COMPUTER GRAPHICS

PRODUCT SURVEY

Unlocking the art inside you

by DAVID DUBERMAN

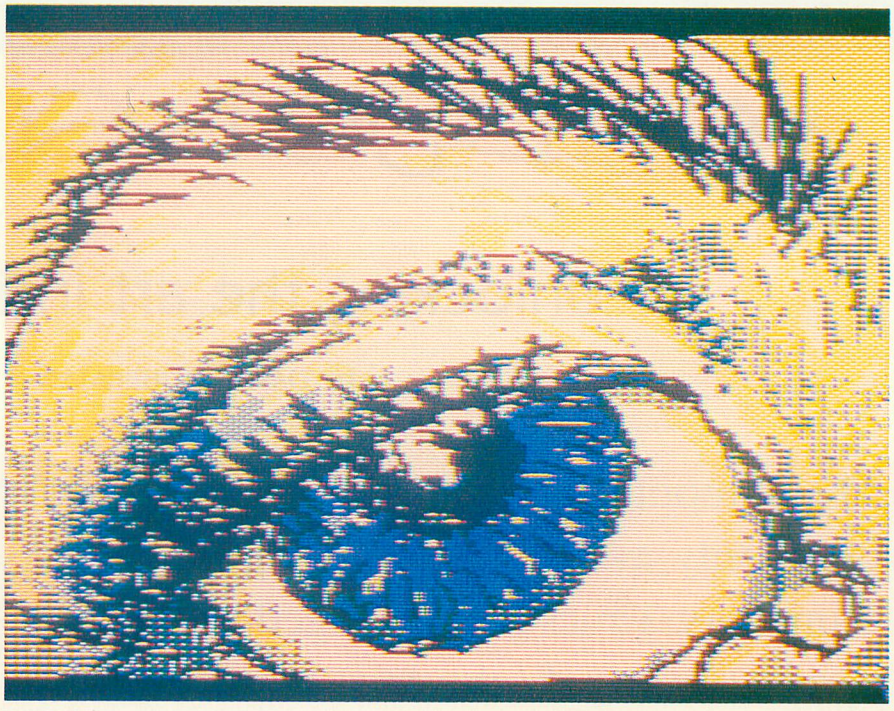
The computer's incredible power as a tool for artistic creativity was once only available to adept programmers and dedicated number crunchers. Times have changed. Today, low-cost visual arts hardware and software make the Atari—with its unequalled graphics potential—the perfect tool for a serious artist or an inventive computer novice.

With the products described in this survey, you can easily produce effects similar to what used to be available only on $10,000 graphics systems. You can use your computer to draw pictures or cartoons, design a letterhead for your stationery, make your own personal greeting cards.

You can create video games and elaborate video animation without complex programming. You can take advantage of graphics applications for professions or hobbies as diverse as weaving, landscape architecture or astrology.

Let's take a look at the affordable, easy-to-use tools for computer graphics . . .

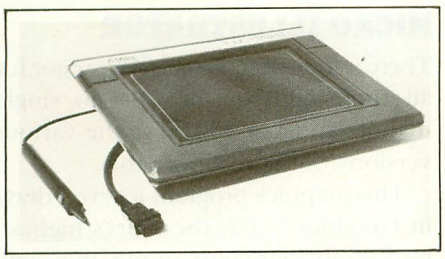
GRAPHIC TABLETS



BROOKESE by Kyle Bogertman
Atari Touch Tablet w/ Micro Illustrator
(Atari Artist)

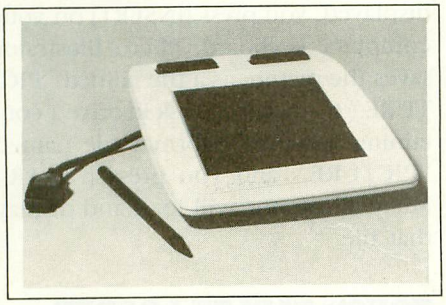
Until recently, most graphics programs for the Atari used the joystick for drawing on the screen. Now, Atari owners can choose between three touch tablets. Touch tablets have flat pressure-sensitive surfaces. When you draw on these with a stylus, your movements are registered on the screen.

Two of these, the KoalaPad and the Atari Touch Tablet, are similar. The third, the PowerPad, works on a different principle and is much larger.



ATARI TOUCH TABLET

The Atari Touch Tablet, ($89.95 — all prices in this survey are suggested retail) measures 9 3/8 inches wide by 7 3/4 inches high by about 1 inch thick, the size of an average hardcover book. The drawing surface is 6 1/2 inches wide by 5 inches high — about the same height-width ratio as the standard Atari graphics screen. A cable permanently attached to the back connects the touch tablet to joystick Port One, and there is a jack in the rear for plugging in the accompanying stylus. The Atari tablet's stylus is the only one that has a button built in, which is a real convenience. There are also two buttons on the tablet, located on either side of the drawing surface. All three buttons select options from the drawing program. The tablet comes with the Atari Artist drawing program on a cartridge. Atari Artist is the same program as Micro Illustrator, which is discussed below.



KOALAPAD TOUCH TABLET

The KoalaPad (Koala Technologies, $125), which was designed to be used by a number of different computers, is similar to the Atari tablet. It's noticeably smaller though, measuring 6 3/8 inches wide, 8 inches high, and the thickness tapers from 1 3/4 inches at the rear down to 1/4 inches square. The tablet can be held comfortably by an adult in one hand, leaving the other available for drawing. A cable at the rear connects to the joystick port. There's no place to connect or store the stylus, though, so it could easily get lost. The KoalaPad comes with the Micro Illustrator drawing program on diskette. Also available from Koala are several software packages for the tablet, including Spider Eater, a musical educational game, and Coloring Series 1, an electronic "coloring book" of geometric patterns.

POWER PAD

The PowerPad is covered fully in a separate review adjoining this survey. No software accompanies the PowerPad, but several programs, including Micro Illustrator, are available for use with it.

COMPARE AND CONTRAST

All three touch tablets use a version of Micro Illustrator, an excellent drawing program. Functional differences among the tablets when using Micro Illustrator are minimal. You can draw with your finger, but most people prefer using the stylus. If you only intend to use Micro Illustrator with your tablet, the chioce narrows down to deciding which size tablet is most comfortable for you (and possibly your children).

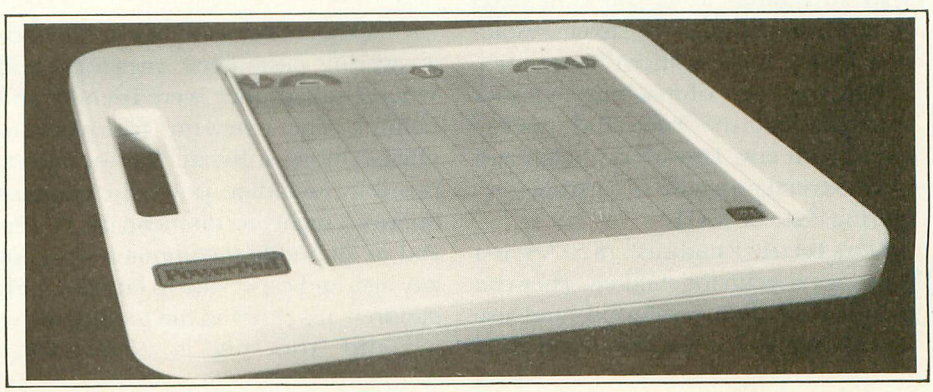
If you want to do more with a touch tablet, however, other criteria come into play. Touch tablets can, for example, be used as controllers, similar to joysticks and paddles. The PowerPad is particularly well-suited for use as an alternative to the keyboard for children because it can sense multiple contacts on its surface. The other two can sense only one contact at a time. Thus, if you touch one point on the KoalaPad or the Atari tablet, then while holding the first, touch another, the second contact won't register. The PowerPad can sense simultaneous contacts, and can, for example, be used as a piano keyboard. Indeed, PowerPad's manufacturer, Chalk Board, markets such a package, called Micro Maestro.

Also available for the PowerPad is the Programming Kit for BASIC. If you want to write a program that uses PowerPad as a controller, this package should tell you all you need to know. The KoalaPad documentation contains minimal information on programming for the touch tablet, but you can buy a book called the *KoalaPad Touch Tablet Programmer's Guide* for further information. The Atari Touch Tablet documentation describes only how to use the tablet in conjunction with the accompanying graphics program.

The drawing surfaces differ slightly from pad to pad. The KoalaPad's surface is a small square of finely-textured hard black plastic. It's smooth enough to draw quickly on, yet provides enough friction for slower detail work, and appears to be quite durable.

The Atari Touch Tablet's drawing surface is a sheet of thin, shiny black plastic, covered by a removable sheet of transparent plastic. Atari recommends that you leave the plastic overlay in to avoid damaging the actual surface. The overlay can also be used to hold down drawings for tracing. The pad is just a bit too large and heavy to hand hold comfortably; it should be placed on your lap, a desktop or tabletop.

The PowerPad is much larger than the other two. You can't hold it in your hands, an smaller children may have a hard time holding it in their laps. The drawing surface is a permanently attached thin sheet of plastic. However, all software for the PowerPad comes with special overlays that customize the tablet for each application.



POWER PAD

Chalk Board Inc.
3772 Pleasantdale Rd.
Atlanta, GA 30340
(404) 496-0101
$99.95 — hardware
Reviewed by David Plotkin

The **PowerPad** is Chalkboard's new graphics tablet. With its combination of features, reasonable price, friendly support, and wide range of software, it would be an excellent addition to your hardware.

The first thing you notice about the PowerPad is that it's big: it measures 17 inches by 14 inches, with a drawing surface 12 inches square. It is easier to draw on than the smaller surfaces of other tablets.

The PowerPad uses 14,400 tiny digital switches to read where pressure is applied to the pad. There are 10×10 per inch. Unlike the surfaces of other pads, the PowerPad has no problem resolving simultaneous multiple inputs. This ability allows the PowerPad to be used as much more than just a graphics tablet: it becomes a flexible input device.

If you've done a little arithmetic, you may be wondering about the PowerPad's resolution. Ten switches per inch by 12 inches equals 120 points, or pixels — not even as high resolutions as Graphics 7! However, it's possible to design a program using the Atari's highest-resolution screen, by "software stretching" of the resolution.

The version of Micro Illustrator ($49.45) for the PowerPad has a special feature called "Scale" that uses "software stretching" to let you draw pixel by pixel, even though the tablet's resolution isn't as high as Micro Illustrator's.

Hardware isn't of much use without software, but the PowerPad doesn't come with any. However, Chalkboard offers several programs in cartridges requiring 32K of RAM.

Leo's Lectric Paintbrush ($29.95) is a drawing program for children. They can paint in medium resolution, and use special commands like MOVE and FILL. The program is easy to use, but is limited to a few of the Atari's colors, and lacks advanced features. You can save and load pictures with a disk drive.

Micro Maestro ($29.95) is a piano keyboard overlay program for the PowerPad. This is *fun*. The overlay also shows a musical staff, and you can play notes by pressing on either the staff or the piano keys. When you play a note, its letter name, key location, and staff position are shown on the screen, giving the program strong educational value. You can play four-note chords, and record and play back your songs. Sounds pretty good!

The Programmers Kit ($24.95) provides extensive technical information about the PowerPad. The manual tells you how to read PowerPad's switches, with demonstrations, utility routines in BASIC and machine language, and a technical discussion of the pad's operation. This lets you design your own programs, or adapt existing programs for use with the tablet.

A fifth program, Logic Games ($39.95), involves matching symbols and numbers. Also available is BearJam ($39.95), an educational game that's supposed to help prepare children for reading, (we will review these in future issues).

Chalkboard has a toll-free number for answering customers' questions, and when I called, they were friendly and helpful. The company has plans to release more software for the tablet, possibly including powerful graphics utilities. I highly recommend the PowerPad to all budding computer artists of any age, and especially to families with children. It's easy and fun for kids to use — and too big to ever lose!

MICRO ILLUSTRATOR

There is a version of Micro Illustrator for all three tablets, (there is no single manufacturer or price for the various versions of Micro Illustrator).

This graphics program lets you draw in Graphics 7 1/2, the Atari's highest-resolution four-color mode, the same mode used by Micro-Painter (Datasoft). Micro Illustrator uses an icon menu, in which all the program's different functions are depicted graphically. The program's different modes include Draw (doodle), Point (control single pixels), and Line, (draw straight lines). You can also draw boxes and circles (outlined or filled), and create a sunburst effect with the "rays" function. You can draw with "mirroring," magnify your drawing for fine detail work, fill areas with colors and patterns, and save and load images from disk. You can change color, size and shape of your "brush," and you can create a magical "rolling rainbow" effect. When combined with a touch tablet's ease of use, Micro Illustrator makes creative graphic expression with a computer as natural as taking a bath.

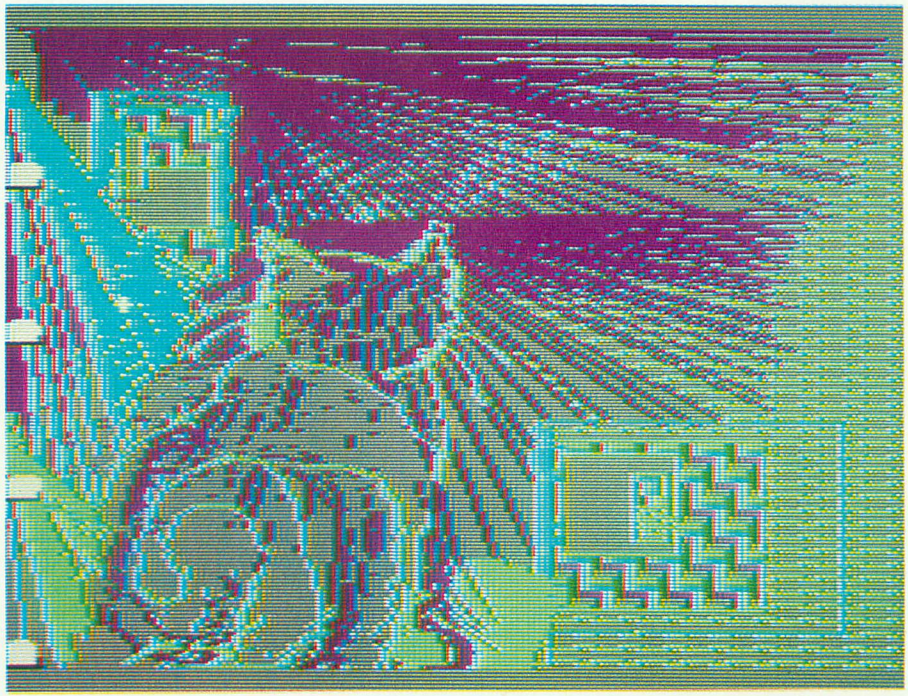
Micro Illustrator uses a compressed format for file storage that's incompatible with other drawing programs. *But you can also use the "standard" Micro-Painter format*. If, when the picture is displayed, you press [INSERT] on your computer keyboard, Micro Illustrator saves the picture as a file named "PICTURE." If you have a disk in drive 1 containing a standard-format file named "PICTURE," and you press [CLEAR], Micro Illustrator will load and display that file.

TOUCH TABLET LOADER

New from Atari Customer Service as a FREE listing booklet is John Clark's very useful utility program, Touch Tablet Loader. This lets you insert into your own programs any picture made with the touch tablets and software previously mentioned, as well as compatible products. You can also learn how to write programs that enable you to use your touch tablet as a controller.

For your Free Demopac, simply write to Atari Customer Service. Address is at the end of this survey.

LIGHT PENS



RAINCAT by Patricia Fostar
Atari Light Pen with AtariGraphics

A light pen is a type of pointing device for computers. Despite its name, the light pen does not produce light, but contains a light-sensitive cell at its tip to detect the presence or absence of light. A light pen also can convey its position on a screen to the computer.

In graphics applications, light pens are used to draw directly on the monitor screen. There is no abstraction between the drawing process and the production of the drawing; it's more

STEVE GIBSON: CREATOR OF ATARIGRAPHICS

Story behind the powerful new light pen software

by NAT FRIEDLAND, **Antic** Editor

Steve Gibson, the president and main resource of Gibson Laboratories in Irvine, California said he'd been up till 6 a.m. working on his next light pen software package. Possibly he felt he needed to burn the sunrise oil to come up with something as good as his brand-new AtariGraphics cartridge software — which now comes bundled with the Atari Light Pen.

Gibson's AtariGraphics is described in detail in the survey of computer-art tools featured in this issue. The bottom line is that this light pen software is a computer graphics classic on the level of Micro Illustrator or Micro-Painter. For ease of use and variety of elaborate color patterns built-in, AtariGraphics ranks at the very top. It also has valuable unique features, such as enabling you to "fill over" existing patterns inside shapes you've already set up in your picture. Even the Macintosh won't do this.

Known as the light pen programmer par excellence, Steve Gibson first became an industry star with his Apple Computer light pen software.

A JOY TO WORK WITH

"The Atari computer was a joy to work with, compared to the Apple," said Gibson. "The Apple is full of what I call 'Wozni-isms'. That's all the crazy and weird things Steve Wozniak did in order to squeeze color into his early machines. The even bits and odd bits stand for different colors, every seventh bit is keyed to a color family. Working with this stuff is a horrible nightmare."

He discovered other not-widely-known advantages in doing professional programming with the Atari. "The good news is that Atari has absolutely phenomenal documentation on hand. You can get virtually a 100 percent accurate map of memory locations or ANTIC chip display list functions in the manufacturer's hardware manuals. It pinpoints what you need to do to make precise color changes at precise scan lines.

"It's also not too shabby to have Atari's palette of 128 colors to select from," he added.

Gibson used the Atari's hardware capabilities to suggest some of the new features he could incorporate into his emerging software design.

"I get excited by the graphics potential of microcomputers," he said. "But eventually I realized that what really turns me on is coming up with unique and powerful user interfaces — ways to make it easier than ever for people to get more out of their computers."

One of the AtariGraphics interfaces he's most pleased with is the sliding menu "index cards." He said, "The illusion of the familiar is a powerful trick for getting people into easily operating the software."

NO KEYBOARD COMMANDS

"What I set out to do in AtariGraphics was a light pen tour de force," said Gibson. "I wanted to make a graphics program with absolutely NO keyboard commands.

As a result, the Atari keyboard is always in text mode. What this means is you can enter text anywhere on the screen, simply by pointing to a position with your light pen and starting to type.

Possibly the most unique interface in AtariGraphics is the light-pen "eraser emulation" Gibson created. "I've never seen anything else like it," he said. "Since I wanted to avoid any keyboard commands, I was very pleased when I realized that the Atari would allow programming of a 'cancel' interpretation just by shaking the light pen from side to side over the screen area you want to erase."

As befits a light pen specialist, Gibson has faint praise for the highly popular touch tablets. "Touch tablets can't be beaten for accurate tracing of illustrations," he said. "But I still think light pens are unbeatable as a direct graphics interface device, as well as for making icon menu selections effortlessly."

THE VIDEO EASEL

Gibson seems to have a very strong vision of future artists sitting on stools in front of easels, making light pen strokes on video monitors positioned where their blank canvases used to be.

The programming of AtariGraphics took him only three months of entering code — following a month of nothing but planning and research. He is now committed, through a contract with Koala, to program light pens for one or perhaps two other popular computers. "After Atari, I'm finding myself a little burnt out with new graphics projects," he said. "I mean, how many lines of rubber banding code can you write?"

Gibson was raised just north of Silicon Valley in San Mateo. He dropped out of the University of California at Berkeley after 18 months and started working for high tech start-up companies.

He financed the start of Gibson Laboratories by doing several years of consulting for medical electronics companies in Southern California. He designed and programmed 3-D medical graphics displays that were widely used in cardiology.

What the future holds for Steve Gibson (as soon as he finishes his light pen commitments) is an exploration of creating more active user interfaces for computer telecommunications. "I don't see why your home computer has to function like a dumb terminal when you're on line with a bulletin board or a telecommunications information service," he said. "I think that at the very least, you should be able to store your menus in advance and flash them up on-creen to work right along with the remote computer, instead of waiting for all the time-consuming scrolling through every option."

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flexible than drawing on a physical surface. However, because most monitor screens are vertical, drawing requires an unnatural position. Also, prolonged proximity to a color TV screen, which may be a common circumstance with light pens used in the home, may cause discomfort or health problems.

ATARI LIGHT PEN WITH ATARIGRAPHICS

Most light pens are physically similar to one another. The Atari Light Pen ($99.95) is a good example. Made of smooth black plastic, it's about the size and shape of a ballpoint pen. It contains an on/off switch activated by pushing the pen's tip against a flat surface.

What's special about this pen is the software. Steve Gibson's AtariGraphics cartridge software is a stunning realization of the Atari computer's graphic capabilities. The program's four pop-up icon menus let you choose drawing mode (box, circle, line, and parallelogram), color, mirroring (vertically, horizontally, and four-way), and pattern fill, among others. You can choose from 2,880 patterns and you can fill any pattern over with another pattern, something most other graphics programs won't let you do. You can also do unique "smear" effects and erase directly on the screen.

AtariGraphics is easily the most impressive drawing program we've seen at Antic in recent memory. *(See the interview with Steve Gibson in this issue.)* AtariGraphics works in as little as 16K RAM and can use cassette or disk for file storage. AtariGraphics files are incompatible with other drawing programs.

EDUMATE LIGHT PEN

The Edumate Light Pen (Futurehouse, $34.95), is the simplest light pen covered here, because it lacks a built-in switch. You activate this pen by pressing the [START] key on the computer console. Made of red plastic, the light pen resembles a Bic ballpoint attached to a coiled cord. The Edumate pen's main advantage is price: at $34.95 list, it's the least expensive hardware/software package in this survey. The pen comes with a disk containing six programs. Peripheral Vision ($39.95 or $59.95 with light pen) is Futurehouse's new graphics program for their Edumate light pen. The program was still under development when this survey was completed, so we were only able to review a preliminary version.

Unlike any other graphics utilitiy in the survey, Peripheral Vision uses a GTIA mode, Graphics 11. This gives you 16 colors of the same brightness in a screen whose resolution is 80 pixels horizontally by about 168 vertically. A strip at the screen's bottom displays an icon menu, and your selection of colors is arrayed across the top of the screen.

The icon menu's Fill feature resembles a water tap flowing into a bucket, and Zoom looks like a microscope. You can save and load pictures with a disk drive. And there's a feature to let you print out your creations directly, which wasn't ready for testing yet. You can doodle, or draw single lines, consecutive lines, triangles, circles, and rectangles. Use the keyboard to place text anywhere in the picture.

Other functions let you move or copy parts of a picture to another part, fill enclosed areas with solid colors or a limited palette of textures, and draw with mirroring. The documentation describes how to use pictures made with Peripheral Vision in your own programs.

The tradeoff with this program is that you can use more colors than with most others, but the resolution is lower. Actually, the vertical resolution is high, but with only 80 pixels across the screen's width, this mode's pixels have an odd shape — wide and flat. Nevertheless, you can draw in this mode creatively.

Futurehouse also makes a line of educational software that includes titles such as Alphabet Construction Set (learn to draw letters of the alphabet), Computer Crayons (an electronic coloring book), and Little Red Riding Hood, a computerized story book for young children.

TECH-SKETCH LIGHT PEN

The Tech-Sketch pen is available in two versions: the $39.95 version includes some BASIC programs on disk, and the $69.95 version comes with Micro Illustrator. The pen is composed of plastic and metal, and appears sturdier than other pens. There's a small white button to activate the pen located in the shaft's side near the tip. The pen is easier to use than the Edumate, but not as easy as the Atari Light Pen.

McPEN

McPen (Madison Computer, $49) is the newest light pen for Ataris, and is the largest pen in this survey. The pen itself is made of sturdy beige plastic and has a rather wide barrel. It plugs into a control panel with a coiled cord. The control panel, which measures 5 inches square by 1 1/2 inches high, has a dial for sensitivity and a red LED, and a receptacle for the pen. Installation instructions for the pen and panel are included on a label attached to the bottom of the panel — a considerate feature.

McPen doesn't have a built-in switch. Accompanying software uses the space bar to turn the pen on and off. Included with the pen is a disk containing four BASIC programs: Tic Tac Toe; QB graphics, a limited drawing program; a menu program; and Ballon, a Player/Missile graphics demonstration. Madison Computer also offers additional software for the pen — titles so far are "McPen Learning Series" and "Coloring Book," with more to come. **Antic** didn't have the opportunity to review these packages yet.

We did, however, try McPen with programs for other light pens, including Tech-Sketch's version of Micro Illustrator and the AtariGraphics cartridge. Unfortunately, the pen didn't work very well with either program. This is the only instance of a light pen being incompatible with software from other companies.

SUMMARY

Although the light pens covered in this survey are more similar than different, the accompanying software varies significantly. If you choose to buy a light pen, be guided by the level of sophistication you require in a drawing program. Try to get a demonstration of the pen and program. Also, keep in mind that software manufactured for use with a certain light pen works equally well with most other light pens, with the exception of McPen.

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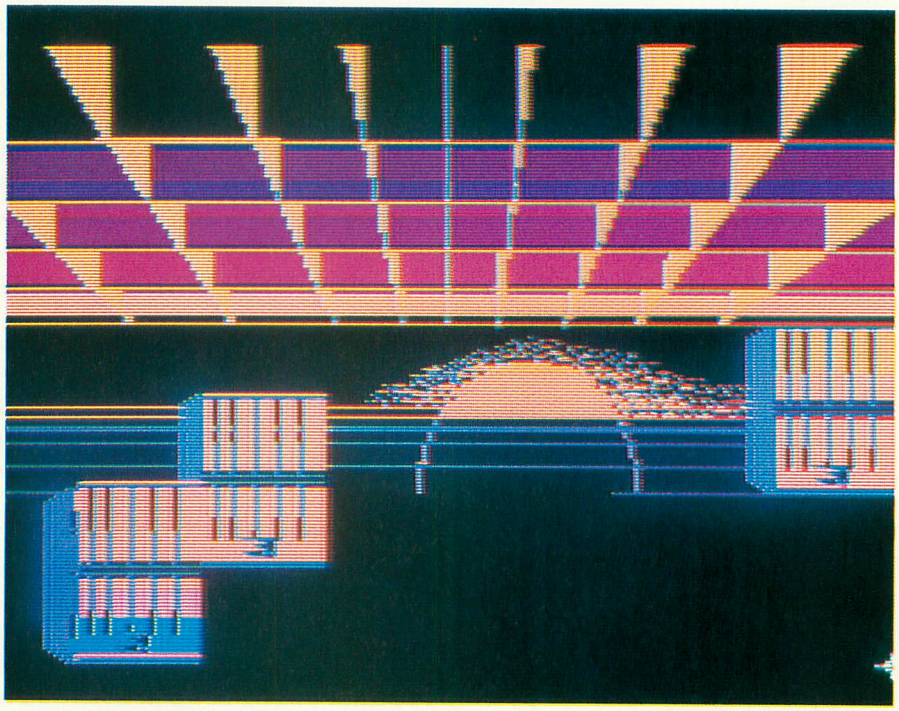
GRAPHIC JOYSTICK SOFTWARE



FINAL 7 by Linda Tapscott
Fun With Art

Before the introduction of the KoalaPad, most graphics software for the Atari used the joystick for drawing. Many of these programs are still available. Drawing with a joystick is somewhat awkward, but you can achieve impressive results with practice. We'll cover the major joystick graphics programs in approximate order of the date of release.

MICROPAINTER

This is the granddaddy of graphics programs for the Atari. When **Antic** had a cover art contest for readers in 1983, 90% of the entries were with this program. Micro-Painter (Datasoft, $34.95) lets you doodle, draw lines, and fill areas with limited patterns in Atari's high-resolution four-color mode, Graphics 7 1/2. Micro-Painter's storage format for picture files has come to represent a standard for Atari graphics files. Almost all printer dump programs for Atari, including Micro Illustrator, will work with this file storage format.

GRAPHICS MASTER

Graphics Master (Datasoft, $34.95) is described by its makers as a tool for creating, manipulating, and editing images for graphic layouts and designs. You can use the joystick to draw, or you can have the program draw shapes for you, including lines, circles, and polygons of three to nine sides.

You can create a window that picks up images, manipulates them (you can "rotate" an image in the window 90 degrees) and relocates them on the screen. The contents of the window can be laid over or under an existing image, for special effects. You can flip between two drawing screens, transfer images between the two, add text, and zoom in for fine detail work.

Graphics Master uses Graphics 8, the Atari's one-color high-resolution mode. But you can add color by "artifacting," an effect that's explained well in the documentation. There is also a program that lets you use images from other programs with Graphics Master, and vice-versa. Although they use different graphics modes, you can transfer images between Graphics Master and Micro-Painter. Graphics Master is the only tool in this survey that *includes a printer dump* for its images.

PAINT

Originally from Reston Publishing and now marketing by Atari, Paint ($39.95) is a remarkably versatile drawing program. There's a simplified version that's well suited for young children, but SuperPaint is the program's showpiece. A row of "pots" along the bottom of the screen lets you paint with any of four colors and six patterns. You can change the colors and the patterns, and you have hundreds from which to choose. All commands are explained with a help feature. You can also "zoom" in for magnified detail work. Paint uses Graphics 7, a medium-resolution four-color mode. One of Paint's nicest features is the accompanying 147-page book, of which approximately two-thirds is an interesting discussion of computers, art, and computer graphics. Paint is available only on disk, and files from Paint are not compatible with other programs. (See review of Paint in **Antic**, January 1984.)

PM ANIMATOR

Player/Missile graphics is a special feature of the Atari that lets you move several objects about the screen display without disturbing the background. PM Animator (Tronix, $44.95) lets you create animation sequences for use in your own BASIC programs. The documentation is extensive enough so that someone with no knowledge of P/M graphics programming can use the software with little difficulty. Player/Missile graphics are technically not related to the graphics discussed in the rest of this survey, so it's no surprise that files from this program can't be used by other programs. (See review of PM Animator in **Antic**, July, 1983).

MOVIE MAKER

Movie Maker (Reston, $60) is a computerized animation studio. You can create "movies" up to 300 frames and then add music and sound. It's similar to PM Animator in that you're drawing objects, combining them in sequences and moving the animated objects about the screen. However, Movie Maker is entirely self-contained, you can't use the animations in your own program. Also, Movie Maker doesn't use P/M graphics; all images are drawn in Graphics 7. (See review of Movie Maker in **Antic**, April 1984).

FUN WITH ART

Fun With Art is a joystick drawing program with many bells and whistles. It uses 7 1/2, as does Micro-Painter, but that's where the similarity ends. First, you can easily change any or all colors at every other scan line (a scan line is a thin horizontal line on your video screen). Because two scan lines are drawn every 1/60th of a second and go together to form the screen image, it is a simple matter to use all 128 of Atari's colors in one picture.

Also, you can load two pictures and transfer parts between them. You can move parts of one picture around. Fun With Art is a cartridge requiring 32K RAM; it can store pictures on disk or cassette. Files from Fun With Art are not compatible with other programs. However, the documentation does describe how to use the pictures in your own programs. (See review in **Antic**, February, 1984).

SCREEN MAKER

This is a tool for programmers who wish to create impressive graphics for games or other applications, but who have yet to delve into the mysteries of the display list, a mini-program used by the ANTIC chip in the Atari to display information on screen. Atari has several different graphics modes, most of which cannot be displayed simultaneously, or mixed on the screen. This can be a problem if you want to display text and graphics together. Screen Maker (Atari Learning Systems, $34.95) lets you custom design a screen, combining as many as 15 different graphics modes, and then writes a subroutine that creates the screen. You can then use this subroutine in your own program. (See review in **Antic**, March 1984).

PLAYER MAKER

Described as a companion utility to Screen Maker, Player Maker (Atari Learning Systems, $34.95) lets you design images to be used with Player/Missile graphics. You use a joystick to "sculpt" a player, pixel by pixel. You can create up to four players, and combine pairs for more detailed three-color players. Once you've drawn the players, the software writes a subroutine for use in your own program. There is no provision for animation of players.

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GRAPHICS MAGICIAN

Graphics Magician (Penguin, $39.95), recently converted for the Atari, has been popular on Apple computers for some time. It's an ideal tool for those who need to store a lot of graphic information in a minimum of disk space. Possible applications include graphics adventures and educational programs that use visual material. The program lets you use the joystick to draw four colors in Graphics 7 1/2. You can doodle, draw lines, and fill areas with one of a wide selection of textures. You can also change the size and shape of your "brush," change the basic colors at will, and add text. On-line help is available if you get confused.

It's common in graphics adventures to have "objects" that appear and disappear from the screen while background remains intact, possibly as a result of being picked up or dropped by the adventurer. Graphics Magician lets you draw these "objects" and store them as separate files. Extensive instructions for using Graphics Magician files in your own programs are included. **Antic** will review this excellent product in the near future.

VISUALIZER

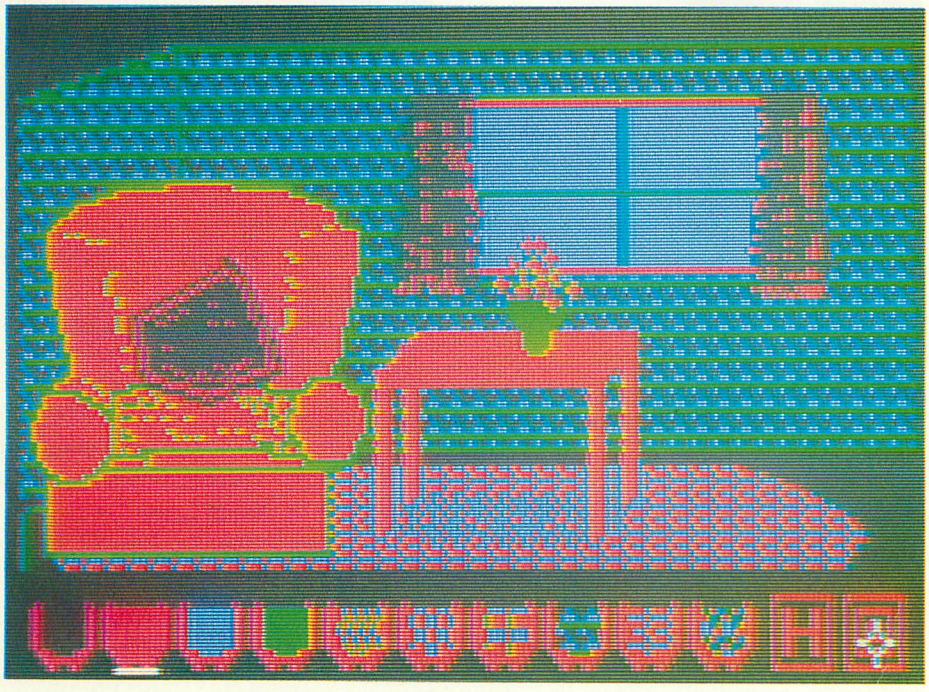
Maximus's new "graphics management system" is called Visualizer ($49.95). Subtitled "electronic slide creator/projector," the program's functions are divided into two parts: creating "slides" and showing them. For the game-oriented, there's also a jigsaw game that scrambles your picture, then lets you use the joystick to move the pieces to their proper positions. A printout feature lets you produce a permanent copy of your pictures with Epson and C. Itoh-type printers.

To create slides, you use a joystick to draw in Graphics 7, Atari's medium-resolution four-color mode. You can doodle with brushes of different sizes or automatically create circles, ovals, rectangles, and straight lines. Fill enclosed areas with solids or patterns (made by combining two colors), and add text. The program comes with three fancy "fonts," or character sets, to spiff up text in the picture, and you can mix style options for a total of 24 different styles in each font. You can design your own font too. You can save and load slides with a disk drive, and a special feature lets you combine two slides by "merging" them for experimentation and special effects.

There are some fairly simple animation effects. One-color, two-color, and three-color switching involve changing the contents of the three color registers used for drawing shapes and lines. There are three different ways to add the by-now-familiar Atari moving rainbow effect to your pictures.

The slide show part of the program is almost as powerful as the drawing part. You can select an assortment of slides and arrange them into any order. There's an auto timer routine to advance the slides automatically. If you have an Atari 410 or 1010 program recorder, you can add a synchronized narrative soundtrack! (You will also need a stereo cassette recorder or deck and a data cable for connecting the recorder to the computer.) The program comes with a sample narrated slide show that describes Visualizer.

The documentation is more complete than that for most such programs. There are suggestions for creating better slides, and a list of interesting projects for parents and children. There are detailed instructions for setting up a system to record synchronized narrative tapes Programmers will learn how to use the pictures in their own program. If you don't mind the medium resolution of Graphics 7, you'll find this to be a powerful and versatile package.



GREEN VASE by Marni Tapscott
Paint

AND MORE

ATARI 1020 COLOR PRINTER

The Atari 1020 Color Printer ($299) is actually a plotter. It uses four pens to draw on a 4½-inch wide strip of paper. Plotters have been around for some time, but this is the first plotter that works directly with Atari computers.

A color plotter is an enormously versatile graphics tool. You can make four-color screen dumps (graphics printouts) of pictures drawn with most graphics programs. You can also write programs to control the plotter directly. A couple of samples are included with the 1020 documentation.

Text can be printed in four colors, in four directions (forward and backward, vertically and horizontally), and in different sizes. You can even print text in 80 columns—the characters are tiny, but well-formed and quite legible.

The 1020 documentation provides adequate information for programming the plotter. Commands are presented in BASIC syntax, but it's easy to convert these to other languages. Among the graphics functions are commands to return the pen to HOME position, change pen color, draw from coordinates 0,0 to any X-Y position, initialize (call the current pen position 0,0), and relative draw (a combination of the last two). There's also move and relative move, for changing the pen's position without drawing. And you can command the plotter to set up X and/or Y axes for graphing.

SCREEN PRINT SOFTWARE

Screen Print Software is the new program from Atari that does color screen dumps to the Atari 1020 plotter. You can get full-color printouts of your creations from AtariGraphics, AtariArtist, Micro Illustrator, Micro-Painter, Paint, or any other program that uses Graphics 7, 7½, or 8. Atari started packing Screen Print Software with all 1020 Plotters shipped as of July, 1984. If you've bought a plotter that didn't include this software, you can obtain it for a minimal fee (not determined at this writing) by writing to Atari Customer Support, which is listed at the end of this survey.

SUMMING UP

As you can see, graphics tools for Atari computers are many and varied. How to choose? Well, we hope that the information in this survey will help you get started. If you'd like to see how a program works, but can't get an in-store demonstration, consider visiting (or joining, or starting) a local users group. You'll probably find someone who owns the product you're interested in. And don't forget — **Antic** is always looking for dynamite images for our Microscreens section, and we pay cash!

ATARI, INC. and ATARI LEARNING SYSTEMS
(Screen Maker, Player Maker, Paint, AtariGraphics, Atari Light Pen, Atari Touch Tablet, 1020 Color Plotter)
Atari Customer Service
1312 Crossman Ave.
P.O. Box 61657
Sunnyvale, CA 94086
(408) 745-2000

CHALK BOARD, INC.
(Power Pad)
3772 Pleasantdale Rd.
Atlanta, GA 30389
(404) 496-0101
(800) 241-3989 (from outside GA)

DATA SOFT, INC.
(Micro Painter)
9421 Winnetka Ave.
Chatsworth, CA 91311
(818) 701-5161

EPYX
(Fun With Art)
1043 Kiel Court
Sunnyvale, CA 94089
(408) 745-0700

FUTUREHOUSE
(Edumate Light Pen)
P.O. Box 3470
Chapel Hill, NC 27514
(919) 967-0861

KOALA TECHNOLOGIES CORP.
(KoalaPad)
3100 Patrick Henry Dr.
Santa Clara, CA 95050
(408) 986-8866

MADISON COMPUTER
(McPen)
1825 Monroe St.
Madison, WI 53711
(608) 255-5522

PENGUIN SOFTWARE
(Graphics Magician)
830 4th Ave.
P.O. Box 311
Geneva, IL 60134
(312) 232-1984

RESTON PUBLISHING GROUP
(Moviemaker)
11480 Sunset Hills Rd.
Reston, VA 22090
(800) 336-0338

TECH SKETCH INC.
(Tech Sketch Light Pen)
26 Just Rd.
Fairfield, NJ 07006
(800) 526-5214
(201) 227-7724 (in NJ)

TRONIX
(PM Animator)
8295 South La Cienega Blvd.
Inglewood, CA 90301
(213) 215-0529

SYNOPSIS

This program lets you change all four colors on every scan line in pictures drawn with most graphics programs that use Mode E, Atari's high-resolution four-color mode. It works on all Atari computers, but requires a disk drive. Antic Disk Subscribers: Remove BASIC. From DOS. Type L [RETURN] then type PAINTER.EXE.

You've been painting with tools like your KoalaPad or Micro-Painter for some time now, and you've pushed the programs to the limit. You're tired of having only four colors available! What can you do?

Fortunately, here's Philip Price's Color Picture Painter, a program allowing you to systematically replace all four colors in each scan line of your pictures—with *any of the 128 colors* available on the Atari. (Scan lines are the horizontal lines traced by the electron beam of your picture tube. Each scan line represents a fraction of a picture you have created on your Atari.)

Price's Painter loads an uncompressed Mode E file, (called Mode 7½ on older 400s and 800s or Graphics Mode 15 on the XL computers), and then allows you to choose from 16 colors and eight degrees of brightness for each of the four colors used in the original drawing. You use the joystick to color one scan line at a time, or to color entire vertical bands at once.

When you are finished the painter stores the original picture and the four color "pots" that you've created. The five files are separate, and are combined only when you run the painter program.

Price's painter works with files created by Micro-Painter, and Micro Illustrator, (available with the KoalaPad, Atari's Touch Tablet, Tech Sketch's Lightpen and Chalkboard's PowerPad). Incidentally, if you are using the Touch Tablet, you will need to save your initial file in the uncompressed 62 sector mode by hitting the [INSERT] key while the picture is on your monitor. The file will be named "PICTURE." and you will need to go into DOS and rename the file "FILENAME.PIC".

It's easy to get started coloring . . .

STEP 1: STARTING

Painter is a machine language program that's produced by the BASIC program accompanying this article Type in the listing, and SAVE an extra backup copy. Next, RUN this program. The screen will go dark for several minutes so the computer can read the data faster. If you made a typing error, the program will stop and display the number of a line you need to retype correctly—so TYPO isn't needed. When the screen turns blue again, press [RETURN] to write the machine language program named PAINTER.EXE to disk.

Remove your BASIC cartridge (XL owners press [OPTION] while booting DOS) before using Painter. Load PAINTER.EXE from DOS with menu option L. If you wish to have the program load automatically upon booting, use DOS menu option E to rename the file to AUTORUN.SYS, and make sure DOS.SYS exists on the disk.

When painter starts, you will be asked which file to load. The file disk must be in drive 1, and the filename extender must be .PIC. Don't use backspace or cursor controls, since the program will only accept a maximum of eight keystrokes before going to the graphics screen. Use DOS to rename files if necessary. Type in the name of the file you had previously created with, say, Micro-Painter. After the picture loads, you'll see it on screen with the default colors, the colors used in your original drawing. If you didn't use all four colors when making your original, some pots will be black, but they can be colored with Painter.

STEP 2: COLORING

Plug a joystick into Port 1. Press the fire button while pushing forward or backward on the stick to position the arrows on either side of the screen. Release the button and move the joystick from side to side to select the color, move forward and backward to change a color's intensity. Note that you're in point mode (see the line at the top of the screen); this means that you will color one line at a time.

If you have trouble seeing the thin horizontal line's color, look at the top of the screen to see the color changes is a wider area. If you want to color larger areas, press [ESC], then [SELECT] to switch to brush mode, and push the stick forward and backward to paint large areas with the currently selected color. Press [ESC], then [SELECT] again to return to point mode.

STEP 3: BACKGROUND AND FOREGROUND

You have a palette of four pots, based on the four colors of your original file. The palette is the field of colors in a given pot, without the structured picture. To change the pot whose colors you're modifying, press [SELECT]. To switch back and forth between the picture and the palette, press [OPTION]. You can review the colors you're using without seeing the picture by switching to the palette, then using [SELECT] to move through the four pots.

STEP 4: SAVING

Press the [START] key to save the pots, but not the picture file. According to Philip Price, the program occasionally locks up when you press [START], necessitating rebooting. The program saves four files representing the four pots. Checking your disk directory, you'll see them called FILENAME.P0, .P1, .P2, and .P3, with FILENAME replaced by the filename you originally typed in. If you have the original file and the four pots on the same disk, and don't change any filenames, the next time you load the picture into Painter, the four pots will also be loaded.

If you wish to work on a different picture, you must reload the entire program and start again from the beginning.

Philip Price taught himself programming while serving at sea with the US Navy. He took his discharge in Hawaii and worked near Hilo as a computer technician. Now he's teamed with Gary Gilbertson and their major new graphics adventure game, ***The Alternate Reality Series*** *is due for release by Marsten Systems this fall.*

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PRICE'S COLOR PICTURE PAINTER

by PHILIP PRICE