory.

Using a file selector presented on the GEM secreen, Up to 32 files may be selected for sequential viewing. Once begun, the sequence can be continued with a single keypress, or be interrupted, modified, or canceled at any point.

Based on a file's extender, Lookit! will normally select one of its two display modes for viewing; though this default choice can easily be overridden, if desired. .DOC and .TXT files are normally displayed in "text" mode, something like the desktop's Show File feature; while .PRG and .ACC files are viewed in "binary" mode, which resembles a sector-editor display, the bytes in a file displayed as ASCII characters on the right and as hexadecimal numbers on the left.

In either mode, you can scroll through the file using the arrow keys or the mouse. Various CTRL- and SHIFT-key combinations can be used to change the scrolling speed or set the system to scroll screen-by-screen, rather than line-by-line. You can set up to 4 "bookmarks" in the file, and jump to any of them instantly using the number keys "1" through "4." You can also search for a word (with or without case-sensitivity) or a "regular expression." This last feature, which seems to be based on Unix's GREP utility, allows searching for an incredible variety of patterns. Using it effectively, however, demands mastering a fairly arcane syntax, and the expression-parser probably adds considerably to the size of the program (Lookit! is over 150K long). Ten "slots" are offered for entering often-used search strings and expressions, and this data may be saved separately and loaded automatically when Lookit! is executed.

Blocks of a file can be highlighted using function keys and the mouse, then printed or saved in a separate file. When the mouse is used to define a block, attempting to drag the mouse past the edge of the screen will cause the text to scroll automatically in that direction. Files can be edited in either mode, and the disk file updated after changes have been made.

Lookit! can be configured to meet the needs of almost any user. Printer options let you send escape codes before and after each file is printed, allowing you to control a wide variety of printer features including print density, lines per page, margins, headers, and other options. Screen options let you choose whether to use the 8 x 8 font in monochrome (for a 48-line display), set the scroll rate, and select display colors. While Lookit! normally uses a set of fast screen-display routines, you can elect to use the regular GEM routines instead, just in case you discover a conflict. Finally, you can tell Lookit! whether or not to set a file's archive bit or update its date/time stamp after changes have been made. Configuration files can be saved to disk and loaded as required, even in the middle of a session.

As noted above, Lookit! can be executed as a GEM .PRG or installed for automatic execution when you double-click on a non-installed, non-executable file. It can also work from a command line or from within a shell, accepting arguments that identify a configuration file and select print and viewing mode options.

I like Lookit! quite a bit. The program is solid, fast, and powerful. Still, I have one concern. Since Lookit! uses a separate, menu-less screen for file viewing, all commands for manipulating blocks, invoking search functions, etc., must be issued from the keyboard. Unless you use the program a lot, it's difficult to remember the commands. Redesigning the program to employ menus and mouse-controls throughout, or adding a Help facility, would be acceptable solutions for a future upgrade.

Just assign a hotkey combination, and Popit! lets you summon accessories with a keystroke!

Popit!

The second part of the package is the desk accessory Popit!, which does for desk accessories what Codehead's Hotwire did for programs. That is, it turns desk accessories into IBM "Terminate-stay-Resident" (TSR)-style "popup" programs. Further, Popit! works with Multidesk (Codehead's package that breaks the 6-accessory limit). This is especially important, because when a desk accessory is inside of Multidesk, it takes at least two menu-selects to get at it.

To use Popit!, simply copy it to the root directory of your boot disk. You SHOULD NOT put it inside Multidesk, as it will not work with Multidesk-installed accessories if you do. To configure Popit!, click on it from the Desk menu. It will appear with a list of all accessories that are currently active, including those "buried" inside Multidesk. Simply click on an accessory, then on the Assign button, and type the keys you want to use to activate the accessory. It's as simple as that.

The current set of key-combination/accessory assignments can be saved to a file, and Assign files can be loaded to reconfigure Popit! for different accessory configurations. The system reconfigures itself intelligently. When an Assign file is loaded, Popit! looks to see if each accessory it mentions is currently active. If so, the relevant hotkey combination is assigned. Otherwise, the file entry is ignored.

For this reason, you don't have to be paranoid that the Assign file you load is directly correlated to the accessories you currently have installed. In fact, Popit!'s merge-save feature, which optionally lets you merge current assignments into a growing master file for all accessories on your system, rather than saving them under a unique filename, actually encourages you to centralize your records. The only limitation is that Popit! has room for only 50 assignments, thus no Assign file may be allowed more than 50 entries. This should hardly be a problem for most people. In fact, even memorizing 50 hotkey-combinations seems like a daunting task. Luckily, Popit! can print out the current list of hotkey-accessory assignments, as an aid to memory.

One thing you need to avoid with Popit! is assigning the same keys to accessories as are used to activate features of your application programs. Since Popit! is active all the time (unless you turn it off) and grabs your keystrokes *before* an application gets a chance to see them, being careless about this can effectively cut you off from important features of your software. Luckily, Popit! interprets key assignments by reference to the physical scancode of the key pressed, rather than the ASCII code of the character it represents (e.g., the number "1" on the main keyboard and the "1" key on the numeric keypad are considered two different keys by Popit!). Thus in most cases, you should be able to find combinations for Popit! that your application doesn't need.

A promised upgrade to Popit!, available late this year, extends the number of accessories that can be installed for hotkey activation. Compatible with the upcoming Multidesk Deluxe, Popit 3.0 will even have the ability to elicit one-key "load and go" of Multidesk MDX (non-resident) accessory programs! No price for the upgrade has yet been set. •

Product: Lookit! and Popit!

System: Any ST or TT computer

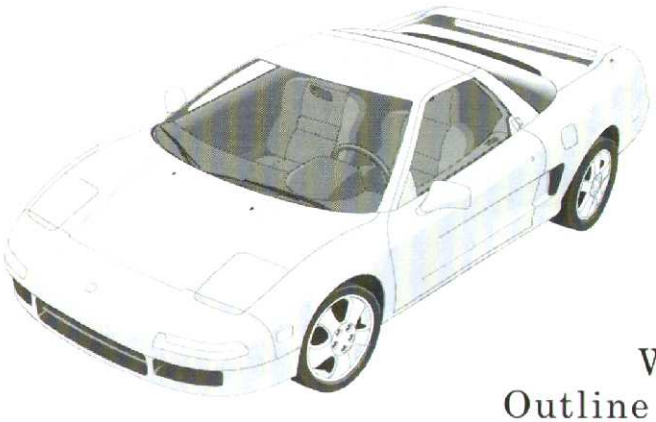
Summary: A pair of "must-have" utilities: one a super text or binary file-viewer, the other a utility that puts your DA's under hotkey control.

Manufacturer:
Codehead Software
P.O. Box 74090
Los Angeles, CA 90004
(213) 386-5735

Price: $39.95

DMC

OUTLINE ART



Coming & going

CIRCULAR TEXT

Peeling

Inverse

Twisti--a TEXT

Mirrored

Metallic

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Fax: (416) 479-1882
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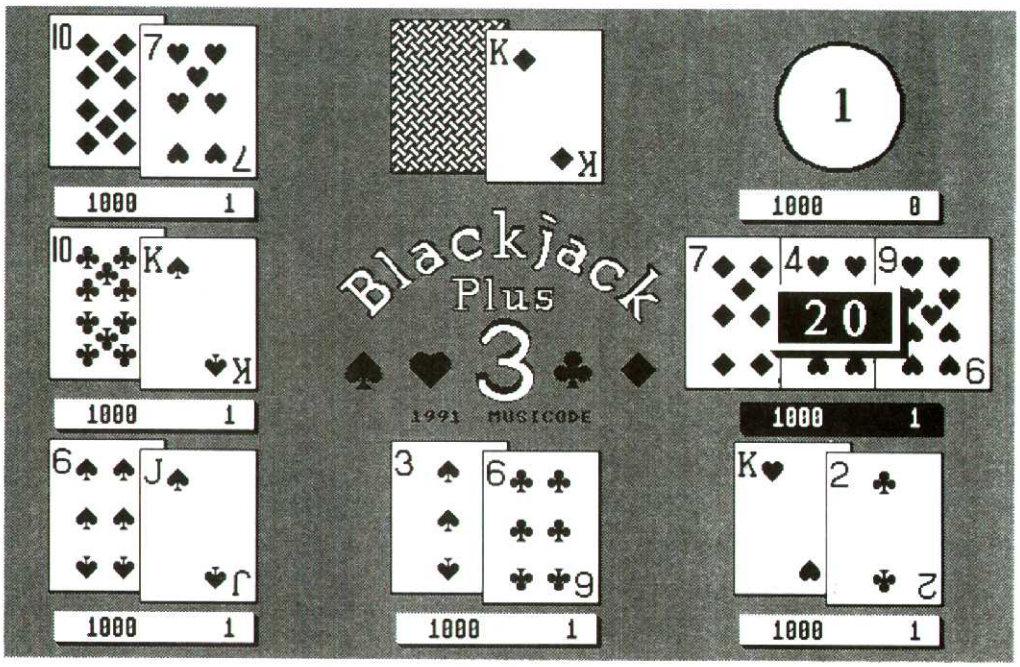
ST GAMES

Blackjack Plus 3



There are two ways to play Blackjack. The first is to count cards, using one of a variety of statistical approaches guaranteeing that, all other things being equal, you'll end your days living in a trailer park outside Reno. The other way is to put on a really well-tailored Armani tuxedo, knock back a couple of Stolichnaya martinis ("shaken, not stirred"), and play from the gut. This second method doesn't guarantee anything, of course — but if you wanted guarantees, Mr. Bond, you'd never have joined the British Secret Service.

Blackjack Plus 3, new from Musicode, most thoroughly supports the prior method(s), favored by those who want to make a living at the game. The program supports from one to seven player positions, including the dealer. Each position may be set to one of four modes: manual, auto, feedback, and background. Setting a position to "manual" allows you to play that position deliberately, whereas positions set to "auto" are controlled by the computer, playing according to whatever strategy you assign them.

"Feedback" mode, a combination of manual and automatic play, allows you to control a position while the computer "watches over your shoulder"; warning you when you deviate from a pre-assigned strategy. This is amazingly useful when mastering different approaches to card-counting, etc., since it gives you something against which to model your play. Finally, "background" mode plays automatically, but at the full speed of the computer; allowing you to generate statistics to compare various strategies over thousands of hands. Full logging (to disk) and statistical review features are supported, permitting the recording and leisurely review of any series of hands.

Sounds serious? You ain't heard the half of it, yet. Almost needless to say, BJP3 supports all the normal casino play options (stand, hit, double down, split, and surrender). It gives you complete control over house rules, including variations such as "double down after split." Up to 9 decks of cards can be used in play, and the percentage of cards that will be dealt from each deck (or shoe of decks) may be arbitrarily assigned. Even game speed may be modified. Using these features, it's possible to mimic the conditions at almost any table.

But that's not all! Blackjack Plus 3 offers some-

thing I've never seen before in any Blackjack game: fully programmable strategies! Strategies (7 non-counting default strategies are provided, as starting points) are entered using a simple table setup that lets you specify player action given any combination of dealer's "up" card and the current total of cards in the player's hand. Additional parameters let you specify whether your simulated player will take insurance, and define his unit and maximum bets. An equation field even lets you specify a win/lose betting strategy, combining one of five determinants with one of five bet-calculation options.

Finally, for the real aficionados, eleven counting methods are supported. However, the program does not include a "default" table of player actions for each method. Instead, the authors prefer that you input specific strategies yourself, drawing upon one of several suggested reference books for full explanations. To oversimplify, then, to define a card-counting strategy you select a counting method, then a basic table of player actions, and an alternative table for use in favorable circumstances, as determined by the count. Count-based betting strategies may also be more or less freely defined. The authors seem certain that any imaginable counting system can be fairly duplicated, using the provided tools. If not, the manual says, please call them and they will consider creating options for it in a later version of the program (and giving you a free upgrade, into the bargain!)

What with all these parameters and such-like, you'd think that Blackjack Plus 3 would be difficult to play. In fact, nothing could be further from the truth. The game can be controlled by mouse, joystick, or keyboard, though keyboard seems most efficient. Control is entirely graphic, employing an easy-to-understand set of screens to define dealer, house, and player characteristics. Actual play is very straightforward: the cards dealt to each active position are displayed graphically (except when the position is set to "background" mode). Thereafter, a larger window pops up to detail (or allow control of) each player's actions, in turn. Once you understand the controls, setting up a game takes no time at all!

Additional convenience features round out the mix. To describe a few: The system allows you to flag a pause between hands, to alter play parameters. It remembers player stakes and last bets between sets of hands, allowing you to extend a game without re-inputting data. When running a set of hands in "background" mode, a "thermometer bar" is displayed to show progress of play. All in all, the programming is careful and expert.

The 23-page manual is fairly well-written and clearly put together, though serious students of Vingt-et-un should also acquire one of the suggested standard texts for additional information on strategy. Blackjack Plus 3 is not copy-protected and may be copied freely to hard disk. Instead, the program employs a piracy-protection scheme that requires the player to enter a word from the manual at startup.

Seven default strategies are provided as starting points and may be fully programmed using a simple table setup

Also offered by Musicode is a "basic" version of Blackjack Plus 3, which features preset single and multi-deck basic strategies, and lacks logging and save setup features. Personally, I'd spring for the more expensive version, since the programmable strategies and statistical logging features truly make this game unique; though people who don't share my ambition of eventually beating James Bond at the game may wish to consider the low-priced model, without all the options.

Blackjack Plus 3

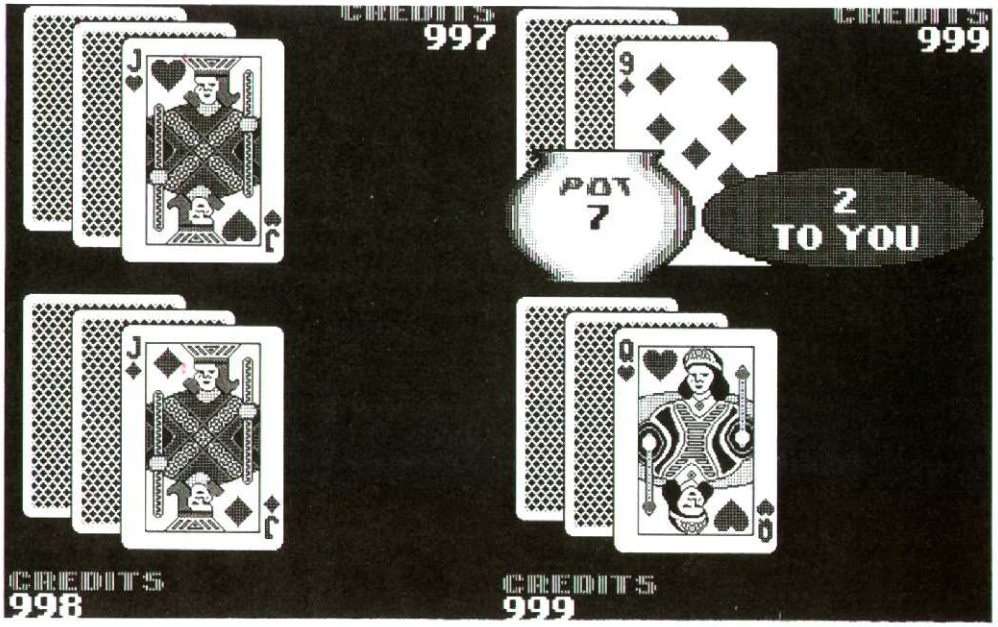
System: Any Atari ST Computer

Summary: Serious Blackjack, but fun!

Suggested Retail Price:
$89.95 (Basic version, $39.95)
Direct Orders Only:
$49.95 (Basic version, $23.95)

Manufacturer:
Musicode, Inc.
5575 Baltimore Drive, Suite 105-127
La Mesa, CA 91942
(619) 469-7194

Home Casino Poker, Etc.



One of the most challenging aspects of creating a computer-simulated game is to take as many of the elements of the actual experience as possible and translate them to "computer screen" reality. As the choice of casino-style card games for the ST reaches a healthy variety in both the commercial and public domain quarters, it's no longer novel to play a few simple hands in the comfort of your own home (computer). These days, passable graphics and cutesy music just don't cut

You can play against the computer, up to five other live players, or a combination of the two

it. Today's players have come to expect the same options and choices an actual casino would offer them. And this is one card game package that delivers in spades!

Home Casino Poker, Etc. gives you a choice of Blackjack, Five or Seven Card Stud, or Draw Poker in one program, and lets you play against the computer, up to five other live players, or a combination of the two. Use the mouse and/or joystick (or 2 joysticks) in addition to a cleverly-split keyboard of 4 seperate"keypad" zones, one for each player. To help everybody keep track of their function buttons, six oversized playing cards outlining the mouse/joystick movements and designated keys for each player are included. This neatly eliminates the need to continually pass around an eventually dog-eared manual.

The program runs in both monochrome and color. Authentic options within each game, such as user-programmable betting limits (optionally savable to disk) user-definable minimum pairs and payoff amounts, along with a few more fanciful choices (like jokers & deuces wild), increase variety. At the same time, some great playing-card and menu graphics, will certainly keep you from feeling played out. Choose from 9 different patterns on the backs of your decks and even — when running the program in low resolution — choose the colors assigned to each player. These are just a few of the many extra touches that make this program a winning hand. •

Home Casino Poker, Etc.

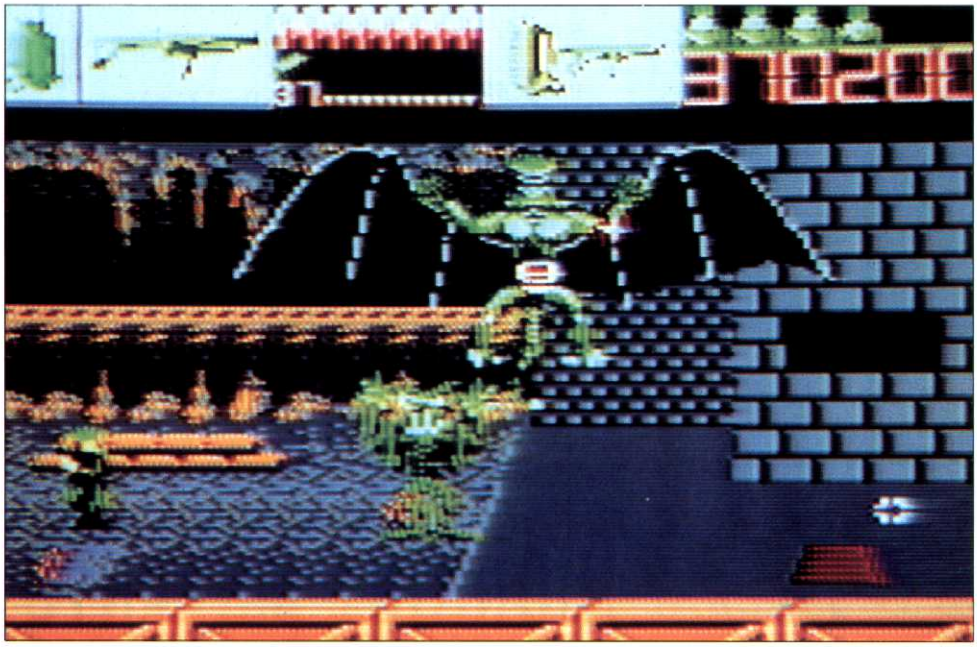
System: Atari ST, STe, TT

Summary: Draw Poker, Stud Poker, and Blackjack for home casino fun

Manufacturer:
Dubl Dubl Funware
4533 S.E. 85th Ave.
Portland, OR 97266
(503) 771-7833

Price: $34.95

7800 GAMES



ALIEN BRIGADE

Maniacs who might have lamented the recent thaw in the Cold War and improvements in international relations will undoubtedly welcome Alien Brigade, released late last year for the Atari 7800. In Alien Brigade, extra-terrestrials have suborned mercenaries and conventional arms, and hurl them with profligacy against your fixed position. You respond in kind, secure in the knowledge that —heck, these are aliens. It's still politically-correct to blast 'em!

Your joystick is a complex target-acquisition device that can lock onto and destroy the aggressor. An awesome array of hardware and ammunition is at your disposal, and the screen continually displays your "stores list." Still, once your munitions run out, that's it —the old re-supply chopper won't be arriving at your hot LZ anytime during this game.

This given, as sole defender, your job is to make every shot count. You can choose the primary weapon systems that you wish to employ in your defense. Targets, from pod-person mercenary soldiers to green-faced alien overlords, pop up from trenches and are continually in motion, so you have to be both fast and accurate to survive each attacking wave.

Graphics in Alien Brigade are quite good, and though the game is very difficult to play at first, your reflexes will sharpen over time. The odd scenario adds spice to what is essentially a good old, classic shoot 'em up. So dust off that M-16, and join the fray!

Alien Brigade

System: Atari 7800

Summary: Rambo meets Predator. Need we say more?

Manufacturer:
Atari Corp.
1196 Borregas Avenue
Sunnyvale, CA 94089

Price: $29.99

7800 GAMES

BASKETBRAWL

Basketbrawl

System: Atari 7800

Summary: B-Ball for Nasty Boyz!

Manufacturer:
Atari Corp.
1196 Borregas Avenue
Sunnyvale, CA 94089

Price: $29.99

Don't expect any fouls to be called in this Atari 7800 version of a tough, pick-up game of Hoop played on an inner-city schoolyard court. There are no referees in this game, and the players are roughnecks with names like Slasher and Bruiser ... boyz n' da hood who didn't learn their manners at boarding school.

Basketbrawl has the same objectives as any basketball game: scoring points; though here, the ends justify the means. Play against the computer, with or against a friend, at one of three levels of difficulty. You can choose to be one of six pugnacious players, and as you'd expect, each of the characters is true to his nickname in the heat of competition. A total of four players is on court at any one time, and anything goes. Make some impressive slam-dunks, lay-ups, and long shots. And endure the brutality of your opponents (who aren't interested in how they look on instant replay).

Basketbrawl has the same objectives as any basketball game: scoring points; though here, the ends justify the means

Graphics in Basketbrawl are fair, though joystick action is a bit stiff, and there are times you might feel frustrated at not being able to respond quickly enough to the antics of an unruly opponent. Still, though Basketbrawl may be no substitute for the real thing, in the absence of a good schoolyard court, it's a great way for a couple of guys to get out some aggression without needing liniment and an icepack!

MIDNIGHT MUTANTS

A classic Halloween nightmare, Midnight Mutants may do for the Atari 7800 what Night of the Living Dead did for the silver scream. The sinister return of Dr. Evil, burned as a witch in 1747, has placed you in a life-or-death struggle with his minions: bats, werewolves, and the fearsome Undead Zombies.

Luckily, you're not completely alone. Your

clever grandfather, though trapped by the wicked Dr. Evil in a plasmic pumpkin, is available at the touch of a button to advise you on your next move. Your task is to maneuver through a nightmarish world in order to free your grandfather, while confronting creatures determined to cheapen the purity of your blood. And unless you can find the right defense at the right time, every encounter with the monsters will do just that.

Mutants is a fast-action game that affords you the excitement of a horror novel. You start with a pure blood supply, and innocently and courageously proceed on your quest. Savage, mindless, and ruthless attacks are

A classic Halloween nightmare, Midnight Mutants may do for the Atari 7800 what Night of the Living Dead did for the silver scream

perpetrated against you by macabre creatures whose only goal is to end your quest by putting an end to you. Grandfather's advice is always helpful, but the success of your venture depends mostly on your skills with the joystick. As you fight off the weakness engendered by your increasingly-adulterated blood supply, new and unexpected threats await you at ever turn.

The graphics in this game are exceptionally good. Color, imagery, and sound effects heighten its intensity. Though fine for solo play, Midnight Mutants might be just the thing to set the mood for a Fright Night party, especially around Halloween!

Midnight Mutants

System: Atari 7800

Summary: A classic Halloween blood-fest! 'Scuse me, young man ... Is this the Transylvania station?

Manufacturer:
Atari Corp.
1196 Borregas Avenue
Sunnyvale, CA 94089

Price: $29.99

MOTOR PSYCHO

Hang onto your handlebars! In Motor Psycho, you'll be riding your broke at breakneck speed as you race against time, simultaneously contending with the other 'psychos' on the track, intent on making a better showing than you.

Motor Psycho is a finely-tuned racing cycle simulator. The turns are treacherous, and each touch of

Check out features such as the jumping action, which lets you leap over a sign or avoid an imminent crash

the joystick leans the bike precariously through those turns. The realism of the game is enhanced by such details as soft shoulders that slow you down if you go off the track. In fact, leaving the track can be lethal. If you hit a road sign, you and the bike explode in a fiery crash which is magnified if another unlucky biker inadvertently skids into the inferno.

The terrain of each of four tracks is graphically well-presented, with good detail. Each track offers a different level of difficulty from which to select your challenge, determined by what kind of dangerous curves you can expect to encounter and how often they occur.

Check out features such as the jumping action, which lets you leap over a sign or avoid an imminent crash. The action is fast, and the joystick is surprisingly

sensitive. It's a big improvement over a similar racing game, Pole Position II.

The realistic sense of leaning around curves maintains a high level of excitement, which makes the invitation to keep on beating your own record hard to resist.

Motor Psycho

System: Atari 7800

Summary: Racing cycle simulator with thrills and spills galore!

Manufacturer:
Atari Corp.
1196 Borregas Avenue
Sunnyvale, CA 94089

Price: $29.99

NINJA GOLF

No day of frustration and challenge on the links could ever hope to match the obstacles you encounter during nine holes of Ninja Golf, now available for Kung-fu duffers on the 7800. This cliff-hanger keeps you wondering what's next, as you fight for life and honor on this deadly course.

No sooner have you teed off than you are set upon by Ninja warriors, one after another (at first). Dispatching them neatly with a few liver-kites, you reach your ball and try to take another swing. But malevolent monster frogs appear from nowhere, and again, it's kill or be killed. As if that weren't enough to spoil an otherwise perfect day on the greens, malicious gophers pop up from the earth, launching divots at your groin. These blows sap your strength, unless you can fend off your

High-quality graphics enhance the intensity of gameplay, surrounding crazy Kung-fu action with the cool elegance of a country club

enemies long enough to pick up some defenses, thus buying time to continue making your shots.

Each hole brings it own challenges, increasingly difficult to overcome. By the time you reach the second fairway, your opponents have multiplied, and the gophers have become cobras. Sharks attack you in the water-traps. And a fire-breathing dragon hurls fireballs at you, just before you reach each green. Your only defense is some fast side-stepping, and a barrage of throwing stars.

High-quality graphics enhance the intensity of gameplay, surrounding crazy Kung-fu action with the cool elegance of a country club. An inset box shows the position of your ball on the current hole at all times, aiding navigation. So check your clubs ("Let's see ... putter, driver, bokken, tonfa ...") and tee off for non-stop surreal martial-arts action! •

Ninja Golf

System: Atari 7800

Summary: Nine-iron or nunchaku, Grasshopper?

Manufacturer:
Atari Corp.
1196 Borregas Avenue
Sunnyvale, CA 94089

Price: $29.99

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ATARIFEST D.C.

October's WAACE AtariFest may be the most successful ever!

By John D. Barnes

On October 12th and 13th, 1991, the Washington Area Atari Computer Enthusiasts (WAACE) will host their 8th annual all-Atari computer show in Reston, VA. Begun in 1984, the WAACE AtariFest has had the longest continuous run of any user-group sponsored show in the U.S. The October show, to be held at the Sheraton Reston Hotel, is expected to draw around 2,000 visitors. Upwards of thirty-five developers, including Atari Corp., will be represented.

The WAACE AtariFest was originally produced as an extension of a regular Saturday get-together at which members of user groups in the Washington, DC area swapped PD software and used equipment. Its first outside co-sponsor was the adult education department of the Fairfax County, VA school system, due to the large numbers of Atari computers used in their classrooms.

Local retailers soon clamored for a role in the action, setting up booths and vending products directly to show attendees. To broaden the appeal of the already-popular get-togethers, WAACE organizers soon added a series of tutorials and seminars on various aspects of Atari computing. Over time, Atari developers in other parts of the country heard of the show and asked to participate. The AtariFest gradually outgrew its regional character, as personalities and visitors came from all over to be a part of the event.

W•A•A•C•E AtariFest '91

After some years of pressure to put on a more professional-looking show, the WAACE team installed last year's extravaganza in a hotel conference center in suburban Reston, Va. By some accounts, AtariFest '90 was the most successful Atari show held in the U.S., that year. Over 1,900 people visited the show floor over two days, and more than 35 developers and retailers were on hand to show their wares. Atari itself pulled out all the stops, bringing a cadre of its professionals to help users and developers see the best that was available in Atari technology. The folks from GEnie made a big hit by launching their ST Aladdin navigation program. Even international developers were in evidence: Frontier Software and HiSoft came all the way from the United Kingdom to participate. Videotape records of the event capture much of the palpable excitement.

What to Expect in '91

As this article goes to press the WAACE team is gearing up for a bigger and better version of last year's success. With TT's and Mega STe's from Atari now widely available, new products from Europe now being represented by American distributors, and exciting add-ons from third parties making their debut, there should be plenty of excitement.

New developers are also appearing on the scene with some remarkable offerings. Look for the WAACE show topic on GEnie, CIS, and Delphi for updated data on the show schedule and participants.

Nathan Potechin of ISD Marketing will share his experiences as a leading spokesman for the power of Atari in his role as the featured speaker at this year's banquet. Look for other personalities like Bob Brodie, Dave Small, the Codeheads, Dorothy Brumleve, Andrzej Wrotniak, and others.

The Sheraton Reston Hotel will provide exhibit space, rooms, and party facilities. Tickets for general admission cost $7 for a one-day pass and $10 for a two-day pass, and the WAACE ad in this issue of Atari Explorer contains a coupon for a $1 discount. Workers, registered hotel guests, and exhibitors get free passes. In addition to retail sales the show will include a series of seminars, a suite of demonstration rooms, a swap meet, a cocktail hour, and a banquet.

As the nation's capitol, Washington DC is well served by air, rail, and highway. The WAACE organization has always believed that people are as important to the Atari scene as hardware. By setting the Fest in a comfortable, pleasant location, they hope to give everyone a chance to learn and make new friends.●

In the shadow of the Nation's capital, the largest Atari computer show on the east coast

W•A•A•C•E

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October • 12 & 13 • 1991

Sheraton-Reston Hotel
11810 Sunrise Valley Dr. Reston, VA 22091

Show hours are 10am until 5pm both days

Admission:
$7.00 for one day, or $10.00 for both days

Telephone for hotel reservations: 703-620-9000

Hotel rates, which include FREE admission to the 'Fest, are $59 per night, single or double occupancy, and $66 triple or quad. These rates are valid from Oct. 10 through 13. State tax of 4.5% applies. In order to obtain these special rates, you must mention AtariFest '91.

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AtariFest '91 is presented by the Washington Area Atari Computer Enthusiasts

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Getting the Most from Atari's Palmtop PC

PORTFOLIO MANAGEMENT

Half a Meg from MegaByte, and the Mother of All BASICs

Why add memory to a Portfolio? If, like many people, you purchased your Portfolio primarily for its built-in address book and appointment schedule, you may never need more memory than you already have. The Portfolio's standard 128K provides ample room for address and appointment files of moderate size, and maybe a few brief worksheets and text files, as well.

But if you aim to use the Portfolio to work with your company's quarterly budget (courtesy of Portfolio's built-in Lotus-compatible worksheet), 128K will only go so far.

Applications such as spreadsheets and databases are inherently memory- and mass storage-intensive. And since the Portfolio is designed to use a portion of its RAM as virtual drive C:, a RAM upgrade can be used to enhance both "working" memory and mass-storage capacity. Even if you just want more mass storage, byte-for-buck, an internal RAM upgrade can add capacity about as cost-effectively as memory cards; though internal mass-storage is not as secure, since its contents are vulnerable to the possibility of system or battery failure.

Still not convinced? While you're contemplating, check out Contributing Editor Ron Luks' report on MegaByte Computers' 512K Portfolio RAM upgrade. The product is unique in two respects: First, unlike "clip-on" upgrades such as those shown by Xoterix, the MegaByte upgrade is entirely internal. Second, the MegaByte product is approved (and enthusiastically supported) by Atari, and unlike most internal modifications made by third parties on Atari products, will not void the Portfolio's warranty.

PowerBASIC Lives!

Spectra Publishing's PowerBASIC — the first, full-featured BASIC compiler for the Atari Portfolio — is now available. This version of Spectra's popular IBM PC development system has been specially adapted for use on everybody's favorite palmtop PC, and Ron Luks' special report outlines some of its powerful features. But wait. Nowadays, most "professional" software is written in languages like C. So why is a BASIC development system so important?

Several Reasons. First, a modern compiled BASIC,

such as PowerBASIC, is nothing like the slow, memory-inefficient, "spaghetti-code" prone, interpreted BASICs of yesteryear. PowerBASIC syntax offers most of the flexibility and structure of C; and since it's compiled, PowerBASIC programs can be almost as compact and fast as C programs. Second, because PowerBASIC runs directly on the Portfolio, it makes on-the-go programming possible, even for those who don't own a desktop system. Finally, unlike C, BASIC is a popular language that's quite easy to learn. As a result, many Portfolio owners — even those of non-technical bent — may adopt the language as a tool for solving problems that aren't addressed by commercial applications.

This is particularly important for revolutionary products like the Portfolio, since people often want to use such products in revolutionary — and often highly personal — ways. Unfortunately, commercial software firms can't afford to create programs that only fifteen, or even 150 people desperately need; leaving a void that must be filled by ingenious shareware and PD software authors. BASIC is a perfect tool for this kind of "between the cracks" programming, and has enhanced immeasurably both the utility and the staying-power of computers for which superb BASICs have been made widely available (one good example being the Atari 8-bit series).

Don't Try This at Home!

Sci-fi movie fans are all agog over Arnold Schwarzenegger's latest: Terminator 2 ("T2" to its friends), in which Herr S. plays a newly warm-and-fuzzy version of the skin-cloaked, fusion-powered, killer cyborg whose character he originated in the prequel. But as many of you doubtless know, the real star of Terminator 2 isn't the musclebound Arnold, but another (and far more per-

Portfolio saves the world in the summer blockbuster, Terminator 2

sonable!) piece of computing equipment: the Atari Portfolio!

Naturally, since this is sci-fi, our favorite palmtop wasn't featured in its usual role: that of a sleek, executive organizer. Instead, the Port is shown being used to hack into a cash machine, then later to gain entry into a secret government installation, allowing Arnold and Company to save the world from atomic war and all future generations of humanity from the ruthless domination of machines.

We at Atari view this portrayal as a valid exercise of imaginary license (frankly, if you're out to save the world, we can't think of a better pocket-computer for the job!). We hope, however, that parents will explain to their Portfolio-owning children that sci-fi is one thing, and reality another. Using the Portfolio to hack ATM's and break into secret government installations is not only dangerous, not only punishable by law, not only *just plain wrong*, (notice, we didn't say "technically impossible") but may, under certain circumstances, void the product's warranty. So, kids, don't try this at home! — **John Jainschigg, Editor**

A Memory Upgrade from MegaByte

In response to the growing demand by Portfolio users who want to do more with their systems, MegaByte Computers of North Texas has introduced the first internal RAM upgrade for Atari's palmtop computer. This solution increases the Portfolio's RAM from 128K to 512K at a cost of $350. Ted Asher, President and co-owner of MegaByte, says that the company has successfully upgraded dozens of Portfolios without a hitch. MegaByte is also selling new Portfolios with extra RAM already installed, for a price of $549.

According to chief technician, Robert Thompson, the upgrade requires 2 to 3 hours of labor for each conversion. Some of the jumper wires are only slightly larger than a human hair, which explains why removing the original RAM chips and installing larger ones isn't something easily done by the end user. Nevertheless,

MegaByte's turnaround time for an upgrade is currently about three days, once the unit is received at the Texas location.

The hardware-only upgrade, assembled from standard PC-compatible components, will work with any Portfolio, regardless of operating-system version. The upgrade operation has been performed successfully on Portfolios bearing DIP-DOS versions 1.052, 1.072, and the rare version 1.09. With 512K of RAM, the internal C: drive defaults to a size of 128K, but can be set as high as 464K. Alternately, the increased memory can be used to run larger applications that were previously unavailable to Portfolio owners.

Special care was taken to minimize the upgrade's effect on battery life, which should be reduced by only about 10% on upgraded systems. On CompuServe's Portfolio Forum, an official online support site for the Portfolio, many owners have expressed complete satisfaction with the upgrade and the newfound abilities of their units.

MegaByte has been a factory-authorized Atari service center and full-line Atari dealer for over two years, and Atari enthusiastically promotes their Portfolio upgrade. Customers will appreciate that MegaByte warranties an upgraded Portfolio against any defects in workmanship or manufacture for six months after the upgrade is finished. The firm is currently setting up a dealer arrangement to accommodate customers of other Portfolio dealers. Interested dealers should contact Ted Asher at Megabyte directly. — **Ron Luks** •

MegaByte Computers
909 Melborne
Hurst, TX 76053
(817) 589-2950)

Portfolio 512K Memory Upgrade: $350.00

512K Portfolio: $549.00

PowerBASIC for Portfolio

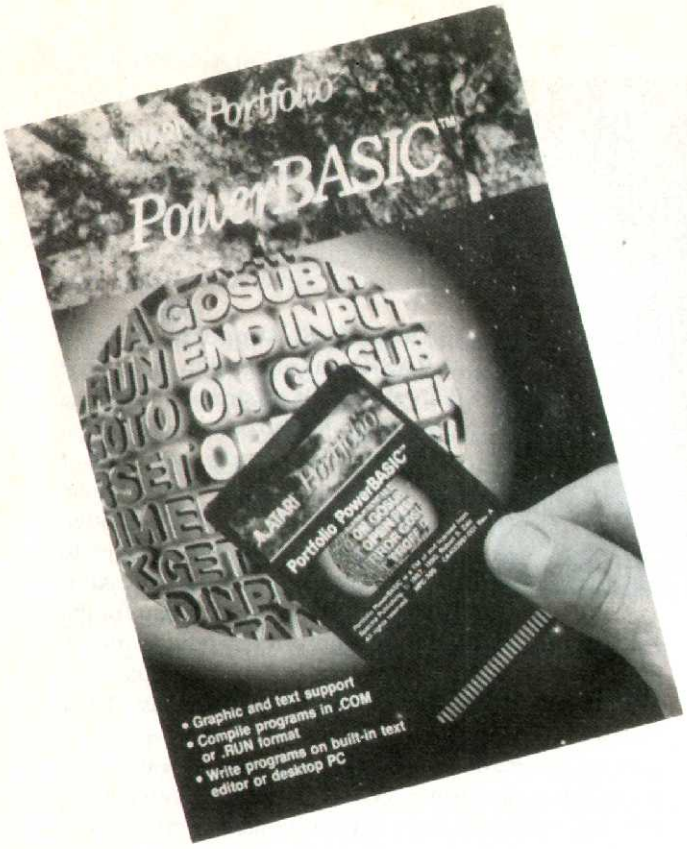
A powerful compiler makes its debut on Atari's Palmtop PC

Although the Atari Portfolio functions extremely well as a personal organizer with its built-in applications, its true versatility comes from the ability to run external programs. Formerly, do-it-yourself programmers have had to write their own software on desktop PC's and hope that the compiled programs would be compatible with their Portfolios. An excellent freeware BASIC interpreter, PBASIC, written by BJ Gleason and distributed via commercial networks and BBS systems, has been available for some time; but programmers have found PBASIC somewhat limiting. This is mostly because PBASIC, as an interpreted language, does not provide means of distributing software to people who do not have a copy of the interpreter. And the interpreter is too large for distribution on a 64K memory card.

Happily, the folks at Spectra Publishing are about to release a Portfolio-specific version of their popular PowerBASIC compiler. Although not a complete translation of the desktop version (impossible due to the limitations of the Portfolio's standard 128K of memory), PowerBASIC makes excellent use of the Portfolio's unique features.

PowerBASIC supports the usual array of BASIC commands, string handling, procedures and interrupts, mathematical functions (e.g. cos(), sin(), abs()), file handling, graphics and sound, looping, a full set of input and output commands, and the ability to address the serial port for printing or telecommunications (COM1:). The syntax permits use of both labels and line numbers. PowerBASIC features an EXECUTE command that lets one program call up another external program. It doesn't support true "chaining," in that variables are not passed along with the EXECUTE statement, though values can be passed by way of a shared file.

One visible difference between PowerBASIC for the Portfolio and other BASIC compilers is in the composition of output files. Most PC BASIC compilers take a BASIC source code file, translate it into machine language, combine it with some standard code called a run-time package, and output it as a single (not so small)



.EXE file that is executable under the computer's medium or large memory-models. By contrast, PowerBASIC produces .COM files that are considerably more compact, and can execute under the system's small memory-model. Instead of linking a runtime package directly to the output file, PowerBASIC programs install a separate, generic runtime file (which occupies about 23K of RAM and must be present on the system) and then call its functions. Though the need for a runtime file means that PowerBASIC programs do not completely qualify as "stand alone" software, the runtime file is small enough to accompany PowerBASIC software on the less-expensive 64K Portfolio media.

After an extensive development and testing period using the facilities of the Portfolio Forum on CompuServe, the development team headed by Bob Zale of Spectra Publishing, in collaboration with Bruce Coleman of Atari Corp., produced a product that will be a solid success with users and developers. Zale went to great pains to insure that PowerBASIC supports one of the lesser-known but most powerful features of the Portfolio: the .RUN file format.

Conventional computer architectures force a strong distinction between disk space (mass storage) and RAM memory. Recorded as a pattern of magnetic impulses on the spinning surface of a disk, a program is inert, just like a text file. Before it can be executed, it must be "read" from disk into the RAM memory making up the microprocessor's "address space."

Because the Portfolio's architecture is based around virtual disks and memory cards — all essentially extensions of RAM memory — its hardware does not impose this same distinction between inert and dynamic program storage. Normally, in emulation of an IBM PC, Portfolio software is loaded from memory card or internal memory disk into a partition of internal memory designated as "working" RAM — only about 80K on a standard machine in its default configuration. But the Portfolio's operating system also permits programs, provided they observe certain rules, to execute directly off of a RAM or ROM card, without using up any of this free RAM (except for data).

PowerBASIC compiled programs are .RUN programs in disguise. To convert a PowerBASIC .COM file to .RUN format, simply change its extender to .RUN. The PowerBASIC compiler is a .RUN file, executing directly off its distribution medium (a masked ROM card). And even the runtime package, which is normally installed like a TSR, can be accessed as a .RUN file, allowing the compiled application to have full use of the Portfolio's internal RAM.

The PowerBASIC system will be sold on a masked ROM card that will include the compiler, runtime package, an update patch to the Portfolio's operating system, and a set of Help files in the Portfolio's address-book format, designed for easy access. Also included will be four text files containing supplemental documentation. Additionally, the distribution card will contain BASIC source code for ten demo programs, including games, graphics, and examples of serial port access under PowerBASIC.

The ease of programming in BASIC combined with the ability to generate memory-saving .RUN files will no doubt open up a world of programming and software development on the Portfolio. Comments from the beta-test team were enthusiastic, especially about the speed with which programs could be developed in the language. For example, during the test period, John Feagans, President of Monterey Bay Whaling Co. (an oddly-named Portfolio software and hardware development and sales concern), produced a software package that will allow Portfolio owners to attach the battery-operated Portable Disk Drive 2, from Tandy Corp., for use as a very inexpensive archival storage device. **— Ron Luks** •

Atari Corporation
1196 Borregas Avenue
Sunnyvale, CA 94087
(408) 745-2000

PowerBASIC: $99.95

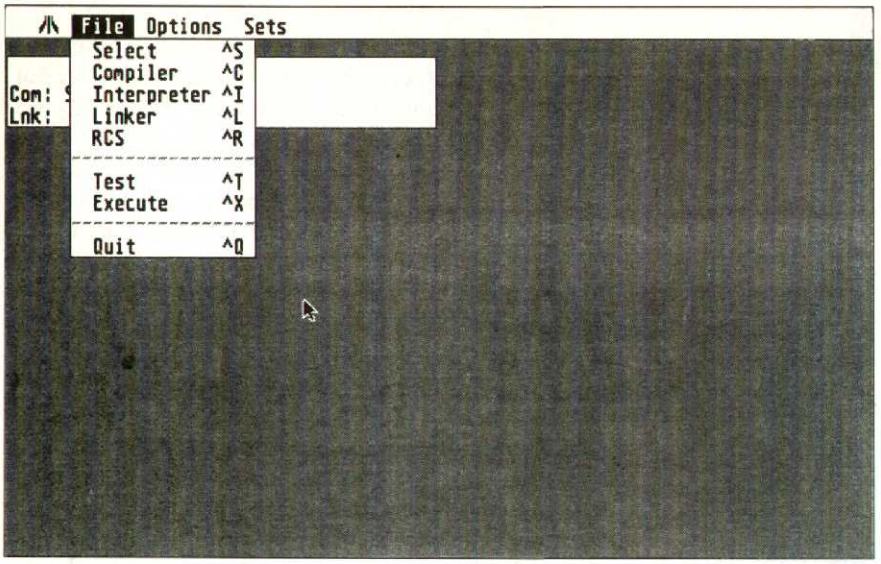


Figure 1. The GFA control shell. Editor/interpreter, compiler, linker, and Resource Construction Set are all available from a single menu.

GFA BASIC 3.5E

The best gets better: GFA BASIC 3.5 is a complete environment for developing "real world" ST and TT applications

Developed by GFA Systemtechnik, the GFA BASIC language, originally distributed in the U.S by MichTron and later by Antic Software, is widely recognized by ST programmers as the BASIC language of choice. Fast and flexible, the GFA interpreter/compiler was the first product to provide means for BASIC programmers to develop "real" ST applications; accessing the whole of the ST's sophisticated hardware and software without the protective, and sometimes hindering envelope of an interpreter.

Sadly, shortly after the release of version 3.0 in 1988, U.S. support for GFA BASIC was allowed to lapse, first as the result of strained relations between Michtron and GFA Systemtechnik, later as the result of financial difficulties at Antic. Late last year, however, GFA decided to make some decisive moves to recover ground in the U.S. Atari market, and to set the stage for the release of a newl\line of compiler products on ST abdother platforms. The result: in March of this year, GFA opened the doors of an American subsidiary, GFA Software Technologies, whose first task — as expressed by President Maurice Giguere — was "... to bring American GFA users up to speed on version 3.5 and demonstrate to them that we're here to provide extensive support."

The 3.5 Package

GFA BASIC version 3.5, with new English-language documentation and support materials, was officially released in May. The version 3.5 interpreter and compiler come on one (albeit full) double-sided diskette, along with a 538-page, indexed manual nested in a handsome, 3-ring binder.

The overall feel is solid and reliable, though "real" programming languages (and GFA BASIC is no exception) are never marketed in a way that makes them seem quite "finished." Detailed, on-disk documentation reveals a history of incremental changes, bug fixes, and other improvements stretching back as far as version 3.0, through five intermediate revisions. And the presence of this information, along with concise files of manual errata, bibliographic references, known bugs in the present version (workarounds, too!), and other information, demonstrates better than anything else that GFA BASIC is ultimately a communal product, evolved over years of attentive use by hundreds of expert individuals.

Documentation is more or less along the lines of a commercial programming language. Introductory chapters on compiler, linker, and the mechanics of programming GEM desk accessories are followed by a

By Atari Explorer Technical Staff

keyword-by-keyword description of GFA BASIC, organized by command category. Absent is a general tutorial on BASIC programming, though this lack can be offset by any modern textbook on the language. Unfortunately, though several excellent tutorials specific to GFA BASIC have been written, including the superb "Concepts in Programming" series by Gottfried P. Engels (MichTron, 1988), most of these volumes are no longer in print.

Lack of tutorial documentation, however, will only be a problem for the rank beginner. Anyone familiar with modern, structured BASIC (or classic BASIC and any modern structured language, such as C) should feel quickly at home in GFA 3.5. Syntactically, GFA BASIC bears little resemblance to the unstructured BASICs of yesteryear. Line numbers, for example, are completely absent — replaced by labels. Though GOTO is supported, its use is strongly discouraged. Instead, GFA BASIC offers a complete mechanism for the creation of true procedures and functions, complete with local variables and permitting C-like parameter-passing.

GFA's myriad looping constructs further encourage the design of structured code. Endless loops, so often at the center of "non-modal" GEM applications, is supported by the terse construct DO/LOOP. Iterative looping are supported by the classic FOR/NEXT, with the added subcommand DOWNTO, which eliminates the often-seen but odd-looking "STEP -1" expression. Basic "test at top" and "test at bottom" looping is supported by WHILE/WEND and REPEAT/UNTIL, and additional permutations and extensions (using DO WHILE, LOOP UNTIL, LOOP WHILE and other command variants) allow the clean expression of any conceivable exit condition (and even allow the same looping construct to test for different conditions at top and bottom). An EXIT IF command permits conditional exit from any type of loop, effectively eliminating the need for GOTO to appear in any shallow looping system. (Note: in C, goto is maintained primarily as a mechanism allowing quick exit from deeply-nested loop systems.)

A wide variety of error-handling and process-resumption commands allow the effective trapping of even most "fatal" system errors in compiled code. Ironically, this should permit GFA programs to be more bullet-proof than the average C application. Hardware interrupt- processing is also strongly supported. Like C, GFA BASIC features a wide variety of data types: string, byte, integer, floating point, double-precision, etc., plus multidimensional arrays of same, and can refer to data-types directly (i.e., by name) or indirectly (i.e., by pointer). A variety of commands are offered for determining the location of variables in memory, and for reading and writing to them directly. Explicit commands allow bit testing, setting, clearing, and changing; left- and right-shifting and rotation; and extended Boolean algebra on integer values up to four bytes wide. Functions are even offered that allow the programmer to convert byte to word and longword values (with sign extension) and back again — effectively a form of "type casting." C-like "arena management" is supported with commands such as MALLOC. Addi-

GFA BASIC 3.5E

System: Atari ST, STe, or TT

Summary: Comprehensive BASIC interpreter/compiler system with numerous extras, appropriate for serious application development.

Manufacturer:
GFA Software Technologies, Inc.
27 Congress Street
Salem, MA 01970
(508) 744-0201

Price:
Interpreter: $94.95
Compiler: $54.95
Upgrade price: (ST GFA BASIC v. 3.0 users only, interpreter and compiler) $49

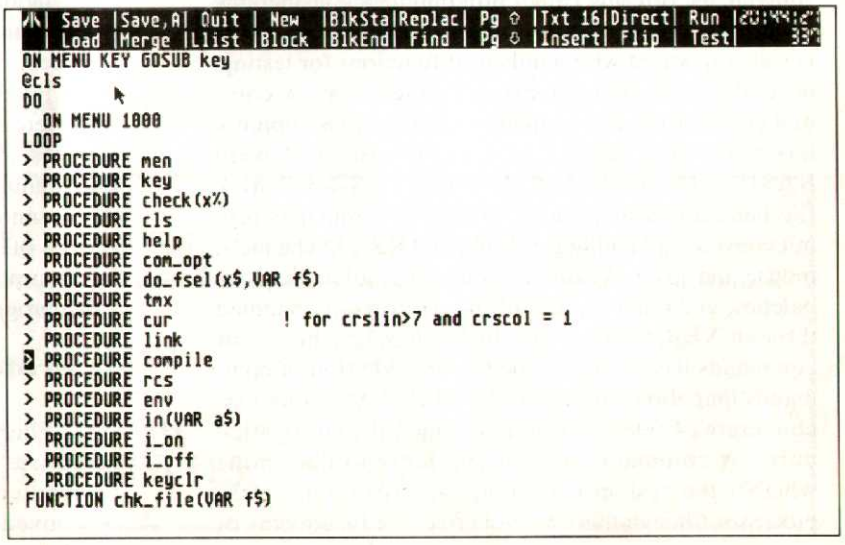


Figure 2. The GFA BASIC editor/interpreter in action. Note the overview perspective made possible by the economical display of "folded" procedures.

```
n%=0
FOR i%=2 TO 1000
  j%=i%-1
  WHILE i%/j%>DIV(i%,j%)
    j%=j%-1
  WEND
  IF j%=1
    n%=n%+1
  ENDIF
NEXT i%
PRINT "There are ";n%;" primes between 1 and 1000."
```

Figure 3. GFA BASIC 3.5E benchmark listing, which computes the number of primes between 1 and 1,000. Note use of the DIV function to produce an integer result for comparison with the floating-point result produced by the normal division of integer operands.

```
main()
{
register int i,j,n = 0;

for(i = 2;i <= 1000;i++){
    j = i - 1;
    while (((float) i/j) > i/j)
      j--;
    if (j == 1)
      n++;
    }
printf("There are %d primes between 1 and 1000.\n",n);
}
```

Figure 4. Mark Williams C v. 2.0 benchmark listing, equivalent to the GFA BASIC listing in Figure 3. Note the use of type casting (integer to float) to emulate the effect of GFA BASIC's default behavior in performing division with integer operands.

tionally, version 3.5 has been enhanced by the addition of a wide variety of commands for matrix operations. These commands and functions offer the GFA programmer much of C's flexibility in data-handling, particularly at the hardware level.

A decent set of mathematics functions is supported, including a brace of functions for integer-only arithmetic (much faster than floating-point). One assumes that most of these functions compile directly to their 68000 machine-code equivalents, offering canny programmers considerable opportunity for hand-optimization. String-manipulation is well-supported with a quiver of functions for testing, normalization, and substring replacement. A comprehensive array of commands and functions supports basic I/O via screen and keyboard, and both BASIC-like (i.e., INPUT#) and TOS-level disk file-handling is supported. Additional commands permit convenient handling of MIDI and RS-232 channels, mouse and joystick, sound, graphics resolution, color palettes, and other aspects of the ST normally handled through XBIOS and BIOS. In version 3.5, this set of commands has been extended by the addition of commands that allow control of the STe's DMA sound architecture, 4,096-color palette, and special joystick ports. A command is even available to determine whether the system is running on a 68000 or 68030 processor (though this does not affect the functioning of the compiler, which produces only native 68000 code).

In keeping with the spirit of "maximum results for minimum work," GFA BASIC offers high-level access to VDI graphic services without the programming overhead required for hands-on VDI virtual workstation management. Commands are available for point-plotting, line-drawing, "turtle graphics," mono- and multi-planar bit-blitting, mouse form redefinition, graphic text-handling, "sprite" definition and manipulation, clipping, etc., all without the horror of opening workstations and maintaining explicit binding arrays. A more "hands-on" interface to Line-A and VDI is also afforded.

Finally, GFA BASIC offers a comprehensive and complete interface to GEM application environment services, allowing the management of windows, forms, and menus, and the handling of GEM events. GFA's AES commands closely resemble their equivalents in Atari's official system documentation, meaning that it is often possible to refer to standard documentation when programming GEM applications in GFA.

A Professional Tool

The GFA program development environment comprises an editor/interpreter, compiler, linker, and resource construction set. All software components can be conveniently accessed through an included shell

utility, itself written in GFA BASIC (source-code provided) (see Figure 1). At the moment, however, the shell is the weakest link in the system. We noted, for example (and GFA confirmed), that the menu shell is incompatible with Atari's Extended Control Panel, but only when the system is running on an STe. Alternatively, the different system components can be executed as stand-alone programs from the desktop (the compiler's extension should be changed to .TTP for use in this fashion) or under a wide variety of alternative shells.

The editor/interpreter is the primary workbench for program development. Though essentially command-driven (most programmers prefer this), most of its important features can also be accessed by clicking on entries in a non-standard menu bar at the top of the main screen. In "edit mode," used for most program development, the editor acts as a front-end for the GFA preprocessor. As each line of a program is entered, the case of its variable names and keywords are adjusted according to one of four user-selectable case normalization schemes, the line is indented according to context, and is automatically syntax-checked. We assume it is also subject to pretokenization at this stage — its internal representation translated into a set of table-references that allow for fast interpretation or compilation — though in tokenized form, it occupies somewhat more RAM space than would pure ASCII text.

Additional features of the editor include basic block move, copy, delete, and print commands; a wide variety of cursor-movement commands; a full search and replace facility; the ability to merge ASCII text from disk (important for several reasons, but most notably to allow the loading of programs written under earlier versions of GFA BASIC); and the ability to set edit marks to facilitate jumping around in a long program file. A powerful "dot-command" language is supported to facilitate the "pretty-printing" of program listings. Perhaps most interesting, the new version 3.5 editor supports the "folding" and "unfolding" of procedures, replacing a multi-line procedure with a single-line name entry, and the reverse (see Figures 2). This feature allows the editor to work much like an outlining tool, letting the programmer work on individual procedures in detail, while retaining an overview of program structure.

The interpreter can be made to execute a program by clicking on the RUN command. Program output occurs on an alternative screen, to which the programmer can flip with a single keystroke. Alternatively, it is possible to execute individual commands or procedures, to test functions, or to commence execution of a program starting at a particular label by engaging the editor/interpreter's "direct" mode. The GFA BASIC editor/interpreter system thus offers essentially all the interactive flexibility and ease of use of a classic BASIC-language interpreter environment, while offering far more sophisticated editing functions.

While the GFA BASIC 3.5 compiler is simple to use under the defaults supplied by the shell, it is nevertheless an extremely powerful compiler with numerous options that advanced programmers will appreciate. In general, the compiler is capable of transparently performing a wide variety of optimizations. Perhaps most significant — and different from earlier versions of GFA BASIC — is the fact that the present compiler eliminates all array-boundary, integer-overflow, and other error-trapping functions from final output, on the assumption that such bugs should be eliminated prior to final compilation.

Other compiler options include the ability to command that all integer operations (as opposed simply to those coded using GFA's explicit integer-math functions) be compiled to native 68000 integer-math instructions; to limit the amount of memory space reserved by a program (if this command is not engaged, a GFA application will reserve all available memory); to affect the type of values returned by functions; to selectively enable or disable various types of interrupt (timer interrupts, break key and CTRL-SHIFT-ALT interrupts, etc.); to select between numbers and text for error messages; to compile VOID, parameterless procedures and functions as pure 68000 code (without a

Figure 5. Benchmark comparisons between the programs shown in Figures 3 and 4. Is GFA a winner, or what?

	GFA BASIC 3.5E	MARK WILLIAMS C 2.0
ASCII SOURCE	192 BYTES	201 BYTES
EXECUTABLE	3,649 BYTES	9,080 BYTES
COMPILE/LINK	3.81 SECONDS	17.99 SECONDS
LOAD AND EXECUTE	1:27.685 MINUTES	5:09.2 MINUTES

stack-management envelope); and to allow later linking of external object modules. By carefully selecting among these options, programmers have maximum flexibility in controlling precisely the kind and nature of object code generated by the system.

Additionally, the GFA linker offers a variety of useful options, including the ability to replace the default GFA library with one of another name, to control whether or not a symbol table is generated with the output file (which may facilitate use of a symbolic debugger), and even whether or not to produce code that can execute in the TT's extended RAM space, not normally accessible to ST software.

The Resource Construction Set included with the GFA package is a Atari's standard RCS, slightly modified to be able to output ASCII files of GFA-type resource index defines. The Atari RCS is a reliable and well-documented product with a long track record in ST developer circles.

So How Fast?

Very. We composed a simple benchmark to count prime numbers between 1 and 1000, first in GFA BASIC and then translating into Mark Williams C, version 2.0, on a line-for-line basis. Both programs were hand-optimized for maximum performance. In programming the GFA benchmark, we exploited the fact that the compiler generates fast 68000 ADD and SUB instructions when coding integer additions and subtractions, but uses slower floating-point code for integer divisions unless a special compiler option is engaged. By using the special integer-divide function, DIV, however, we told the compiler to use the 68000's DIV instruction in a single case, comparing it against the floating-point result of a standard division.

In the case of C, we used fast register integers throughout, and employed type-casting (to float) in the single case where we required a floating-point result for comparison. The C expression (((float) i/j)>i/j is thus equivalent to the GFA expression i%/j%>DIV(i%,j%) — the first subexpression of each producing a floating-point result, and the second an integer result. It should be noted that were we to have engaged the GFA compiler's integer-math option, the expression i%/j%>DIV(i%,j%) would never be found true, since the compiler would produce equivalent (integer) code on both sides of the comparison operator.

Comparing source code sizes, we discovered that while the tokenized (.GFA) form of the BASIC benchmark was somewhat longer than the equivalent C source, its ASCII (.LST) listing was actually shorter. GFA BASIC 3.5 also required substantially less time to compile and link the program, and produced a much smaller executable file. But the real surprise came when we timed the execution of both benchmarks, using the Mark Williams "time" profiler. The GFA BASIC 3.5 program was almost five times faster!

Speculating on these results, we conclude that the GFA BASIC 3.5 system clearly profits from every scrap of modern compiler-design technology, both in terms of compilation speed and in terms of its ability to optimize frequently-encountered program structures, such as loops. While the above benchmarks hardly represent a comprehensive test-bed for comparison, we strongly suspect that any code compiled with GFA will — provided sufficient care is taken in its design — be of true production quality. Moreover, though we're very comfortable in C, it was difficult to ignore the fact that using the GFA editor/interpreter for program development and testing was both faster and more convenient than using Mark Williams' editor and compiler for an equivalent task. Under the demands of a really large-scale programming project, however, we suspect that the GFA environment would turn out somewhat less wieldy.

Still, the performance of GFA BASIC 3.5E is generally so good, it's unnerving. The product provokes re-evaluating BASIC as a professional-quality tool for real-world programming. Strongly Recommended. •

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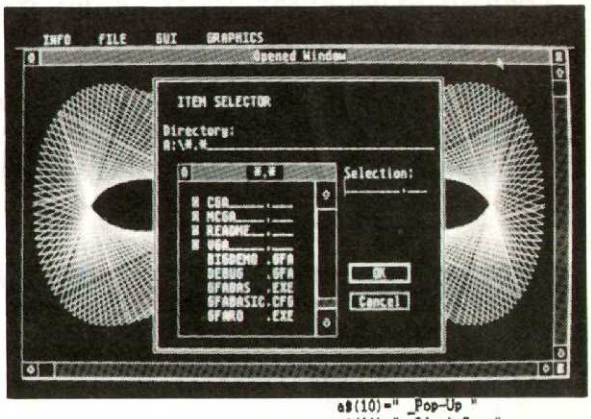
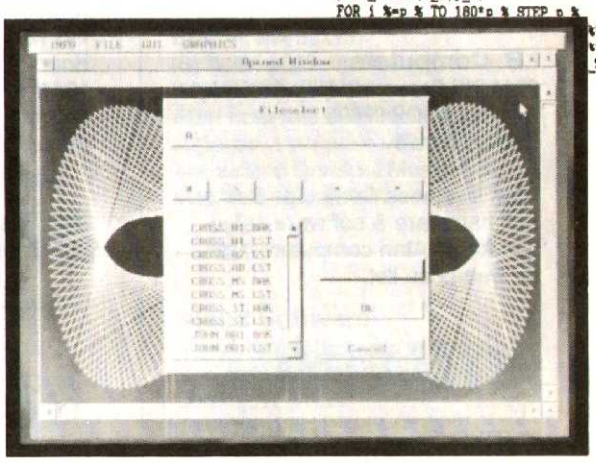
GFA-BASIC Users

Here is your chance to obtain our newest upgrade, GFA-BASIC for the Atari and Amiga, for the lowest price imaginable. Release 3.5 is so improved that it effectively obsoletes your older software. It is faster, easier to use, has 35 new commands, is better documented, and overall is more powerful than the previous version, which doesn't include the new Matrix commands. The Amiga upgrade allows you to trap Guru meditation for error checking. The Atrai upgrade gives you full STe support for DMA sound, joystick/peddle/lightpen ports. Both versions include a whole new set of Matrix commands for array handling. And your special upgrade price is only $49.95! A spectacular savings of $100.00 off the regular price.



Or, upgrade to GFA-BASIC for MS-DOS for only $147.50.

```
a$(10)=" Pop-Up "
a$(11)=" Alert Box "
a$(12)=""
a$(13)=" GRAPHICS "
a$(14)=" file "
a$(15)=" figure _2 "
a$(16)=" figure _3 "
a$(17)=" figure _4 "
MENU a$()
OPENW #1,x1%,y1%,x2%,y2%,-1
TITLEW #1,"Opened Window"
drawfigure
FILESELECT "A:\*.*","",name$
RETURN
PROCEDURE drawfigure
  xalt_%=ADD(ADD(w_%,w_%),x_%)
  yalt_%=ADD(h_%,y_%)
  FOR i_%=p_% TO 180*p_% STEP p_%
```



GFA-BASIC lets you use the same commands and functions whether you are developing Atari/Amiga (top) or MS-DOS (bottom) applications.

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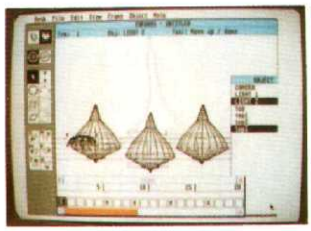

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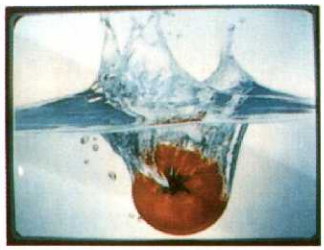

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