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SEPTEMBER 1988
VOLUME 7, NUMBER 5

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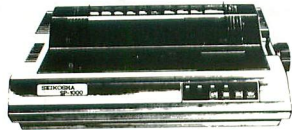
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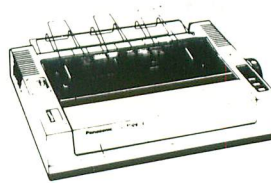
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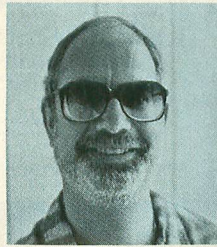
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Atari owners like you—both 8-bit and ST—have often tended to be mavericks in the personal computer world. Atarians act on the evidence of your own experiences and are not quick to go along with prevalent opinions just because it's mentally comfortable to be part of a crowd.

For thousands of **Antic** readers, your Atari can still fill all your real-world personal computer demands. You just need fairly priced software and peripherals that keep up with the leading edge of the market. And you need reliable information sources to point out the available choices and help you choose what's best for you. That's where **Antic** continues to lead the way after more than six years.

For example, this issue's cover-story is an in-depth review of Video Title Shop—software that makes it easy to combine flashy text special-effects with either your personal videotapes or your animated computer graphics sequences. Video Title Shop opens up a whole new area for creative 8-bit Atari computing.

Many of the recent **Antic** issues have also featured cover-stories about new 8-bit products which open up previously untapped computing areas for the Atari. In April it was the Virtuoso Desktop Performance Studio, which powerfully combines graphics, music and text for vivid animated presentations. Atari's speedy new 1200 baud modem and the impressive Atari XF551 disk drive were spotlighted in June.

The July **Antic** premiered Newsroom page designer software—which was released for the 8-bit Atari *only* because of reader participation in **Antic's** successful write-in campaign. Then just last month we introduced the PowerManager X-10 software that for the first time lets the 8-bit Atari automate your household electronics.

Coming next month are *multiple* 8-bit major firsts! Featured are reviews of Innovative Concepts' under-\$80 picture scanner plus ICD's new 8-bit/ST hard disk. And Matt Ratcliff has created the first type-in graphics slide show program utilizing the full 80-column display of the Atari XEP-80.

The point is that significant new products for the 8-bit Atari are still coming through regularly. And **Antic** Magazine is where you can depend on finding the latest in-depth Atari product information every month!

DOUBLE-DISK VALUE

You can also depend on **Antic** Magazine and Disk to provide you with outstanding collections of useful and entertaining software—for only a few dollars each month. In this issue, some of the valuable 8-bit programs you'll find are: Class Scheduler, which helps you overcome many of the worst college registration hassles; Player/Missile Graphics Studio, a high-powered software tool for game designers and animators; and Color Vision Booster, a challenging game that actually improves your color perception.

Especially now that Antic Disk prices are slashed to just \$59.95 for a 12-issue disk/magazine subscription or \$5.95 for a single monthly disk, Antic Disk Desk orders are taking off. Atarians recognize that **Antic's** ready-to-use disk software, plus the magazine's parade of current product news, is the best deal ever offered for solid Atari programs and information.

If you want to get the most out of your investment in an Atari computer, then every month you need **Antic**—disk plus magazine!

Nat Friedland

Nat Friedland
Editor, **Antic**



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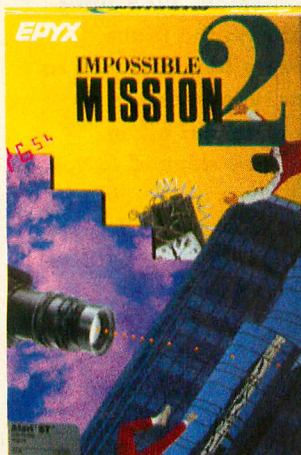
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Program By BOB AYIK

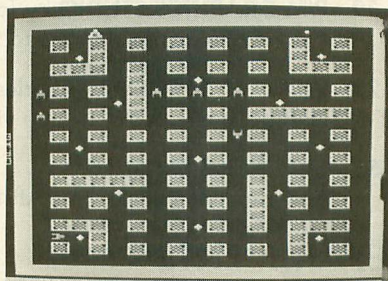
Drone Dusters

Tanks Vs. UFOs in speedy machine language

Drone Dusters, Antic's September 1988 Super Disk Bonus, is a fast and frantic tank-action game that's reminiscent of the arcade hit Targ. Written in powerful machine language, Drone Dusters works on all 8-bit Atari computers with at least 48K memory. You will be challenged by 15 different combat screens—where your only escape is to either run over all 13 pulsating dots on the screen or shoot all nine pursuing drones that are trying to run over you.

Each of the first eight screens adds a preset group of blocks to the grid—but the final seven screens add blocks randomly! Display colors also change with each new screen, so it's rare that you'll see the exact same screen twice during a game. Drone speed increases on every fourth screen, as well as when five or one drones are left on a screen.

When you get to the fourth screen, you'll also start seeing the rotating UFO. It appears in a corner of the grid and flashes briefly, taunting you to shoot it. When you do blast it apart, it will reappear shortly afterward and move faster. But neither the drones or the UFO ever get faster than your tank. The UFO chases the tank with a



“smarter” algorithm than the drones, and it constantly fires bullets at the tank. So keep on your toes, you must use strategy to evade the bullets because you can't outrun them.

You can operate Drone Dusters with either a joystick or your keyboard. You can move forward, sideways or reverse. You can even preset a turn before you reach the next corner. However, the tank likes to keep moving—and YOU must figure out how to stop it.

Drone Dusters was programmed by lawyer Bob Ayik of Maple Shade, New Jersey. Ayik debuted in the May 1988 sixth-anniversary *Antic* with *Perfected Pong*. Drone Dusters is nearly twice as big as this earlier ambitious machine-language game, so printing it as a type-in BASIC translation would require some six pages packed with nothing but data statement numerals.

To read or print out the instruction file for Drone Dusters, select choice 5 on the Side B main menu to this month's Antic Disk. Assembly language programmers will find the Drone Dusters source code available on ANTIC ONLINE this month. At nearly 400 sectors, this source code was too large to fit on an Antic Disk.

Your September 1988 Antic Disk—featuring the Drone Dusters Super Bonus as well as all regular type-in programs from this issue plus other extras—will be shipped to you within 24 hours after your order is received. Just phone Toll-Free to the Antic Disk Desk at (800) 234-7001. The monthly disk costs only \$5.95 (plus \$2 for shipping and handling) on your Visa or MasterCard. Or mail a \$5.95 check (plus \$2 shipping and handling) to Antic Disk Desk, 544 Second Street, San Francisco, CA 94107.

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

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BANK ON THIS

This simple program lets children use a joystick instead of the keyboard to enter an answer to an addition problem. The problem appears at the bottom of the screen, and a large Graphics 1 number will appear in the middle. You can increase or decrease that number by moving the joystick up or down. When you think you have the right answer, just press the joystick button.

Ali Ershaid
Nablus, West Bank

```

5 SCORE=0:NUM=0
10 GRAPHICS 1:POKE 710,12:POKE
712,12:POKE 709,0:POKE 752,1
20 FOR COUNT=1 TO 10
30 X=INT(RND(1)*15)
40 Y=INT(RND(1)*10)
50 ? :? :? X;"+";Y
60 IF NUM<0 OR NUM>99 THEN
NUM=0
70 POSITION 7,7: ? #6;NUM; " "
80 FOR WAIT=1 TO 100:NEXT WAIT
90 IF STICK(0)=14 THEN NUM=NUM
+1:G.60
100 IF STICK(0)=13 THEN
NUM=NUM-1:G.60
110 IF STRIG(0)=0 THEN 130
120 GOTO 90
130 IF NUM=X+Y THEN 160
140 ? "Wrong! The answer is ";X+Y
150 FOR WAIT=1 TO 250:NEXT WAIT:
GOTO 170
160 SCORE=SCORE+1
170 NEXT COUNT
180 POSITION 3,17: ? #6;"YOUR
SCORE: ";SCORE
190 POSITION 0,18: ? #6;" PRESS fire
TO PLAY":POSITION 7,19: ? #6;"AGAIN."
200 FOR WAIT=1 TO 150:NEXT
WAIT:IF STRIG(0)=0 THEN 5
210 GOTO 200
    
```

TOPSHELF MOD

I was very impressed with *Topshef* (*Antic*, January 1988). However, I found a problem in that the Disk Save feature which comes up under the Find function did not perform correctly. There are two options, Data and Text. But the program uses the same routine for saving the data on disk in both instances, which ends up being in Text format. Also, I have more than one disk drive and I like to use the RAMdisk,

which *Topshef* currently doesn't accommodate.

Below is a brief listing for you to type in and LIST to disk as TOPMERGE.LST. Merge it with *Topshef* by typing ENTER "D:TOPMERGE.LST" and don't forget to SAVE the merged version.

Now *Topshef* will let you designate a drive with "Dn:"—or you can just type in the filename. Also, if you compile *Topshef* with Turbo BASIC, you'll notice a great increase in speed. But you'll have to change the variable DEC because it conflicts with a Turbo BASIC keyword.)

```

500 GOSUB TOP: ? "ENTER Dn:file-
name":GOSUB SEC: ? "SAVE>";FILE$;:
POKE 85,6:MODE=1:ILEN=15:GOSUB
INP
    
```

```

510 GOSUB DRV:GOSUB SEC: ?
"SAVE>";A$:GOSUB OK:IF K=78 THEN
500
    
```

```

800 GOSUB TOP: ? "Enter file-
name":GOSUB SEC: ? "SAVE>";:COL=
PEEK(85): ? FILE$;:POKE 85,COL
    
```

```

810 MODE=1:ILEN=15:GOSUB INP:
GOSUB DRV:GOSUB SEC: ? "SAVE>";
A$:GOSUB OK:IF K=78 THEN 800
    
```

```

1500 GOSUB TOP: ? "Enter filename":
GOSUB EC: ? "FILENAME;":POSITION
10,1:MODE=1
    
```

```

1508 GOSUB DRV
1540 IF C=3 AND B$="D" THEN ?
#3;RECORD$(ST(D),ED(D));:GOTO 1550
1545 IF C=3 THEN ?
#3;RECORD$(ST(D),ED(D))
    
```

```

5005 ZERO$="0000000000":DRV=530
5300 IF B$(2,2)=":" OR B$(3,3)=":"
THEN A$=B$:RETURN
5310 A$="D":A$(3)=B$:RETURN
    
```

John Jennings
Hertford, NC

REVEREND'S REVISION

When I received the June, 1988 *Antic*, I immediately typed in *Escape From Hell!* because I thought it would be very useful in the church membership classes I teach as a Presbyterian minister.

Each Sunday in many churches, people say the "Apostles' Creed," but they are generally uneasy when they say the words about Christ: "He descended into Hell." Your program, only slightly changed, seems an excellent way to expose people to the background of those words and provide some mental images to associate with them.

Therefore, very few changes were needed in your program. I retitled it "Rescue from Hell" and I changed the announcement screen to "More Souls to Save." The game character, now representing Christ, was changed to white and given wings, and the *Antic* "A" logos were changed to repentant sinners.

I apologize for not changing the locale of my revised program very much, but it was almost perfect as it stood.

Pastor Bruce Bridgen
First Presbyterian Church
Alva, OK

BOXED IN

I am writing this letter, after much soul-searching, on my new IBM-compatible. I've had Atari computers since 1982 and was about to lay down some big bucks for a 1040ST, but I have this problem with the plastic box.

The Atari box I refer to is the one that's just barely big enough to house the original components (CPU, keyboard, a few ports that Atari decided we needed, memory and finally a disk drive)—but here come the cords. My biggest complaint with my 8-bit systems wasn't the operation, but the cords that I had to run everywhere to plug in more boxes. Atari should wake up and make its box big enough to enclose the parts that we serious users need—the way PC compatibles do. It's embarrassing to have a client trip over a cable running to the second disk drive.

If Atari is serious about competing in the real world, they should make the box large enough to look like it means business—and put all the business parts inside it.

Graydon Gaines
Acton, CA

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

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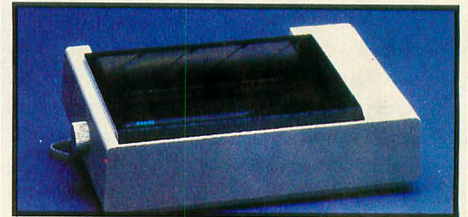
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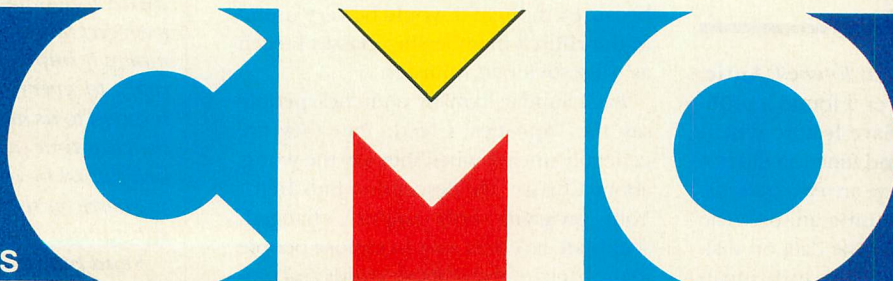
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By GLENN SMITH

Class Scheduler

Ditch those registration-line blues

No need to panic and make bad decisions when you're up against nasty surprises during college registration days. Class Scheduler takes the drudgery out of calculating all possible section combinations of the courses you need to take each semester. This BASIC program works on all 8-bit Atari computers with at least 48K memory. A disk drive is required.

Watch out, college student! It's the start of another semester and once again you are about to enter—*the Registration Zone!!*

In the hellish heat and stuffiness of an overcrowded college gym, long lines of student victims snake slowly towards the high altars of the registration tables. Silent prayers lie choked in the throats of hundreds of students as they wend their way from table to table. "Oh please, let there be an English 101 class available before 4:30 p.m. on the same days as the 8:30 a.m. Computer Science class I just got stuck with."

Putting together a humanly endurable schedule of classes is the first challenge you must meet every semester as you struggle to obtain your higher education. How many times have you spent hours trying to devise a civilized class schedule and then waited endlessly in a registration line, only to be coldly informed that your first, second and third choice of class sections are now closed?

Your only remaining class possibilities meet at the crack of dawn or at the last rays of sunset. All your prior scheduling efforts have gone down the tube. You must now improvise frantically to complete a line-up of classes.

Well, my Class Scheduler program can't guarantee that you'll be able to set up a one-hour break between your Physical Education period and the Chemistry Lab at the opposite end of the campus. But at least you can show up for Registration Day armed with printouts of every possible schedule for which there are no time conflicts. So you won't fall victim to last-minute errors when you make the best choice among whatever classes are still available.

Class Scheduler is an Atari BASIC program that automates all the alternative scheduling choices. Just type in the times for each section of the classes you want to take.

The program will show you all possible schedules for which there are no time conflicts. Each schedule is displayed on the screen. You can press a key to look at the next schedule, or press [START] to copy the screen to the printer.

GETTING SOME CLASS

Beat those college registration blues. Type in Listing 1, CLASS.BAS, check it with TYPO II and SAVE a copy before you RUN it. At the end of the program are some data statements that *must* be entered correctly, otherwise you could lock up your computer. The data is for the [BREAK] key enable/disable routine.

Class Scheduler gets its data from a class file you create with Listing 2. Type in Listing 2, CLASSMAK.BAS, check it with TYPO II and SAVE a copy before you RUN it.

When RUN, Listing 2 will ask you to type in a filename for the class file it will create. Next, it will ask you for the name of the first class you want to schedule. Type in a five-character name, such as CS150, and press [RETURN]. Then, it will ask you how many sections are available for this course.

Next, it will ask you for the starting and ending times of the first course section for every day in the week. Type in the time using a colon to separate the hour from the minute. For example, 10:35, 8:00 and 12:30 are all legal values, but 1035, 0800 and 1230 are not. If a section does not meet at all on a particular day, just type [RETURN] instead of its starting time.

Note that the program handles daytime classes only. Times from 7:00 a.m. to noon are considered morning, while 1:00 to 6:00 p.m. is considered afternoon. After all the sections of a course are typed in, the program will show you the data you typed in, and ask you if it is correct. If so, type Y [RETURN] and then type in the section schedules for your next course. Otherwise, type N [RETURN] and re-type the class data.

Once you've typed in the section schedules for all of your classes, press [RETURN] at the "Name of Class#" prompt and your schedules will be saved to disk.

Now, RUN Listing 1, type in the name of your data file, and it will show you all possible schedules for which there are no time conflicts. When you see a schedule you like, turn on your printer, press [START] and Class Scheduler will print it for you. ■

Glenn Smith of Grand Junction, Colorado is a recent graduate from Mesa College. He debuted in our sixth-anniversary May 1988 issue with Antic Spooler.

Listing on page 28



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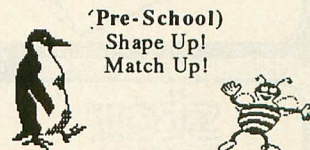
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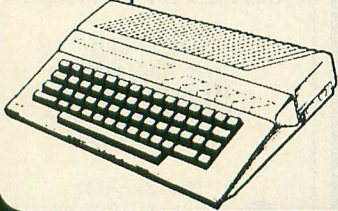
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Sorcerer's Apprentice

What to do when the magic backfires

In *Sorcerer's Apprentice*, you've got to survive a big, big mistake until the boss gets back. Antic's September Game of the Month is a BASIC program that works with all Atari 8-bit computers having at least 32K memory, disk or cassette.

Your parents apprenticed you to the dark sorcerer Nymonn. It's not all that much fun because Nymonn uses you as a guinea pig for all his new spells, turning you into unspeakable things!

Eventually the day comes where you decide you've been turned into an over-ripe radish just once too often. It's payback time!

So you count the hours until Nymonn leaves for the Darkside Sorcerers' Convention. Then you sneak into his study and brush the dust off his spellbook—"1001 Spells for Every Occasion," published by Daemon, Alchemy & Newt. Now, you *know* that Nymonn has strictly forbidden you to touch his spellbook. But you don't care—you've got fire in your eyes.

After many hours in very bad candlelight, you finally find exactly the right enchantment: Ye Spell of Summoning! "That should do nicely," you mutter to yourself. "I'll just summon up some mighty spirit to deal with the old goat once and for all!"

You read over the spell very, very carefully. When you feel fully prepared, you cast the spell. . . The magical chamber, with its mysteriously looming demonic statue, is suddenly suffused with an eerie red glow as an energy ball materializes above the pentagram on the floor. With a blinding flash, it disappears, and in its place floats a glowing blue apparition.

The blue wraith darts around the room, spewing deadly globs of green ectoplasmic ghost goop everywhere. This can't be right! You hurriedly refer back to "1001 Spells" for a fireball spell, which you hastily cast at the apparition. It screams and disappears.

But then another apparition appears right away. You cast another fireball at it. Same thing: It disappears and *another* apparition takes its place! This is far from what you have in mind, and one simple thought zings through your fevered, fatigued mind:

"Oops, I'm in deep ectoplasm now!"

All you can do is keep fireballing those apparitions and hope for the Sorcerers' Convention to end soon so



Nymonn can bail you out.

Use the joystick to move the apprentice left or right across the bottom of the screen. The death-dealing ectoplasm spatters when it hits the floor, so watch out. To cast a fireball, press the joystick button. You get 75 points for every apparition you destroy. Your apprentice has four lives.

GETTING STARTED

But before anything else, type in Listing 1, SORCERER.BAS, check it with TYPO II and SAVE a copy before you RUN it.

If you have trouble typing the special characters in lines 340-560 and 916-934, don't type them in. Instead, type Listing 2, check it with TYPO II and SAVE a copy. When you RUN Listing 2, it creates these hard-to-type lines and stores them in a file called LINES.LST.

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

James Catalano of Chicago sent us more submissions on a single disk than we normally get from several people in a month. You'll see two other Catalano games in upcoming issues of Antic.

Listing on page 30

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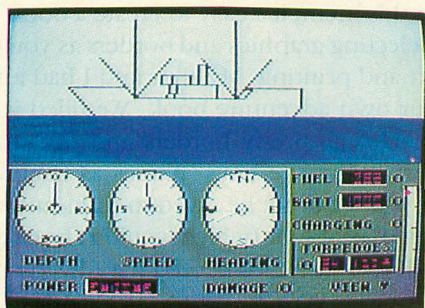
Product Reviews

Gato, Sesame Street Printer Kit

GATO

This month's new Atari XE Game System release is a cartridge conversion of the computer disk hit *Gato*, a World War II submarine simulation originated by Spectrum Holobyte.

You command the Growler, a Gato class submarine equipped with radar and 24 torpedos or mines. The Growler can run at 20 knots on powerful diesel engines while surfaced and 9 knots on electric power while submerged. The objective of Gato is to complete as many missions as you can without returning to your sub tender for supplies and repairs. Missions include sinking convoys, scouting islands and rescuing downed airmen—while evading attacks of enemy destroyers and patrol boats.



The main menu screen lets you set the difficulty level, number of players, day or night mission, and sound on or off. Mission messages are received faster when the sound is off. The main screen shows a view from the bridge (when surfaced) or through the periscope (submerged down to 45 feet). You can see in four different directions. The depth and speed are also shown on this screen, as well as the amount of fuel, battery charge, number of torpedos, ready torpedo tubes and oxygen supply.

The patrol chart, divided into quadrants, shows your entire patrol area, including islands, your sub tender and enemy vessels (in the lower levels). The quadrant chart shows greater detail of everything in your immediate quadrant. The radar screen shows islands and ships, and has a greater range than your bridge lookout. It's also handy for night action, when nothing is visible from the bridge.

The joystick steers your submarine and controls diving and surfacing. The joystick button launches torpedos. All other controls are operated by the keyboard. This is awkward at first, but commands are mostly mnemonic.

Gato's graphics are adequate, although the graphics of ships and islands are quite limited. Each ship has only a few different views, so ship movements are jerky. The

torpedo hit graphics could be improved and the sound is limited. My main complaint is that the target range is not available, so it's difficult to judge how much to lead your target when firing torpedos.

On the plus side, Gato is quite playable, with strategic planning an important part of each attack. If the enemy counterattacks, getting away can be quite hairy and sometimes you won't make it. You can return to the sub tender for repairs any time unless you're under attack. There's even a shortcut for moving around the screen, so you don't need to cruise for a long time just to get where you're supposed to be. Another nice feature is that if you have a disk drive, the captain's log can be saved to record all the tonnage sunk by the current commander. Overall, the XE cartridge version of Gato is a lot of fun.—DAVID PLOTKIN

\$22.95, requires 48K memory. Atari Corp., 1196 Borregas Avenue, Sunnyvale, CA 94086. (408) 745-2000. Optional: XF551 or 1050 disk drive for captain's log recording.

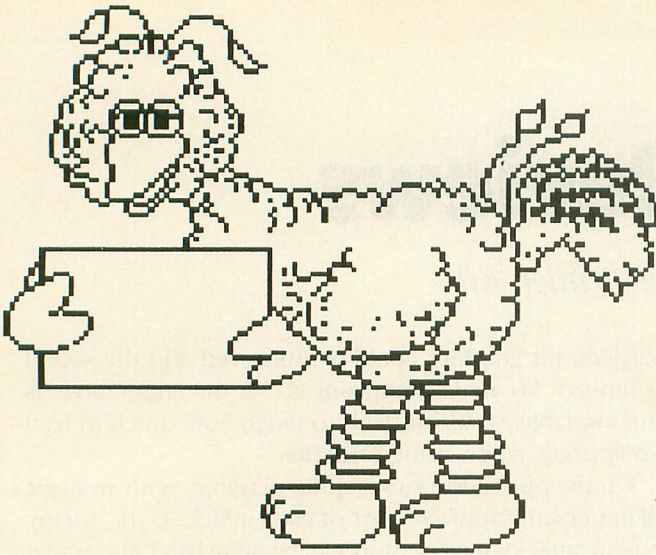
COMING CARTRIDGES

Atari Corp. will release 19 new XE Game System cartridges in 1988, according to Michael Katz, president of Atari's Entertainment Electronics Division. Each cartridge is to retail for under \$25 and can run on Atari 8-bit computers with at least 48K memory.

Here are some of the upcoming XEGS titles we can expect soonest:

Ace of Aces (Accolade) puts you in the cockpit of a British Mosquito fighter/bomber. **Into the Eagles Nest (Pandora)** sneaks you into Hitler's infamous stronghold as a lone American soldier. **Karateka (Broderbund)** calls upon your hero's karate skills to rescue the princess from the evil warlord.

In Atari's **Necromancer**, you're a druid magician leading an army of living trees against demons. The arcade hit **Food Fight** features more than 100 levels of an increasingly messy comestible confrontation. **Desert Falcon** sends you on a search for treasure and hieroglyphs as you wage war against the evil sphinx. In **Commando (Data East)**, you'll battle enemy soldiers and rescue POWs.—ANTIC ED



SESAME STREET PRINT KIT

Sesame Street Print Kit (\$12.95) is a charming little desktop publisher for toddlers. It lets you build cards, signs, banners and storybook pages using Sesame Street's lovable Muppets—Big Bird, Cookie Monster, Oscar and all the rest. This Print Shop workalike has a simple user interface—to go to a previous menu so you can make changes, just press [ESCAPE]. When you are creating a page, a graphics window at the top of the screen shows roughly what your final output will be.

The documentation includes a handy reference card that covers all major details. Written for all computers supported by Hi-Tech, the manual has a separate section teaching each keyboard's different commands. There's also a tutorial on creating a greeting card, which introduces all the major features of the program.

Printer setup is quite simple—Print Kit supports plenty of printers. Only occasionally did I run into any small problems with garbage printing.

There are three types of greeting cards—wide, tall and tent. The tall and wide cards have front and back (outside), and left and right (inside) quadrants. You can print on all four quadrants with Print Kit. Each section of the card can contain borders, graphics and text.

Borders and fonts are not displayed graphically (as they are in Print Shop), so keep the quick reference card handy. You can have borders on any or all of the four sides of a page, and they can be printed in several different sizes as well. The manual provides suggestions for table name cards, birthdays, invitations and book name plates.

Print Kit's flexible text editor provides seven fonts—Fine Print, Avant Garde, Headline, Times, Old English, Zapf (italics) and Christmas (gothic). Each font can be printed in bold, italic, outline, jazz (3-D effect), shadow and raised. Print Kit is compatible with PowerPrint, Hi-Tech's general-purpose printing program reviewed in the July 1988 *Antic*. This means you can use PowerPrint's fonts, graphics and borders.

Once the graphic design is laid out, control goes to the text editor. As you enter text, a small graphic representation of the page appears at the top of the display, making

it easy to see what the final results will look like and eliminating most of the guesswork. Four different fonts can be used in a single design. Control command keys select justification, text size, font and text style on each line.

Vertical status windows appear on both sides of the text editing area. They show the current text parameters in use and can be changed at any time. The only limitations of the Print Kit editor are that lines cannot be inserted and deleted. If you miss a line half way through a page, then you must go back and type it—and then retype everything afterward. (This is also true of Print Shop.) Text sizes may be set to 3/8-inch, 3/4-inch and 1 1/2 inches in cards and signs. Eleven text sizes are available for banners.

Signs can be created in vertical, horizontal and half-page formats. To create a sign, just select a border and graphic, enter the text and then print. Banners can be up to 42 pages long. By adjusting type size and text length, bumper stickers, small signs and postcards can be created easily from the banner menu. Print Kit automatically sizes any selected graphic to match the text size. If a graphic is chosen for both ends of the banner, it can be "mirrored" to make the text appear as if it were between bookends.

A storybook page is simply a customized version of a sign. From this menu it's easy to create a book one page at a time, selecting graphics and borders as you go, entering the text and printing. My sons and I had a lot of fun creating our own adventure book. We filled it with the graphic characters, pretty borders and our own make-believe story using the boys' names as central figures. Storybook pages cannot be saved to disk, unfortunately. I photocopied the results (which wouldn't be easy to recreate manually) so each child could have his own book to color.

The Atari version of Print Kit comes on two disks, with the Commodore version on the flip side. The software lets you specify the source drive for graphics, which is great if you have two floppies. The program supports extended XL/XE memory configurations from the setup options menu.

Print Kit takes full advantage of all the possible memory configurations of the 8-bit Atari. I ran the program from an MIO RAMdisk, which allowed Print Kit to run much faster. The flexibility of this product is impressive.

The software comes on *enhanced density* disks, so it can be loaded only from Atari 1050s or other drives that support enhanced density. Print Kit is *NOT* copy-protected, but this low-priced, high-power product deserves to be purchased, not pirated.

Print Kit is an impressive package for the price. If you have toddlers who love the Sesame Street characters, Sesame Street Print Kit is superb for creating customized storybooks, or activity "coloring pages" as well as the usual sign and card making.—MATT RATCLIFF ■

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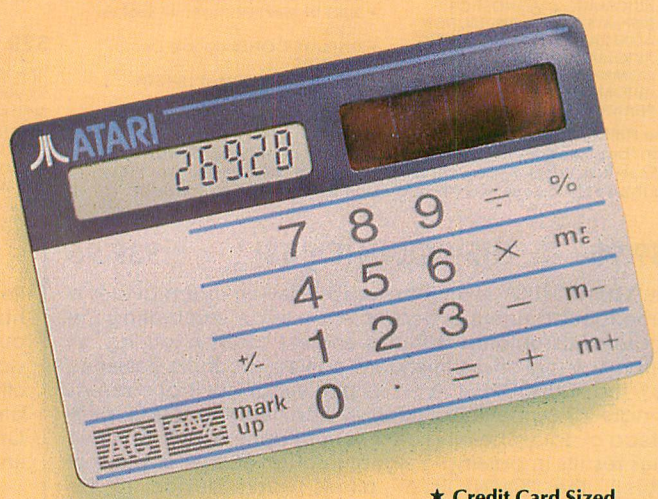
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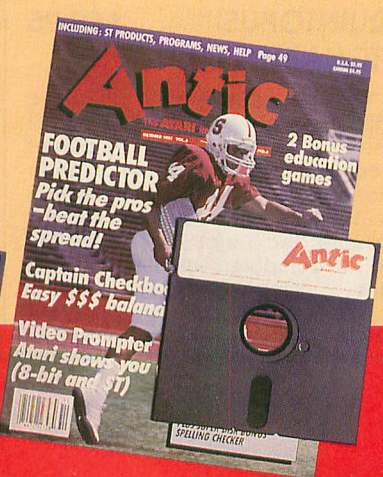
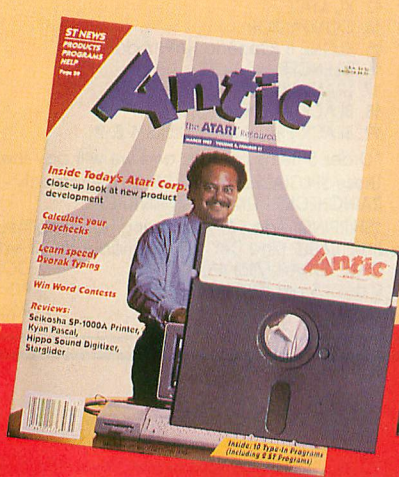
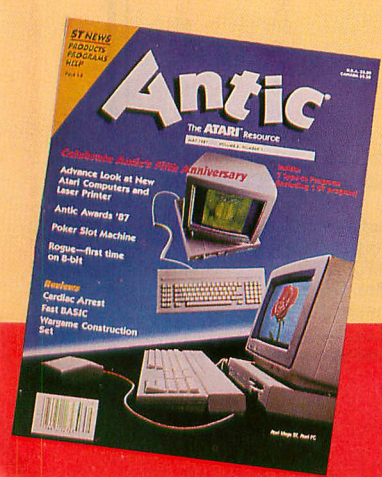
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By ERIK TIMMERMAN

Color Vision Booster

Tricky game improves color perception

Test—and improve—your color perception with this deceptively simple matching game. The BASIC program works on all 8-bit Atari computers of any memory size, with disk or cassette. Of course, a reasonably accurate color video display is required.

It is an astonishing fact of life that within the relatively small bandwidth of visible light—400 to 700 nanometers—most human beings can distinguish about three and a half million different colors. If we make a comparison to sound energy, we discover that visible light covers less than an “octave,” and yet our eyes have a most amazing sensitivity to the possible combinations of colored light.

The price we pay for this sensitivity is that our perception of any given color is relative. The same color will appear different, depending upon factors such as the colors surrounding it and the kind of light illuminating it. Color Vision Tester is an educational game based upon this relativity of color perception.

Color Vision Tester checks your color sense with a display of three different-colored nested rectangular boxes on a background of a fourth color. Use the joystick to change the color of each box to match the background. Start on the center box and work outward. When you're done, the video screen should be one even, unbroken, flat field of color.

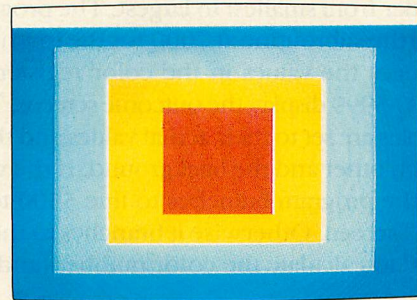
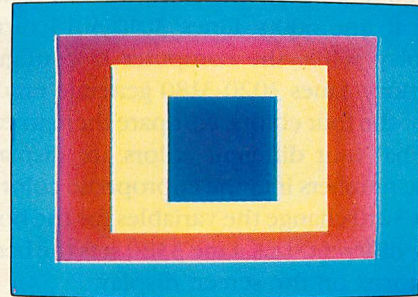
It's not as easy as it sounds. I tested the game on college level painting students in a course on color perception and the success rate was about 50%—but practice should help.

GETTING STARTED

Type in Listing 1, COLORVIS.BAS, check it with TYPO II and SAVE a copy before you RUN it.

Following a title screen, press any key to start the game. The Atari fills the screen with four randomly generated colors.

Try to match the innermost rectangle to the background by manipulating the joystick. Moving it left or right changes the hue. Moving it up or down changes the luminance. When you think you've made a match, press the joystick button. This will freeze the color in that box and move you to the surrounding one.



Repeat the process and press the joystick button again when you think you've made a match. Match up the outermost rectangle and press the joystick button again. If you “win,” several colorful, congratulatory screens appear.

Don't be discouraged if you “lose” a lot when you first take on the Color Vision Tester. You'll improve rapidly. I put the words win and lose in quotes because the game really isn't about winning or losing—it's about sharpening your color perception.

Color Vision Tester is based on the phenomenon of simultaneous contrast. The tendency of the human eye to see complementary colors, even if they're not there. A small rectangle of any color on a field of red will assume a greenish cast because the eye wants to see green. On a blue field, the color will look more orange than it really is.

Also, a given color will look brighter on a dark background or darker on a light background. Type in Listing 2, COLORV2.BAS, for a demonstration of this phenomenon. Check it with TYPO II and SAVE a copy before you RUN it.

PROGRAM TAKE-APART

If Color Vision Tester was set up to work in reverse—starting with the outer rectangle and working inward, only persons with some form of color blindness would have any trouble succeeding. But trying to match two colors separated by one or two intervening colors is not so easy.

Line 99 dimensions a string for the color name. Lines

100 to 500 divide the program into five discrete steps. Line 599 clears the screen if the player chooses not to play again. It returns the user to BASIC with Color Vision Test still in memory.

Lines 1000-1999 set up and display the title screen in Graphics 2. The delay loop determines how long the screen is displayed and can be modified to your taste.

Lines 3000-3990 draw the game screen, using a draw subroutine at line 6000. Lines 3010-3015 turn off the screen display while the computer is configuring the screen memory. Lines 3020-3180 generate random even numbers for the four colors, compare them to each other to ensure that four different colors are displayed, and POKE those numbers into the appropriate color registers. Lines 3200-3210 change the variables for the boxes in order to draw different sizes. Line 3380 sets the background color and turns on the screen display.

In lines 4000-4999 the variable N is set to the three boxes in order from smallest to largest. The program then branches to the subroutine at 7000 for the joystick input, which changes the values in the color registers.

Lines 5000-5999 display the outcome screens. The three color variables are set to their actual values and then compared to each other and the background. If the values are not equal, the program branches to line 5500 to display the "losing" screen. Otherwise it branches to the subroutine at 8000 to calculate the color number (and thus the

name) and luminance value.

If all four color registers are equal, a series of congratulatory screens is displayed. The delay loops at 5181, 5210 and 5301 can be changed. Lines 5325-5499 OPEN the keyboard for a yes/no response from the user, CLOSE the keyboard and branch to the end of the program or the beginning of another game without the title screen or instructions. Lines 5500-5999 display the color names and luminance values for all four color registers, ask if another game is desired and branch accordingly.

Lines 6000-6999 do the actual drawing of the the four rectangles according to the values set in the subroutine at 3000.

Lines 7000-7999 change the value in a color register based upon joystick input, and keep those values between 0 and 255. This is an infinite loop unless the joystick button is pressed. Adjust the delay loop at 7060-7070 to suit your joystick. Line 7090 checks for the joystick button and the delay loop at line 7997 allows for switch bounce in the button.

Lines 8000-8999 calculate the Atari color number, name and luminance.

Erik Timmerman, a faculty member at the Rochester Institute of Technology in Rochester, New York, teaches filmmaking and computer animation.

Listing on page 27

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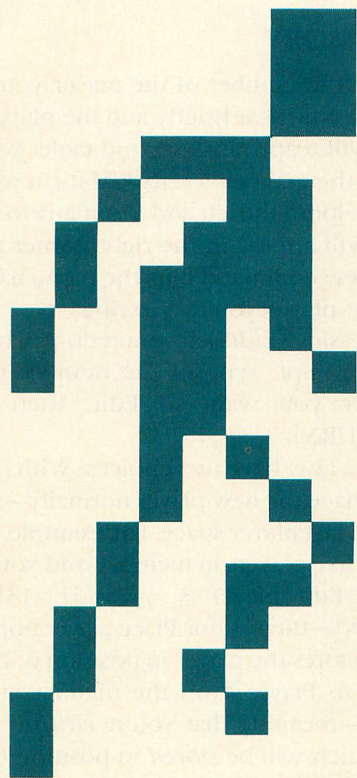


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Powerful animation drawing board

P/M Graphics Studio



P/M Graphics Studio is a slick, powerful software tool for programming games and animated sequences. This BASIC program makes it easy for you to create, change and animate Player/Missile graphics characters on Atari 8-bit computers with at least 48K memory and a disk drive.

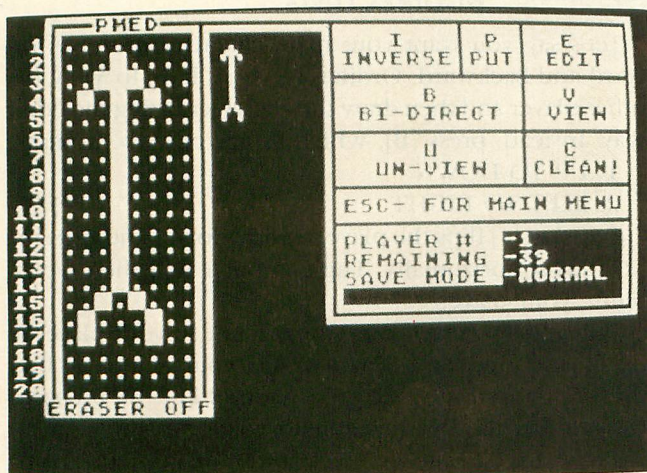
Type-In Software 

W

hen you first began learning how to program your 8-bit Atari, you probably wondered how the computer could make those little shapes move across the screen and how the shapes were created in the first place. P/M Graphics Studio not only enables you to effortlessly create and move Player/Missile characters, it will also help new programmers better understand the Atari's innovative Player/Missile graphics animation capabilities.

GETTING STARTED

Type in Listing 1, MAKEAUTO.BAS, check it with TYPO II and SAVE a copy before you RUN it. MAKEAUTO creates an AUTORUN.SYS file for the P/M Graphics Studio.



B Y T O M L A R O S A

Now type in Listing 2, PMED.BAS. If you have trouble typing in the special characters in lines 30001-30002, don't type them in. Listing 3 will create them for you. Check it with TYPO II, and SAVE a copy to disk. When RUN, Listing 3 creates these hard-to-type lines, and stores them in a disk file called D:LINES.LST.

To merge the two programs, LOAD "D:PMED.BAS" then ENTER "D:LINES.LST". Remember to SAVE the completed program before you RUN it.

Finally, you can type in Listing 4, PMED.ANM, check it with TYPO II and SAVE a copy before you RUN it. PMED.ANM is the program that lets you animate your players. However, you can RUN the Player/Missile Graphics Studio without this program if you are not currently interested in making your character graphics move onscreen.

NOTE: After you type in the listings, *don't change anything* in these programs. They are very condensed and handle a maximum of memory. Make sure every variable remains the same. Keep all the files in the Player/Missile Graphics Studio on a separate disk, but don't put write-protect tabs on it. Be sure to write DOS to the disk as well.

STUDIO OPERATIONS

After PMED.BAS finishes LOADING, the main menu will appear with the following items:

- M—Make players
- A—Load in animator
- S—Store players (Disk)
- L—Load players

Press the letter of the command you want to use. Each option has several sub-menus and sub-commands.

Pressing [M] for Make Players clears the screen and draws a "tablet" — a series of dots with a border—on the left side of the screen. The tablet is where you make your players (shapes). Next to the tablet is a menu

of items that will help you create and manipulate these players.

Plug your joystick into port 1. The flashing cursor tells you your position on the tablet. To draw, move the joystick while pressing its button. To move without drawing or erasing, *don't* press the joystick button. If you don't have a joystick, use the [ARROW] keys—to move without drawing (or erasing), *don't* hold down [CONTROL].

Press the [SPACEBAR] to toggle the eraser on and off. When it's on, the drawing cursor becomes an asterisk [*]. To plot a single point—either erasing or drawing—press the button or the [INVERSE] key without moving the cursor.

As you draw, your player in double-resolution P/M graphics is created just to the right of the tablet.

Once you finish a player, press [P] to Put it in memory. You'll then be prompted to confirm it by pressing [Y]es. Otherwise press any other key to keep drawing or to choose another command.

After you press [Y], a prompt will ask if you want to

Clean the tablet. Press [Y] *only* if you want to start from scratch. The [C]lean command can be accessed while drawing.

To compare a previously saved player to the player you're now working on, press [V]iew. At the following prompt, type in the number of the player to be viewed. If you change your mind, press [RETURN] to continue.

The player numbers are at the bottom of the screen. Notice that after the Put command, the player number will increase by 1. Underneath that is Players Remaining—how many more you can Put into memory.

EDITING IN MEMORY

After you type in the number of the player you want to [V]iew, the screen will clear briefly and the player you were working on will reappear. A second tablet will appear to the right of the main tablet. Its P/M form will appear in a different color to the left and a miniaturized version of the menu will appear in the right corner of the screen. The [U]n-view command puts the menu back up while removing the player you're Viewing.

Pressing [E]dit lets you redo a player. At the prompt, type in the number of the player you want to Edit, then press [RETURN].

You now have two choices. With [1] you can Place the new player normally—stored in the last player space. For example, if you have five players in memory and you want to re-Edit player 3, press [E] [3] [RETURN]—then [1] for Place player normally. This stores the player in position 6. In fact, next to Player # on the menu you'll see 1=6—meaning that you're *editing* player 1, which will be *stored* in position 6. The [2] option is Replace Original.

BI-DIRECTING

Let's say you want your main character to move forward and backward. Ordinarily, you'd have to View the other player and then draw the character facing the other way. Instead, press [B], which brings up two prompts:

1. UP TO DOWN
2. LEFT TO RIGHT

Pressing [1] flips the player upside-down, and pressing [2] flips it horizontally. The computer will then reconfigure your player.

Pressing [I]nverse turns all the white in your player to black, and vice versa. If you're sure you want to do this, press [Y]es. Otherwise, press another key. Be prepared to wait a while for the program to finish.

Press [ESCAPE] to get back to the main menu. Don't worry if you were working on a player and didn't yet want to Put it into memory—you can go back to the tablet and your player will come back up.

SAVING PLAYERS

Press [S] to Save players to disk. You'll see these menu

options:

- C—Computer save only
- D—Data statement save
- P—Pre-configured strings

Pressing [C] saves all your players as a text file—useful for saving disk space. When asked for a filename, *don't* specify a drive number or an extender or use quotation marks. Just enter a name up to eight characters long.

The [D] command creates two files. The one with your specified filename will have P/M and DATA statement routines for placing your players in memory. Another file contains the version of your players for loading later.

The [P] command creates three files. First is a file that accesses the disk drive and quickly puts a pre-configured string into memory. It requires less memory, but it takes more disk space. The second file contains the string DATA, as well as your filename and “.STR” extender. The last file contains the computer version of your players.

LOADING PLAYERS

Pressing [L] from the main menu brings up the following Load menu:

- A—Append two files in mem.
- D—Directory .PMG files
- L—Load a file

The [L] command lets you Load back a file. If you already have players in memory, press [Y] to clear memory. Otherwise, press any other key. Then follow the same rules as in the [S]ave command.

The [D]irectory command displays an index of just the .PMG (Player/Missile graphics) files on the disk. Press any key to return to the [L]oad menu.

The [A]ppend command lets you load two files into memory at once, though the total of players from both files must not exceed 40. Enter the filenames when asked.

NOTE: while loading or saving, you can press [RETURN] at the FILENAME prompt to abort. Press [ESCAPE] to return to the main menu.

ANIMATING PLAYERS

Press [A] on the main menu to access the Animator program. When the screen clears, you'll be asked to put the Player/Missile Graphics Studio disk in drive 1 and press [RETURN]. Player/Missile Graphics Studio will create a temporary file, TEMP.ANM, which holds the players you have in memory at the moment. So *don't* put a write-protect tab on the Player/Missile Graphics Studio disk, and make sure the disk has at least 30 free sectors.

The Animator will load the players you had in the temporary file. This menu then appears:

- S—Still animation
- H—Horizontal animation
- V—Vertical animation

If you press [S], you'll be asked how many players you want to animate. You can animate as many 40, even if you

only have 10 players in memory—or even two.

Think of the number of players to animate as *frames to fill*. Then you'll be asked which player to animate in that position. Don't type in a number that won't work. For example, if you have 14 players in memory, don't type 15 at the prompt.

You can also type “all,” which puts all the players in memory into a corresponding position and sends you to the Animation screen. You can animate odd-numbered or even-numbered players just by typing “odd” or “even.”

From the Animation screen, press [ESCAPE] to go to the Animation Editor. There are no players onscreen yet. To show the players you specified, move the joystick right to scroll forward through the players or left to go backward (or press the appropriate [ARROW] keys).

HORIZONTAL & VERTICAL

Press [H] for Horizontal animation, then decide how many players to animate horizontally, up to 20. For each, follow the same rules as in still animation.

You have two other quick options available in horizontal animation. You can type “O to E” (odd-to-even) or vice versa. If you typed O to E, odd-numbered players are placed in the first 20 positions—the ones facing right. The rest are placed in the positions facing left. The same movements apply as in still animation.

The same rules apply to vertical animation, except that you're now going up and down instead of left and right.

MAKING GAMES

On either the DATA statement form or the pre-configured strings on line 30200, at the end of the line you'll see a REM RETURN. Remove the REM. Then you may want to place the line 29999 STOP just before the

P/M routine. Your program must have at least 7,100 bytes free, so don't make it too big.

Now your players are in P\$. the pointer for each player is in P(n). The command to access each player is a USR statement:

```
U = USR(MOVE,0,PMB,P(N),X,Y,20)
```

The variables MOVE and PMB are required in the first and third positions. Don't change them!

The 0 in the second position is the first player. As many as four can be on the screen at once, numbering from 0-3. In P(N), P is the pointer of the player and N is the number of the player to display. X is the horizontal position onscreen and Y is the vertical position. The 20 is the size of the player. ■

Tom LaRosa lives in Ocean Springs, Mississippi. This is his first publication in Antic. Listing on page 32

• Atari Community—we're all in it together •





V I D E O T I T L E S H O P

Flashy text effects for desktop video

Reviewed By CHARLES CHERRY

For a couple of years I've believed that desktop video is the most exciting new field for computers. When you combine a computer, a VCR and your own imagination, the results can be breathtaking.

While the leaders in this field have been the bigger, faster, more expensive machines, the 8-bit Atari is no slouch when it comes to video graphics. All we've lacked so far is the software, but this year it has begun to arrive. In the April 1988 issue I reviewed *Virtuoso*, a video animation and music package. It's a powerful, exciting tool, but it doesn't handle text very well. Now we have Datasoft's **Video Title Shop** (\$29.95). It handles text magnificently.

Video Title Shop is a tool for creating title screens, credit crawls, annotations, subtitles and any other text messages for your home video tapes. While the Atari computer cannot overlay these messages on top of your videocamera pictures, it can intersperse them throughout your show. That's what Video Title Shop is for—in fact, it does much, much more. It creates spectacular, text-based animations and special effects.

HOW IT WORKS

The program is superbly organized and makes complex effects easy to create. Basically, you define separate blocks of text onscreen. Text can be automatically left-justified or right-justified, or centered within the block. You have choices of text size and font. Two fonts in several sizes are included.

Each text block, called an object, has its own font, size and color, as well as its own special effect. It can pop onto the screen all at once, or one letter at a time, or it can wash on smoothly. It can move around the screen, or on and off the screen. It can fade in or out, do a fizzle (pixel dissolve), wipe on or off from four directions, change colors, fonts and text.

While placing several objects on the screen at the same time, each with a mind of its own, can get complicated, Video Title Shop keeps it under control. The flow of the sequence is organized into separate screens called pages. This makes it easy to keep track of who does what when and where.

In practice, most pages duplicate the pages next to them, only the changed objects are different. This produces a smooth, continuous flow and the viewer sees no indication of the program structure. Yet it's this structure that makes Video Title Shop a joy to use. Powerful editing tools

VIDEO-MEISTER

Irata Verlag's **Video-Meister** is new software for Computereyes—Digital Vision's \$129.95 video digitizer box that captures pictures from sources such as a video camera or VCR. Once the picture is in your computer, it's just like any other graphic and can be saved to disk, loaded into paint programs, or printed with a printer dump program.

Computereyes comes with software to capture pictures in Graphics 8 or Graphics 9. Video-Meister duplicates the Computereyes functions and adds programs to manipulate Graphics 9 images as well as to print pictures in both Graphics 8 and 9. Video-Meister is about 10% faster than Computereyes software, but Computereyes produces slightly better pictures. (Actually, the differences are so small you wouldn't notice unless they were side by side.)

The Graphics 9 image processing package, PICMIX, can combine pictures, alter colors, and do a nice (and very fast) anti-aliasing procedure. The anti-aliasing "softens" the image, making it appear rounder, smoother, and often more lifelike.

The simple printer dump offers positive or negative printing and a few different sizes. It works with Epson-compatible printers and is one of the few programs that can print Graphics 9 pictures.

The menus and prompts are all in German and the printed instructions don't always have the translations right. But a little experimenting sorts things out quickly. I booted a disk sector editor and changed the Video-Meister menus to English equivalents. It helped a lot.

This is a very convenient package if you need to digitize a picture and print it immediately. The price is so reasonable that every Computereyes user should own it. Also, you who work with Graphics 9 pictures could use PICMIX whether you have Computereyes or not.—CHARLES CHERRY

\$10, 48K disk. Irata Verlag USA, 1227B Potter Drive, Colorado Springs, CO 80909. (303) 596-0135.

make it a breeze to move around in the most complex sequences—inserting, deleting and duplicating pages, or cutting and pasting objects.

Of course there is comprehensive control over the speed at which things happen. Whenever an effect occurs, you can set speed and delays for it. Each page can be clocked for the length of time it remains onscreen. There's even a manual advance feature that pauses the show until a key is pressed. A single keypress can run one page, the entire sequence once, or the entire sequence continuously.

And if you think all this is enough, I should tell you one more thing. Everything I mentioned so far can happen in front of background pictures—and the pictures can change.

PICTURE THE BACKGROUND

Video Title Shop comes with Graphics Companion I—two disks containing 30 background pictures. Five of these graphics are ornate borders and the rest are seasonal and recreational pictures. They're all designed with large open areas where you can place your text. There are pictures for Christmas, New Year, Valentine Day, Easter, graduation, weddings, Fourth of July, birthdays, Halloween, Thanksgiving and Hanukkah, as well as skiing, sailing and travel.

The pictures are in the standard Micro-Painter format, so you can substitute your own art if you want. Also, Graphics Companion I pictures can be loaded into your favorite paint program and touched up. If you don't have a favorite paint program, included free with the Video Title Shop package is Micro-Painter Plus.

Micro-Painter was the original full strength graphics program for the Atari and it is still very functional. In 1983, I paid more for Micro-Painter than Video Title Shop costs today—and I thought I got a good deal. Now, I think Video Title Shop is an outstanding deal. The instruction manual has a very good tutorial and excellent explanations of how to connect your computer to your VCR and record your creations. But there's no section explaining how each feature works and why. It takes some experimenting to discover how the effects inter-relate. Nevertheless, the manual, combined with the excellent program design, makes the program very approachable and no one should have trouble with it.

SOME PROBLEMS

This program supports only one disk drive. In fact if you have two drives turned on, the fonts get scrambled onscreen! Since the fonts and background pictures load from disk as needed (and delay the sequence while they load), it's an ideal situation for a RAMdisk—but forget it.

The other thing this package needs is a font editor. I hope that future editions of the Graphics Companion will contain more fonts, but it's nice to be able to design your own. And if you're doing character set animations, it's essential.

Finally, it would be nice to have a public domain player (like Virtuoso does) so you could share your creations with others. I think the applications are much wider than just putting your animations on video tape. Of course, it's a natural for disk-based greeting cards, outlandish letters and illustrated correspondence. It might be the thing to make electronic publishing viable via disk-based magazines or newsletters. Naturally it will be used all over the country to produce public messages that never get near a video tape. My Atari users group, ABACUS, displayed a fancy electronic marquee at the West Coast Computer Faire in San Francisco, courtesy of Video Title Shop. When the Atari crowd puts this software to work, they will create wonders. ■

\$29.95, 64K disk. Datasoft. Distributed by Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. (800) 245-4525

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DISK SUBSCRIBERS: Programs for 8-bit Atari computers can be used immediately. Just follow instructions in the accompanying magazine articles. ST Owners: See monthly disk's ST Help File for instructions on how to transfer programs to 3-1/2 inch disk.

DOS COMPATIBILITY: All 8-bit programs published by Antic are tested to work with Atari Disk Operating System (DOS) 2.0S and 2.5—not with the incompatible DOS 3.0. DOS 2.0S is available on each Antic Monthly Disk. Copy the DOS.SYS and DUP.SYS files.

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TYPING SPECIAL ATARI CHARACTERS

Antic printed program listings leave a small space between each Atari Special Character for easier reading. Immediately below you will see the way **Antic** prints all the standard Atari letters and numbers, in upper and lower case, in normal and inverse video.

```

ABCDEF GHI JKLMNOPQRSTU VWXYZ
ABCDEF GHI JKLMNOPQRSTU VWXYZ
abc defgh i jklmnopqr stuvwxyz
abcd efg h i jklmnopq rstuvwxyz
0123456789          0123456789
  
```

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

NORMAL VIDEO				INVERSE VIDEO			
FOR THIS	TYPE THIS	FOR THIS	TYPE THIS	FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
	CTRL ,		CTRL S		CTRL ,		CTRL X
	CTRL A		CTRL T		CTRL A		CTRL Y
	CTRL B		CTRL U		CTRL B		CTRL Z
	CTRL C		CTRL V		CTRL C		ESC
	CTRL D		CTRL W		CTRL D		SHIFT DELETE
	CTRL E		CTRL X		CTRL E		ESC SHIFT DELETE
	CTRL F		CTRL Y		CTRL F		ESC SHIFT INSERT
	CTRL G		CTRL Z		CTRL G		ESC CTRL INSERT
	CTRL H		ESC ESC		CTRL H		ESC CTRL TAB
	CTRL I		ESC CTRL -		CTRL I		ESC CTRL TAB
	CTRL J		ESC CTRL =		CTRL J		ESC SHIFT TAB
	CTRL K		ESC CTRL +		CTRL K		CTRL .
	CTRL L		ESC CTRL *		CTRL L		CTRL ;
	CTRL M		CTRL .		CTRL M		CTRL =
	CTRL N		CTRL ;		CTRL N		CTRL =
	CTRL O		SHIFT =		CTRL O		ESC CTRL 2
	CTRL P		ESC SHIFT CLEAR		CTRL P		ESC CTRL
	CTRL Q		ESC DELETE		CTRL Q		ESC CTRL DELETE
	CTRL R		ESC TAB		CTRL R		ESC CTRL INSERT
					CTRL S		
					CTRL T		
					CTRL U		
					CTRL V		
					CTRL W		

Whenever the CONTROL key (CTRL on the 400/800) or SHIFT key is used, *bold it down* while you press the next key. Whenever the ESC key is pressed, *release* it before you type the next key.

Turn on inverse video by pressing the Reverse Video Mode Key . Turn it off by pressing it a second time. (On the 400/800, use the Atari Logo Key instead.)

Among the most common program typing mistakes are switching certain capital letters with their lower-case counterparts—you need to look especially carefully at P, X, O and 0 (zero).

Some of Atari Special Characters are not easy to tell apart from standard alpha-numeric characters. Usually the Special Characters will be boxed. Compare the two sets of characters below:

SPECIAL		STANDARD	
	CTRL F		/
	CTRL G		SHIFT +
	CTRL N		SHIFT -
	CTRL R		-
	CTRL S		+

HOW TO USE TYPO II (8-BIT)

TYPO II automatically proofreads Antic's type-in BASIC listings for 8-bit Atari computers. It finds the exact line where you made a program typing mistake.

Type in TYPO II and SAVE a copy to disk or cassette. Now type GOTO 32000. When you see the instruction on the screen, type in a single program line **without the two-letter TYPO II code** at the left of the line number. Press the [RETURN] key.

Your line will reappear at the bottom of the screen with a two-letter TYPO II code on the left. If this code is not exactly the same as the line code printed in the magazine, you mistyped something in that line.

To call back any line previously typed, type an asterisk [*] followed (without in-between spaces) by the line number, then press [RETURN]. When the complete line appears at the top of the screen, press [RETURN] again. This is also the way you use TYPO II to proofread itself.

To LIST your program, press [BREAK] and type LIST. To return to TYPO II, type GOTO 32000.

To remove TYPO II from your program, type LIST "D:FILENAME",0,31999 [RETURN] (Cassette owners LIST "C:"). Type NEW, then ENTER "D:FILENAME"[RETURN](Cassette—ENTER "C:"). Your program is now in memory without TYPO II and you can SAVE or LIST it to disk or cassette.

Don't type the
TYPO II Codes!

```

WB 32000 REM TYPO II BY ANDY BARTON
UM 32010 REM VER. 1.0 FOR ANTIC MAGAZINE
HS 32020 CLR :DIM LINE$(120):CLOSE #2:CLO
SE #3
BN 32030 OPEN #2,4,0,"E":OPEN #3,5,0,"E"
YC 32040 ? "K":POSITION 11,1:? "██████████"
EM 32050 TRAP 32040:POSITION 2,3:? "Type
in a program line"
HS 32060 POSITION 1,4:? " ":INPUT #2:LINE
$:IF LINE$="" THEN POSITION 2,4:LIST B
:GOTO 32060
XH 32070 IF LINE$(1,1)="*" THEN B=VAL(LIN
E$(2,LEN(LINE$))):POSITION 2,4:LIST B:
GOTO 32060
TH 32080 POSITION 2,10:? "CONT"
MF 32090 B=VAL(LINE$):POSITION 1,3:? " ":

```

```

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

```

tricky game improves color perception

COLOR VISION BOOSTER

Article on page 17

LISTING 1

Don't type the
TYPO II Codes!

```

WU 10 REM COLORVISION
EJ 20 REM BY ERIK TIMMERMAN
QH 30 REM (C)1988, ANTIC PUBLISHING
VI 99 DIM N$(12)
UI 100 GOSUB 1000:REM TITLE PAGE
XU 300 GOSUB 3000:REM INITIALIZE
RE 400 GOSUB 4000:REM PLAY GAME
UB 500 GOSUB 5000:REM RESULTS
BZ 550 IF EXIT=0 THEN 300
UD 599 GRAPHICS 0
NU 600 END
BX 1000 GRAPHICS 2
LB 1010 POKE 710,0
ZB 1020 POSITION 4,5
CM 1030 ? #6;"Color Vision"
PT 1040 POKE 755,0
RS 1050 ? "
WQ 1060 ? " (C)1988, Antic Publishing
"
TS 1070 FOR DELAY=1 TO 1700
DP 1080 NEXT DELAY
DC 1999 RETURN
HJ 3000 GRAPHICS 23
HH 3010 SCR=PEEK(559):EXIT=-1
SS 3015 POKE 559,0:TRAP 3390
HZ 3020 W=2*INT(RND(2)*127):IF W=0 THEN 3
020
NI 3040 X=2*INT(RND(3)*127):IF X=0 THEN 3
040
JU 3060 IF X=W THEN GOTO 3040
UI 3070 Y=2*INT(RND(4)*127):IF Y=0 THEN 3
070
HU 3090 IF Y=W OR Y=X THEN 3070

```

```

EW 3110 Z=2*INT(RND(5)*127):IF Z=0 OR Z=W
OR Z=X OR Z=Y THEN 3110
NY 3160 POKE 708,X:POKE 709,Y:POKE 710,Z
CG 3190 REM DRAW RECTANGLES
PT 3200 FOR A=1 TO 3:B=20*A:C=160-20*A:D=
95-10*A:E=10*A
FG 3210 GOSUB 6000:NEXT A
LQ 3380 POKE 712,W:POKE 559,SCR
BI 3390 RETURN
ET 4000 N=Z:COLREG=710:GOSUB 7000
KR 4030 N=Y:COLREG=709:GOSUB 7000
JZ 4060 N=X:COLREG=708:GOSUB 7000
DF 4999 RETURN
OY 5000 X=PEEK(708):Y=PEEK(709)
IH 5020 Z=PEEK(710)
WY 5040 IF X<>Y THEN 5500
XN 5050 IF X<>Z THEN 5500
WG 5060 IF X<>W THEN 5500
YC 5070 IF Y<>Z THEN 5500
WU 5080 IF Y<>W THEN 5500
XH 5090 IF Z<>W THEN 5500
FF 5110 A=W
AH 5140 GOSUB 8000
KP 5150 GRAPHICS 18
YS 5170 POSITION 2,5
HY 5180 ? #6;"Color Vision"
IA 5181 FOR DELAY=0 TO 400:NEXT DELAY
IZ 5185 ? #6;" "
BG 5190 POSITION 6,5
PE 5200 ? #6;" "
HD 5210 FOR DELAY=0 TO 400:NEXT DELAY
IG 5230 ? #6;" ":POSITION 7,3
AN 5260 ? #6;"Color "

```

continued on next page

```

ET 5262 LET POS=LEN(N$)
XU 5265 POSITION INT((20-POS)/2),4
PT 5266 ? #6;N$:POSITION 5,6
FZ 5280 ? #6;"100000000000"
CF 5290 POSITION 9,7:? #6;LUM
IB 5301 FOR DELAY=0 TO 500:NEXT DELAY
FM 5310 ? #6;"":POSITION 2,5
CH 5320 ? #6;"P0000 A9A0000 <0/N0"
KC 5325 CLOSE #2:OPEN #2,4,0,"K:"
MF 5330 GET #2,ANS:CLOSE #2
NF 5350 IF ANS=89 THEN EXIT=0
CW 5499 RETURN
UK 5500 GRAPHICS 0:POKE 710,194
QK 5510 POKE 709,206:POKE 755,0
CM 5530 POSITION 10,1
ZY 5540 ? "HOW WELL YOU DID":?
PK 5560 ? "Small Rectangle:....Luminance
:":A=Z
BE 5590 GOSUB 8000
BZ 5610 ? N$;:POSITION 33,4:? LUM
CF 5630 ? :? :? "Middle Rectangle: ...Lum
inance:"
GO 5640 A=Y
AU 5650 GOSUB 8000
GG 5660 ? N$;:POSITION 33,8:? LUM
KX 5670 ? :?
AF 5680 ? :? :? "Large Rectangle: LUM
inance:"
GV 5690 A=X
AH 5700 GOSUB 8000
EX 5710 ? N$;:POSITION 33,12:? LUM:? :?
FU 5720 ? "Background: Luminance
:"
FX 5730 A=W
AT 5740 GOSUB 8000
OS 5750 ? N$;:POSITION 33,16:? LUM
LN 5770 ? :? :? :? "Do you want to play a
gain? <Y/N>"
EH 5810 CLOSE #2:OPEN #2,4,0,"K:" :GET #2,
ANS:CLOSE #2
ND 5810 IF ANS=89 THEN EXIT=0
DG 5999 RETURN
XM 6000 COLOR A:FOR LOOP=0 TO C
KD 6010 PLOT LOOP,E:DRAWTO LOOP,D
VF 6020 SOUND 0,LOOP,14,14
CG 6030 NEXT LOOP:SOUND 0,0,0,0:RETURN
KN 7000 IF STICK<0>=11 THEN N=N-16
AW 7010 IF STICK<0>=13 THEN N=N-2

```

```

BR 7020 IF N<0 THEN N=N+256
AX 7030 IF STICK<0>=7 THEN N=N+16
ZS 7040 IF STICK<0>=14 THEN N=N+2
MR 7050 IF N>255 THEN N=N-256
FI 7060 FOR DELAY=0 TO 20
TS 7070 NEXT DELAY:REM SLOW-DOWN STICK
WB 7080 POKE COLREG,N
FJ 7090 IF STRIG<0>=0 THEN 7997
PK 7100 GOTO 7000
HI 7997 FOR DELAY=0 TO 100:NEXT DELAY
DI 7999 RETURN
RZ 8000 COL=INT(A/16)
BX 8010 LUM=A-(COL*16)
GH 8020 IF COL=0 THEN N$="Gray"
TF 8030 IF COL=1 THEN N$="Gold"
UR 8040 IF COL=2 THEN N$="Orange"
LV 8050 IF COL=3 THEN N$="Red"
GW 8060 IF COL=4 THEN N$="Pink"
VV 8070 IF COL=5 THEN N$="Violet"
QT 8100 IF COL=6 THEN N$="Blue-Purple"
YP 8110 IF COL=7 THEN N$="Blue"
QG 8120 IF COL=8 THEN N$="Light Blue"
BF 8130 IF COL=9 THEN N$="Blue-Green"
IB 8140 IF COL=10 THEN N$="Aqua"
BV 8150 IF COL=11 THEN N$="Green-Blue"
XV 8160 IF COL=12 THEN N$="Green"
NG 8170 IF COL=13 THEN N$="Yellow-Green"
EI 8180 IF COL=14 THEN N$="Orange-Green"
JQ 8190 IF COL=15 THEN N$="Orange II"
DJ 8999 RETURN

```

LISTING 2

```

TH 2 REM COLORVISION, LISTING 2
VJ 4 REM BY ERIK TIMMERMAN
QU 6 REM (c)1988, ANTIC PUBLISHING
OB 10 GRAPHICS 23
NW 20 POKE 708,14:POKE 709,64:COLOR 1
KY 30 FOR X=80 TO 159
CQ 40 PLOT X,0:DRAWTO X,95:NEXT X
ZH 50 COLOR 2
PB 60 FOR Y=30 TO 50:GOSUB 1000:NEXT Y
PV 70 FOR Y=110 TO 130:GOSUB 1000
OK 80 NEXT Y
UK 90 GOTO 90
TB 1000 PLOT Y,40:DRAWTO Y,60:RETURN


```

ditch those registration-line blues

CLASS SCHEDULER

Article on page 8

LISTING 1

Don't type the
TYPO !! Codes! 

```

ML 10 REM CLASS SCHEDULER
KE 20 REM BY GLENN K. SMITH
QH 30 REM (c)1988, ANTIC PUBLISHING
LI 110 DATA "000,000,000,000,000"
WE 120 DATA 6,13,20,27,34
VP 240 GRAPHICS 0:POKE 559,0:GOSUB 2240
GK 250 BRK=USR(1536,BRK):REM DISABLE
PZ 260 DIM CN$(40),ST(8,40),ET(8,40),CS(8
)
YP 270 DIM NAME$(5),TEMP$(40),FILE$(20),N
5(8)
SH 280 ? " [#####]
UR 290 ? " [ ] Class Scheduler
SP 300 ? " [ ] By Glenn K. Smith
QF 310 ? " [ ] (c)1988, Antic Publishing
IY 320 ? " [#####]
KX 330 ? " [ ] Press [STOP] to copy
CO 340 ? " [ ] a schedule to your printer
TE 350 ? " [#####]
XK 370 REM INIT ARRAYS
DT 390 CN$(1)="":CN$(40)=CN$:CN$(2)=CN$
TD 430 FOR I=0 TO 8:NS(I)=0:CS(I)=0
WI 470 FOR J=0 TO 40:ST(I,J)=0:ET(I,J)=0
FC 480 NEXT J:NEXT I
QE 500 SC=0:POKE 710,160:POKE 714,160:POK

```

```

E 559,34
AA 520 REM GET FILENAME
JR 540 POKE 752,1
SJ 550 POSITION 2,10:? "###Class data file
";
HL 560 POKE 752,0:? "":TRAP 540
GZ 570 INPUT TEMP$:POKE 752,1:?
CY 590 IF LEN(TEMP$)=0 THEN 540
AP 595 FILE$="D1:" :IF LEN(TEMP$)<3 THEN F
ILE$(4,20)=TEMP$:GOTO 620
VI 600 IF TEMP$(2,2)<>" " AND TEMP$(3,3)<
>" " THEN FILE$(4,20)=TEMP$:GOTO 620
HZ 610 FILE$=TEMP$
BB 620 CLOSE #1:OPEN #1,4,0,FILE$
BW 640 REM GET DATA FROM THE FILE
ET 650 REM IF THERE IS AN ERROR
AV 660 REM THEN CLOSE THE FILE
VN 670 REM AND REPORT THE ERROR
GR 690 TRAP 1470:POKE 559,0
YZ 700 INPUT #1;NC
JO 710 FOR I=0 TO NC-1
LK 720 INPUT #1;NAME$
RJ 730 IF LEN(NAME$)=0 THEN 720
CY 740 CN$(I*5)+1,(I+1)*5)=NAME$
UV 750 INPUT #1;NUM:N5(I)=NUM
OG 770 FOR J=0 TO N5(I)-1
TO 780 FOR K=0 TO 4:FOR L=0 TO 1
DT 800 TEMP$=""
MQ 810 GET #1,X
CJ 820 IF X=32 OR X=155 THEN 810
KF 830 TEMP$(1,1)=CHR$(X):GET #1,Y
JM 850 IF Y<48 OR Y>57 THEN 800
ME 860 TEMP$(2,2)=CHR$(Y):GET #1,Y

```

```

PT 880 X=VAL<TEMP$>
ER 890 IF Y<>58 THEN Y=0:GOTO 930
EH 900 GET #1,X1:GET #1,Y1
CC 910 TEMP$(1,1)=CHR$(X1):TEMP$(2,2)=CHR$(Y1)
PN 920 Y=VAL<TEMP$>
WR 930 IF X<7 AND X>0 THEN X=X+12
WJ 940 X=X*100+Y
AN 950 IF L=0 THEN ST<I,(J*5)+K>=X
RV 960 IF L=1 THEN ET<I,(J*5)+K>=X
ED 970 NEXT L:NEXT K:NEXT J:NEXT I
MM 1010 CLOSE #1
GW 1030 REM MAIN ROUTINE. SEARCH DATA,
PL 1050 REM KILL CONFLICTS & FIND
CN 1060 REM VALID ENTRIES
HZ 1080 CF=0:OK=0
CS 1090 FOR I=0 TO NC-2
SQ 1100 FOR J=I+1 TO NC-1
XX 1110 FOR K=0 TO 4
IE 1120 S1=ST<I,(C5<I>*5)+K>
J5 1130 S2=ST<J,(C5<J>*5)+K>
AI 1140 E1=ET<I,(C5<I>*5)+K>
BW 1150 E2=ET<J,(C5<J>*5)+K>
JN 1160 IF (S1)=S2 AND S1<>0 OR (E1)=E2 AND E1<>0 THEN IF S1<>0 AND S2<>0 THEN CF=1
OM 1170 NEXT K:NEXT J:NEXT I
BH 1200 IF CF=0 THEN GOSUB 1520:GOSUB 1370:SC=1
HH 1220 REM INC. SEC #5
YZ 1240 FOR I=0 TO NC-1:C5<I>=C5<I>+1
RL 1260 IF C5<I>=NS<I> THEN C5<I>=0:GOTO 1280
AH 1270 I=1000:REM EXIT LOOP
FR 1280 NEXT I
KB 1290 IF I=1001 THEN 1080
BR 1300 IF SC=0 THEN ? "*****POSITION 3,12:
? "*****";
JQ 1310 POSITION 2,23:IF SC=1 THEN ? "*****";
GD 1320 ED=1:GOSUB 1380
EJ 1330 GRAPHICS 0:GOTO 1490
AX 1350 REM WAIT FOR KEYPRESS
QY 1370 POSITION 8,23:? "*****";OK=1
AU 1380 POKE 53279,8:POKE 764,255:POKE 559,34
YM 1390 IF PEEK<764>=255 AND PEEK<53279><6 THEN 1390
GA 1400 IF OK AND ED=0 AND PEEK<53279>=6 THEN GOSUB 2040:GOTO 1380
WE 1410 IF PEEK<53279>=6 AND ED=0 THEN 1380
KF 1420 POKE 764,255:POKE 559,0:RETURN
GD 1440 REM ERROR TRAPPING AND END
LE 1470 GRAPHICS 0:POSITION 2,2
SX 1480 ? "Error *****";PEEK<195>;" in line #";PEEK<186>+256*PEEK<187>
PO 1490 BRK=USR<1536,BRK>:REM ENABLE
FO 1500 TRAP 65535:POKE 764,255:? :END
ZA 1520 REM DRAW THE SCREEN
RG 1540 POKE 752,1:? "*****";FOR I=1 TO 22
CV 1570 POSITION 4,I:? "*****";
UZ 1590 POSITION 39,I:? "*****";NEXT I
KI 1610 FOR I=0 TO 39
CR 1630 POSITION I,0:? "*****";
YN 1650 POSITION I,22:? "*****";NEXT I
BR 1680 POSITION 4,22:? "*****";
HE 1700 POSITION 39,22:? "*****";
YW 1710 TME=700:TOGGLE=1
IW 1720 FOR I=1 TO 21:POSITION 0,I
MA 1740 IF TME<1000 THEN ? "*****";
WY 1750 ? TME;
BM 1760 TOGGLE=<TOGGLE<>1>
RY 1770 TME=TME+<TOGGLE*40>+30
YM 1780 TME=TME-<<TME=1300>*1200>
GE 1790 NEXT I
CN 1800 RESTORE 110
JA 1810 FOR I=1 TO 5:READ TEMP$
QQ 1840 POSITION 7*I,0:? TEMP$;:NEXT I
GG 1860 FOR I=0 TO NC-1:RESTORE 120
HP 1880 FOR J=0 TO 4:READ X
OC 1900 S1=ST<I,(C5<I>*5)+J>;E1=ET<I,(C5<I>*5)+J>
QO 1910 TOGGLE=1:TM=700:V=0
SB 1920 V=V+1
ZA 1930 IF S1>TM OR E1<=TM THEN 1950
RQ 1940 POSITION X,V:? CN$(C<I>*5)+1,(C<I>*5);
BN 1950 TOGGLE=<TOGGLE<>1>
UJ 1960 TM=TM+<TOGGLE*40>+30
CW 1970 IF TM<1800 THEN 1920
NQ 1980 NEXT J:NEXT I:RETURN

```

```

GU 2020 REM SCREEN DUMP
FJ 2040 TRAP 2210:POKE 559,0
UZ 2060 CLOSE #4:OPEN #4,8,0,"P:"
BT 2070 SCR=PEEK<88>+PEEK<89>*256
EN 2080 FOR I=0 TO 21
QI 2100 FOR J=0 TO 39:AD=SCR+(I*40)+J
MC 2120 Z=PEEK<AD>;Z=Z-(128*(Z>127))
LV 2140 Z=Z+((Z>63 AND Z<96)*64)
ID 2150 Z=Z+((Z<64)*32)
AC 2160 TEMP$(J+1,J+1)=CHR$(Z):NEXT J
OB 2180 IF I=0 THEN ? #4;TEMP$:"*****";
LK 2185 IF I=21 THEN ? #4;TEMP$:"*****";
UG 2190 IF I>0 AND I<21 THEN ? #4;TEMP$
IM 2200 NEXT I:CLOSE #4:TRAP 1470
AH 2210 RETURN
TT 2240 REM DISABLE/ENABLE BREAK
LC 2260 RESTORE 2320
UK 2270 FOR I=1536 TO 1610:READ BYT
BH 2280 POKE I,BYT:NEXT I:RETURN
YK 2320 DATA 120,104,104,104
DV 2330 DATA 170,208,25,173,22,2
RQ 2340 DATA 141,61,6,173,23,2,141,62
RK 2350 DATA 6,169,53,141,22,2,169,6
YK 2360 DATA 141,23,2,232,208,13,173,61
GM 2370 DATA 6,141,22,2,173,62,6,141
TX 2380 DATA 23,2,202,134,212,169,0,133
IF 2390 DATA 213,88,96,72,173,14,210,16
TY 2400 DATA 4,104,76,60,6,169,127,141
UF 2410 DATA 14,210,165,16,141,14,210,104,64

```

LISTING 2

```

IO 10 REM CLASS SCHEDULER, LISTING 2
KZ 20 REM BY CHARLES JACKSON
QH 30 REM (c)1988, ANTIC PUBLISHING
QU 40 DIM CLASS$(5),BUFFR$(600),ST$(5),EN$(5),DAY$(9),CR$(1),TEMP$(20),FILE$(20)
JE 50 GRAPHICS 0:? :POKE 710,160
IG 60 ? "*****";
FG 70 ? "*****";Create Data Files *****";
PY 80 ? "*****";for CLASS SCHEDULER *****";
TO 90 ? "*****";(by Charles Jackson) *****";
SE 100 ? "*****";
MZ 110 POSITION 2,10
HT 120 ? "*****";Class file to create";
NL 130 ? "*****";:TRAP 110
UC 140 INPUT TEMP$;
UJ 150 IF LEN<TEMP$>=0 THEN 110
CS 155 FILE$="D1:";IF LEN<TEMP$><3 THEN FILE$(4,20)=TEMP$:GOTO 180
MG 160 FILE$="D1:";IF TEMP$(2,2)<>" AND TEMP$(3,3)<>" THEN FILE$(4,20)=TEMP$:GOTO 180
IG 170 FILE$=TEMP$
J5 180 DATA MONDAY,TUESDAY,WEDNESDAY,THURSDAY,FRIDAY
IT 190 NUMCLASS=0:CR$=CHR$(155)
ED 200 CLOSE #1:OPEN #1,8,0,FILE$
ZV 210 ? #1;"XXX"
MK 220 NUMCLASS=NUMCLASS+1
CP 230 BUFFR$=""
PI 240 ? "*****";[RETURN] to End.":? "*****";Name of Class #";NUMCLASS;:INPUT CLASS$:IF CLASS$="" THEN 540
TK 250 BUFFR$(CLASS$)=BUFFR$(LEN<BUFFR$>+1)=CR$:X=1
IU 260 ? :? "How many sections are available for";:CLASS$;:INPUT SCTNS:IF SCTNS<1 THEN ? "*****";:GOTO 260
IY 270 BUFFR$(LEN<BUFFR$>+1)=STR$(SCTNS):BUFFR$(LEN<BUFFR$>+1)=CR$
CW 280 FOR SNUM=1 TO SCTNS
SE 290 BUFPTR=LEN<BUFFR$>+1:RESTORE :FOR THE DAY=1 TO 5:READ DAY$
TR 300 ? "*****";When does Section ";SNUM;" of ";CLASS$;? " meet on ";DAY$;"?":? 310 ? " (Type the time as hh:mm)"
EQ 320 POSITION 2,20:? "Just press [RETURN] if class doesn't meet on ";DAY$;"?";
DG 330 POSITION 3,10:? "Starting Time ";
UL 340 INPUT ST$
CR 350 IF ST$="" THEN ST$="0":EN$="0":GOTO 390
RI 360 STAT=0:FOR QT=1 TO LEN<ST$>:STAT=5:TAT+<ST$(QT,QT)>="":NEXT QT:IF STAT=0

```

continued on next page

```

THEN ? "Q":GOTO 300
HI 370 ? :? " Ending Time ";:INPUT EN$
NQ 380 STAT=:FOR QT=1 TO LEN<EN$>:STAT=5
TAT+<EN$>:QT="":NEXT QT:IF STAT=0
THEN ? "Q":GOTO 300
DY 390 BUFFER$<LEN<BUFFER$>+1>=ST$:BUFFER$<L
EN<BUFFER$>+1>=" "
IH 400 BUFFER$<LEN<BUFFER$>+1>=EN$:BUFFER$<L
EN<BUFFER$>+1>=" "
KT 410 NEXT THEDAY
DA 420 ? " Verification":?
GB 430 ? CLASS$:? " Section ";:SNUM:
NZ 440 RESTORE :FOR XD=1 TO 5:READ DAY$
SU 450 GOSUB 600:ST$=TEMP$:GOSUB 600:EN$=
TEMP$
OE 460 IF ST$="0" THEN 480
PF 470 ? DAY$;" ";ST$;" => ";EN$
OY 480 NEXT XD
GO 490 ? :? "Is this OK (Y/N) ";:INPUT TE
MP$

```

```

WZ 500 IF TEMP$<>"Y" THEN 230
LD 510 LB=LEN<BUFFER$>:IF BUFFER$<LB, LB>="
" THEN BUFFER$=BUFFER$<1, LB-1>:GOTO 510
IH 520 ? #1;BUFFER$:BUFFER$="":NEXT SNUM
MH 530 GOTO 220
LZ 540 ? " Writing "
;FILE$;" *"
IQ 550 CLOSE #1:OPEN #1,12,0,FILE$
VC 560 V=LEN<STR$(NUMCLASS-1)>:TEMP$="
":TEMP$<4-V,3>=STR$(NUMCLASS-1)
DP 570 ? #1;TEMP$
PV 580 CLOSE #1:GRAPHICS 0
OM 590 END
JU 600 FOR COUNTER=BUFPTR TO LEN<BUFFER$>
GG 610 IF BUFFER$<COUNTER,COUNTER><>" " TH
EN 630
OD 620 TEMP$=BUFFER$<BUFPTR,COUNTER-1>:BUF
PTR=COUNTER+1:POP :GOTO 640
QY 630 NEXT COUNTER
ZK 640 RETURN


```

game of the month

SORCERER'S APPRENTICE

Article on page 12

LISTING 1

Don't type the
TYPO II Codes! 

```

NU 10 REM SORCERER'S APPRENTICE
JS 20 REM BY JIM CATALANO
QH 30 REM (c)1988, ANTIC PUBLISHING
CL 35 CLR :POKE 559,0:GOSUB 330:PMODE=2:
GRMODE=18:GOSUB 910:GOSUB 820:GOSUB 72
5
GE 40 PD3=1:DX=48+INT<RND<0>*145>:DY=16+I
NT<RND<0>*51>:DTX=48+INT<RND<0>*145>:D
TY=16+INT<RND<0>*51>
RY 45 PD1=2:SX=120:SY=82:FX=5X+10:FY=5Y-1
:SC=0:MEN=5
WH 50 REM MOVE DEMONIC SPIRIT
ZB 55 POKE 706,128+INT<RND<0>*15>
KZ 60 IF DX<DTX THEN PD3=2:DX=DX+10
NM 65 IF DX>DTX THEN PD3=1:DX=DX-10
JS 70 IF DY<DTY THEN DY=DY+10
MQ 75 IF DY>DTY THEN DY=DY-10
BN 80 IF DX<DTX+11 AND DX>DTX-11 AND DY<D
TY+11 AND DY>DTY-11 THEN DTX=48+INT<RN
D<0>*145>:DTY=16+INT<RND<0>*51>
LG 85 A=USR<PMOVE,3,ADR<SHAPE3$(PD3*14-1
3)>,SIZE3,DX,DY>
CH 90 IF GOOP=1 THEN 110
IM 95 A=INT<RND<0>*10>:IF A=1 THEN GOOP=1
:EX=DX+4:EY=DY+8:E=0
NU 100 GOTO 160
DL 105 REM SPIT ECTOPLASM AT SORCERER
YP 110 E=E+4:EY=EY+E:FOR PD4=1 TO 2:A=USR
<PMOVE,4,ADR<SHAPE4$(PD4*7-6)>,SIZE4,
EX,EY>:NEXT PD4
EE 115 IF PEEK<53263>=1 THEN GOSUB 285:GO
TO 160
TK 120 IF EY>90 THEN 135
ON 125 GOTO 160
SZ 130 REM ECTOPLASM SPLATTER
LT 135 GOOP=0:EY=101:EX=EX-8:POKE 53259,3
:A=USR<PMOVE,4,ADR<SHAPE4$(2*7-6)>,SI
ZE4,EX,EY>
HK 140 FOR V=INT<RND<0>*15>+1 TO 0 STEP -
0.5: SOUND 0,INT<RND<0>*255>+1,8,V:NEXT
V
RX 145 IF PEEK<53263>=1 THEN GOSUB 285
MC 150 POKE 53251,0:POKE 53259,0
IC 155 REM MOVE SORCERER
YL 160 ST=STICK<0>:T=STRIG<0>
DO 165 IF FIRE=1 THEN 175
JT 170 IF T=0 THEN FIRE=1:F=0:FX=5X-1:IF
PD1=2 THEN FX=5X+10
KA 175 IF ST=11 THEN PD1=1:5X=5X-8
SN 180 IF ST=7 THEN PD1=2:5X=5X+8
SK 185 IF 5X<54 THEN 5X=54
UZ 190 IF 5X>186 THEN 5X=186
RU 195 A=USR<PMOVE,1,ADR<SHAPE1$(PD1*26-
25)>,SIZE1,5X,5Y>
ZH 200 IF FIRE=1 THEN 225
OD 205 IF PD1=1 THEN FX=5X-1
IG 210 IF PD1=2 THEN FX=5X+10
XT 215 FOR PD2=1 TO 2:A=USR<PMOVE,2,ADR<
SHAPE2$(PD2*7-6)>,SIZE2,FX,FY>:NEXT PD
2:GOTO 240
HA 220 REM CAST FIREBALL

```

```

SI 225 F=F+4:FY=FY-F:IF FY<0 THEN SOUND 1
,0,0:POKE 53249,0:FY=5Y-1:FIRE=0:GOT
O 55
BG 230 FOR PD2=1 TO 2:A=USR<PMOVE,2,ADR<
SHAPE2$(PD2*7-6)>,SIZE2,FX,FY>:NEXT PD
2:SOUND 1,FX*FY,0,5
FJ 235 IF PEEK<53261>=4 THEN SOUND 1,0,0,
0:POKE 53249,0:FY=5Y-1:FIRE=0:GOSUB 25
0
PI 240 POKE 711,72+INT<RND<0>*7>+1:POKE 5
3278,0:POKE 77,0:GOTO 55
LC 245 REM DEMON HIT/DEMATERIALIZE IT
DR 250 FOR SCREAM=INT<RND<0>*15>+5 TO 0 5
TEP -0.5:SOUND 0,SCREAM,SCREAM,SCREAM:
NEXT SCREAM:PD3=3:POKE 706,14
MH 255 A=USR<PMOVE,3,ADR<SHAPE3$(PD3*14-
13)>,SIZE3,DX,DY>:FOR D=1 TO 10:NEXT D
QE 260 DX=DX-4:POKE 53258,3:A=USR<PMOVE,
3,ADR<SHAPE3$(PD3*14-13)>,SIZE3,DX,DY>
JP 265 FOR DEMAT=0 TO 15 STEP 0.4:POKE 70
6,15-DEMAT:SOUND 0,2,8,DEMAT:NEXT DEMA
T:SOUND 0,0,0,0
NS 270 POKE 53250,0:POKE 53258,1:DX=48+IN
T<RND<0>*145>:DY=16+INT<RND<0>*51>:DTX
=48+INT<RND<0>*145>
NN 275 DTY=16+INT<RND<0>*51>:SC=SC+75:RET
URN
DH 280 REM SORCERER HIT BY ECTOPLASM
ZG 285 POKE 53251,0:FOR T=15 TO 0 STEP -1
:FOR S=0 TO T:POKE 704,196-5*SOUND 0,5
+T,6,T:NEXT S:NEXT T
WT 290 MEN=MEN-1:IF MEN=0 THEN FOR C=15 T
O 0 STEP -0.3:POKE 704,C:NEXT C:POKE 5
3248,0:POKE 53249,0:POP :GOTO 305
OK 295 POKE 704,42:GOOP=0:POKE 53278,0:RE
TURN
GQ 300 REM GAME OVER
LW 305 SOUND 1,0,0,0:FOR A=53248 TO 53251
:POKE A,0:NEXT A:POKE 53277,0:? #6;" "
AR 310 COLOR 216:PLOT 0,0:DRAWTO 19,0:DRA
WTO 19,11:DRAWTO 0,11:DRAWTO 0,0
XO 315 POSITION 5,2:? #6;"GAME OVER":POSI
TION 7,5:? #6;"SCORE":POSITION 7,7:? #
6;SC
JA 320 POKE 19,0:POKE 20,200
IA 321 IF PEEK<19><2 THEN 321
KZ 322 GOTO 1300
HG 325 REM REDEFINE CHARACTER SET
SR 330 CH=PEEK<740>-16:CH=CH*256
MQ 335 DIM MOVE$(46),CH$(512)
HY 340 MOVE$="hhhhhhhhhhhhhhhhhhhhhhhhhh
hhhhhhhhhhhhhhhhhhhhhhhhhhhhhhhhhhhh
hhhhhhhhhhhhhhhhhhhhhhhhhhhhhhhhhhhh"
AF 350 JUNK=USR<ADR<MOVE$>,57344,CH,1024>
RQ 400 CH$(1,64)="#####H#I#J#K#L#M#N#O#P#Q#R#S#T#U#V#W#X#Y#Z#[\]#`#a#b#c#d#e#f#g#h#i#j#k#l#m#n#o#p#q#r#s#t#u#v#w#x#y#z#{|}~"
Z0 410 CH$(65,128)="#####"

```



```

24126000000124102076024054126000000126
SH 2060240121202062000000012028
1100 DATA 060108254012000002540962520
06102124000000124224124230102126000000
SY 254102012024048048000034155
1110 DATA 0520510480320670720880360400
49057051044050053054041061034000060102
060230102254000000254102254
TA 1120 DATA 066012056000000000240240000
24024000231251255255255255255231223
255255255255255255239247123
KX 1130 DATA 1891891901901272392392392552
55031015135195195199199135135131131034
155052052048003206702088036
WO 1140 DATA 04800500530550440510500480410
61034255236232232243243247247000248060
102102126231000231231243251
DK 1150 DATA 2370680640640002541021122401
02062000000248108102230108124000000254
096124224102126000255247251
UH 1160 DATA 2512512531251260002541020962
38102062000034155052053048032067072088
0360400510500490440510504052
IS 1170 DATA 0410610342552392232232231911
90126000126024060024024126000231231207
223183042002002194130004000
CT 1180 DATA 1281920640000002400962240961
18126000000227119255107099119000000230
1181261261102246000000254102
CJ 1190 DATA 2301021021260000341550520540
48032067072088036040051056053044052052
056041061034000000004044024
ZN 1200 DATA 052060090620620300280601242
38198000252102230124108118000000254096
126006102126000124124120056
HI 1210 DATA 0600621190990002301022301021
26124000000230102230102126024000000015
032052024044060009034155052
DT 1220 DATA 0550480320670720880360400520
52057044053049050041061034253253253000
223223223000185221173000158
XZ 1230 DATA 0852190002300911561062300941
81219125003127029235255255190192254
1842152552552552555055023023
RB 1240 DATA 2072072392391951952272272252
25193193067065032000001003002000034155
0560510480320830720650800069
FU 1250 DATA 0490360610340060020700700480
480620620550550470470010010010010010

```

```

027027031031031031031063063096
FP 1260 DATA 0640980980120121241242362362
44244128128080000000000216216248248248
248252252034155056052053032
AL 1270 DATA 0830720650000690500360610340
16084040198040084016000040084056084040
000034155056054048032083072
GJ 1280 DATA 0650800690510360610340240600
86086063119239173051062030030012004024
060106106252238247181204124
US 1290 DATA 1201200480320660361290900360
00195000036090129036066000034155056056
048032083072065080069052036
UY 1300 DATA 0610340160320480240440300120
08004040080052120048034155057049054032
080065071067076082061065068
HW 1310 DATA 0820400341042010022400161332
06162000228206208001096104104232169000
240244104133204104133203104
ZU 1320 DATA 1041332051690001681701452032
0020825123020423228205208244096034041
155057051048032080077077079
UC 1330 DATA 0860690360400490440540560410
61034104201005240018141000004162000236
000004208001096104104232169
IU 1340 DATA 0002402431041042010091440091
04104104104104104104104096024201000240
242141004004104133206104133
HY 1350 DATA 2051041041410050041041041410
02004104104141003004174034155057051050
032080077077079086069036040
XU 1360 DATA 0540570440490510540410610340
04004173002004157255207224005176002144
005169000141004004165207201
UK 1370 DATA 0022400281651060241050031090
40004133204169000133203168145203200208
25117300300413320324144065
LZ 1380 DATA 1651060241050011332041691281
33203173004004240034155057051052032080
077077079086069036040049051
JG 1390 DATA 0550440500480500410610340211
62000165203024105128133203165204105000
133204232236004004208237160
EU 1400 DATA 0001521452032001921272082491
73003004201128144001096101203133203165
204105000133204160000204005
EA 1410 DATA 0042400081772051452032000241
44243096034155


```

powerful animation drawing toolkit

P/M GRAPHICS STUDIO

Article on page 19

LISTING 1

Don't type the
TYPO II Codes! 

```

VZ 2 REM P/M EDITOR
LT 4 REM BY TOM LAROSA
QT 5 REM (c) 1988, ANTIC PUBLISHING
NH 6 REM DO *NOT* RENUMBER THIS PROGRAM!
KX 7 CLR :GOSUB 30000:GOSUB 8:GOTO 50
AA 8 DIM P<40,20>,P$(220),F$(18),CF$(18),
P1$(20),BYTE<20>,U$(220),UP$(20),A$(18)
JA 9 P1=ADR<P1$>:POKE 709,15:POKE 712,PEE
K<710>:Z=ADR<P$>-11:UP=ADR<UP$>:RETURN
MD 10 REM PMED
XS 50 ? "M":POKE 752,1:GOSUB 29800
NZ 60 GOSUB 4001
ZH 61 POKE 1801,3: ? " M P M E D I T O R
M P M E D I T O R " :GOSUB 62:GOTO 64
JA 62 ? " C " :GOSUB 62:GOTO 64
Q:RETURN
QC 64 ? " M " :GOTO MAKE a Player
Q:GOSUB 66:GOTO 68
HE 66 ? " C " :GOSUB 66:GOTO 68
Q:RETURN
UM 68 ? " M " :GOTO LOAD Animator
Q:GOSUB 66
PD 70 ? " M " :GOTO STORE Players (Disk)
Q:GOSUB 66
CS 72 ? " M " :GOTO LOAD Players
Q:GOSUB 74:GOTO 80
RW 74 ? " C " :GOSUB 74:GOTO 80
Q:RETURN
QL 80 GOSUB 29800
FN 84 IF PK=37 THEN 1000
GS 85 IF PK=62 THEN 4000
OI 86 IF PK=0 THEN 5000

```

```

KB 87 IF PK=63 THEN 8000
RU 100 GOTO 80
WN 400 ON VIEW=1 GOTO 460:POSITION 2,0: ?
"#####":GOS
UB 430:U=USR<MOVE,1,PMB,0,0,0>
ID 401 ? "#####":GOSUB 430
:? "#####":GOSUB 430
JB 403 ? "#####":GOSUB 430
:? "#####":GOSUB 430
MF 405 ? "#####":GOSUB 430
:? "#####":GOSUB 430
KT 407 ? "#####":GOSUB 430
:? "#####":GOSUB 430
EB 409 ? "#####":GOSUB 430
:? "#####":GOSUB 430
GW 420 ? "#####":GOSUB 430
:? "#####":GOSUB 430
XM 422 ? "#####":GOSUB 430
:? "#####":GOSUB 430
OT 424 ? "M":GOSUB 430
:? "#####":GOSUB 430:GO
TO 440
FI 430 ? "#####":RETURN
ZT 440 IF EDIT=0 THEN 450
OG 441 POSITION 31,12: ? QQ:GOTO 451
AG 450 POSITION 31,12: ? Q
IK 451 POSITION 31,13: ? 40-Q
LF 452 IF EDIT=0 THEN POSITION 31,14: ? "N
ORMAL":GOTO 456
KL 453 POSITION 31,14: ? "#####":
LU 454 IF EDM=1 THEN POSITION 20,15: ? "N
E-PLAYER SAVE":POSITION 31,12: ? QQ;" =
";Q

```

```

ZZ 455 IF EDM=2 THEN POSITION 20,15:? "RE
[RE]SAVE"
QP 456 IF Q>40 THEN POSITION 20,12:? "
":POSITION 20,13:? " 0
[RE]MEMORY"
UH 457 IF Q>40 THEN POSITION 20,14:? "
"
AI 458 RETURN
MM 460 POSITION 2,0:? "XXXXXXXXXXXXXXXXXXXX
XXXX":GOSUB 430
QF 461 W=1:FOR I=1 TO 20
TI 462 W=W+11:POSITION 19,I:? U$<W-11,W-1
):"X":I:NEXT I
NO 463 POSITION 19,21:? "XXXXXXXXXXXX":GOTO
471
GT 464 FOR I=1 TO 9:POSITION 1,I:? I:NEXT
I:FOR I=10 TO 20:POSITION 0,I:? I:NEX
T I:RETURN
NO 471 POSITION 28,0:? "XXXXXXXXXXXX"
WL 472 POSITION 30,1:? "XXXX- 0"
GX 473 POSITION 30,2:? "XXXX- 0"
BF 474 POSITION 30,3:? "XXXX- 0"
NI 475 POSITION 30,4:? "0 0"
MO 476 POSITION 30,5:? "XXXXXXXXXX"
TQ 477 POSITION 30,6:? "XXXXXXXXXX"
CC 478 POSITION 30,7:? "XXXXXXXXXX"
AI 479 POSITION 30,8:? "XXXXXXXXXX"
LO 480 POSITION 30,9:? "XXXXXXXXXX"
FD 481 IF EDIT=0 THEN 483
HW 482 POSITION 35,1:? QQ:GOTO 484
LN 483 POSITION 35,1:? Q
OB 484 POSITION 35,2:? 40-Q
RR 485 IF EDIT=0 THEN POSITION 31,4:? "NO
RMAL":GOTO 489
XR 486 POSITION 35,3:? "EDIT"
JJ 487 IF EDM=1 THEN POSITION 31,4:? "NOR
MAL "
QK 488 IF EDM=2 THEN POSITION 31,4:? "REP
LACE"
DL 489 IF Q>40 THEN POSITION 31,1:? "OUT
":POSITION 31,2:? "XXXXXXXX":POSITION
31,3:? "MEMORY"
AY 490 IF Q>40 THEN POSITION 31,4:? "XXXX
"
DL 491 U=USR(MOVE,1,PMB,VP,114,22,20):GOS
UB 29801:RETURN
GZ 494 FOR I=1 TO 9:POSITION 1,I:? I:NEXT
I:FOR I=10 TO 20:POSITION 0,I:? I:NEX
T I:RETURN
AT 499 RETURN
IX 500 IF STICK<0>=15 AND STRIG<0><>0 THE
N RETURN
PL 501 IF STICK<0>=7 AND STRIG<0><>0 THEN
A=A+1:GOSUB 550:RETURN
CB 502 IF STICK<0>=11 AND STRIG<0><>0 THE
N A=A-1:GOSUB 560:RETURN
EI 503 IF STRIG<0>=0 AND STICK<0>=15 THEN
POSITION A,B:GOTO 570
NV 504 IF STICK<0>=14 AND STRIG<0><>0 THE
N B=B-1:GOSUB 590:RETURN
UL 505 IF STICK<0>=13 AND STRIG<0><>0 THE
N B=B+1:GOSUB 595:RETURN
QI 506 IF STICK<0>=7 AND STRIG<0>=0 THEN
A=A+1:GOSUB 550:GOTO 600
BB 507 IF STICK<0>=11 AND STRIG<0>=0 THEN
A=A-1:GOSUB 560:GOTO 600
MN 508 IF STICK<0>=14 AND STRIG<0>=0 THEN
B=B-1:GOSUB 590:GOTO 600
TA 509 IF STICK<0>=13 AND STRIG<0>=0 THEN
B=B+1:GOSUB 595:GOTO 600
GQ 550 IF A>10 THEN A=3:RETURN
BA 560 IF A<3 THEN A=10:RETURN
ZQ 561 RETURN
LW 570 GOTO 6000
LY 580 GOTO 6000
AS 589 RETURN
CE 590 IF B<1 THEN B=20:RETURN
HJ 595 IF B>20 THEN B=1:RETURN
AL 596 RETURN
LJ 600 GOTO 6000
ZX 607 RETURN
VI 700 IF PEEK<764>=33 THEN 800
DR 701 IF PEEK<764>=7 THEN A=A+1:POKE 764
,255:GOTO 550
HE 702 IF PEEK<764>=6 THEN A=A-1:POKE 764
,255:GOTO 560
SA 703 IF PEEK<764>=39 THEN POKE 764,255:
POSITION A,B:GOTO 570
UL 704 IF PEEK<764>=14 THEN B=B-1:POKE 76
4,255:GOTO 590
EB 705 IF PEEK<764>=15 THEN B=B+1:POKE 76
4,255:GOTO 595
HH 706 IF PEEK<764>=135 THEN A=A+1:POKE 7
64,255:GOSUB 550:GOTO 600
KZ 707 IF PEEK<764>=134 THEN A=A-1:POKE 7
64,255:GOSUB 560:GOTO 600
BK 708 IF PEEK<764>=143 THEN B=B+1:POKE 7
64,255:GOSUB 595:GOTO 600
SR 709 IF PEEK<764>=142 THEN B=B-1:POKE 7
64,255:GOSUB 590:GOTO 600
RO 710 IF PEEK<764>=13 THEN GOTO 6600
UX 711 IF PEEK<764>=10 THEN GOSUB 1500
CJ 712 IF PEEK<764>=42 THEN GOSUB 1800
CU 713 IF PEEK<764>=28 THEN POP :GOSUB 29
002:GOTO 50
RO 714 IF PEEK<764>=21 THEN GOSUB 2000
KP 715 IF PEEK<764>=18 THEN GOSUB 29002:G
OSUB 1503
FI 716 IF PEEK<764>=16 THEN GOSUB 29002:G
OSUB 7000
IW 717 IF PEEK<764>=11 THEN GOSUB 29002:G
OSUB 7040
ZT 800 IF PEEK<764>=33 THEN 0=0+1:IF 0>1
THEN 0=0:GOTO 830
NS 830 IF 0=0 THEN POSITION 2,21:? "ERASE
BLOCK":POKE 764,255:RETURN
QH 831 IF 0=1 THEN POSITION 2,21:? "ERASE
BLOCK":POKE 764,255:RETURN
PS 1000 ? "XXXXXXXXXX":? P$:? "ERASER
BLOCK":A=3:B=1:0=0:GOSUB 400:GOSUB 494
KE 1001 LOCATE A,B,C
NV 1002 IF C=46 THEN POSITION A,B:GOTO 10
04
FF 1003 IF C=160 THEN POSITION A,B:GOTO 1
006
QZ 1004 IF 0=0 THEN ? "X":FOR D=1 TO 3:NE
XT D:POSITION A,B:? ".":GOTO 1010
XF 1005 ? "X":FOR D=1 TO 3:NEXT D:POSITIO
N A,B:? ".":GOTO 1010
TT 1006 IF 0=0 THEN ? "O":FOR D=1 TO 3:NE
XT D:POSITION A,B:? "X":GOTO 1010
SH 1007 ? "X":FOR D=1 TO 3:NEXT D:POSITIO
N A,B:? "O":GOTO 1010
WU 1010 IF PEEK<764><>255 THEN GOSUB 700
WW 1030 GOSUB 500
NO 1040 GOTO 1001
BQ 1500 GOSUB 29002:POSITION 2,22:? "PUT
PLAYER IN MEMORY <Y/N>":GOSUB 29000
NI 1501 IF PK<>43 THEN POSITION 2,22:? "Q
":RETURN
LC 1502 ON EDIT=1 GOTO 1506:ON Q>40 GOTO
1509:FOR I=1 TO 20:P<Q,I>=BYTE<I>:NEXT
I:Q=Q+1
QF 1503 POSITION 2,22:? "Q":POSITION 2,22
:? "CLEAN TABLET <Y/N>":GOSUB 29000
AO 1504 IF PK<>43 THEN POSITION 2,22:? "Q
":GOSUB 400:RETURN
LW 1505 GOSUB 29500:POP :GOTO 1000
TX 1506 IF EDM=2 THEN FOR I=1 TO 20:P<QQ,
I>=BYTE<I>:NEXT I:EDIT=0:GOTO 1508
CU 1507 EDIT=0:FOR I=1 TO 20:P<Q,I>=BYTE<
I>:NEXT I:Q=Q+1
YY 1508 GOSUB 400:GOTO 1503
NS 1509 POSITION 2,22:? "XXXXXXXXXX OUT O
F MEMORY!":RETURN
YT 1800 POKE 764,255:TRAP 1800:GOSUB 2900
2:POSITION 2,22:? "EDIT FROM <1-";Q;"
)":INPUT QQ
UK 1801 IF QQ<1 THEN POSITION 2,22:POKE 7
64,255:? "Q":QQ=Q:RETURN
PV 1802 IF QQ>Q OR QQ>40 THEN POSITION 2,
22:? "QNUMBER OUT OF RANGE!":FOR I=1
TO 250:NEXT I:GOTO 1800
GO 1803 POSITION 2,22:? "Q":IF VIEW=1 THE
N GOSUB 7500:GOTO 1805
KY 1804 POSITION 13,20:? "XXXXXXXX PUT AS NE
W PLAYER":POSITION 13,22:? "XXXXXXXX REPL
ACE ORIGINAL"
GG 1805 GOSUB 29000
HP 1806 IF PK=31 THEN EDM=1:ON VIEW=1 GOS
UB 7501:GOTO 1809
IE 1807 IF PK=30 THEN EDM=2:ON VIEW=1 GOS
UB 7501:GOTO 1809
IF 1808 GOSUB 2006:RETURN
UE 1809 EDIT=1:QB=QQ:ON VIEW=0 GOSUB 2006
:GOSUB 7510:GOSUB 29600:POP :GOTO 1000
GG 2000 GOSUB 29002:ON VIEW=1 GOSUB 7502
HQ 2001 IF VIEW=0 THEN POSITION 13,20:? "
XXXXXXXX UP TO DOWN":POSITION 13,22:? "X
XXXXXXXX LEFT TO RIGHT"
FF 2002 GOSUB 29000
QZ 2003 IF PK=31 THEN GOSUB 2007:GOTO 201
0
KU 2004 IF PK=30 THEN GOTO 2100
DD 2005 ON VIEW=1 GOSUB 7501:ON VIEW=0 GO
SUB 2006:RETURN

```

continued on next page

```

UV 2006 POSITION 13,20:? "
   " : POSITION 13,22:? "
   " : RETURN
QO 2007 ON VIEW=1 GOSUB 7501:ON VIEW=0 GO
SUB 2006:GOSUB 7510:RETURN
OI 2010 M=0:FOR I=20 TO 1 STEP -1:M=M+1:P
1$(M,M)=CHR$(BYTE(I)):NEXT I
RK 2020 FOR I=1 TO 20:BYTE(I)=ASC(P1$(I,I
)) :NEXT I:P1$=""
MH 2021 GOSUB 29601:POP :GOTO 1000
AZ 2100 GOSUB 2007
GT 2101 FOR I=1 TO 20:BYTE(I)=0:FOR D=1 T
O 4:LOCATE D+2,I,C1:LOCATE 11-D,I,C2:G
OSUB 2107:NEXT D:NEXT I
MX 2106 GOSUB 29601:POP :GOTO 1000
GG 2107 IF C1=C2 AND C1=46 THEN RETURN
TU 2109 IF C1=C2 AND C1=160 THEN GOSUB 61
49+D:GOSUB 2140:GOSUB 6149+9-D:GOSUB 2
140:RETURN
QG 2111 IF C1=46 THEN GOSUB 6149+D:GOSUB
2140:RETURN
RU 2113 IF C1=160 THEN GOSUB 6149+9-D:GOS
UB 2140:RETURN
UF 2115 GOTO 8800
HE 2140 BYTE(I)=BYTE(I)+R:RETURN
YT 4000 ? " : GOSUB 4001:GOTO 4002
KL 4001 ? " : GOSUB 4002:GOTO 4002
YF 4002 ? " : GOSUB 4003:GOTO 4003
PD 4003 ? " : GOSUB 4004:GOTO 4004
KJ 4004 ? " : GOSUB 4005:GOTO 4005
IB 4005 ? " : GOSUB 4006:GOTO 4006
OE 4006 ? " : GOSUB 4007:GOTO 4007
JC 4007 GOSUB 74:GOSUB 29000
KW 4008 IF PK=58 THEN GOSUB 4020:GOSUB 41
00:GOSUB 4500:GOTO 50
YL 4009 IF PK=18 THEN GOSUB 4020:GOSUB 45
00:GOTO 50
QG 4010 IF PK=10 THEN GOSUB 4020:GOSUB 43
00:GOTO 50
WB 4011 IF PK=28 THEN 50
SH 4013 GOTO 4007
XT 4020 ? " : GOSUB 4021:GOTO 4021
CS 4021 ? "WHAT FILENAME":INPUT F$
PU 4022 IF F$="" THEN 4000
TP 4023 CF$="D":CF$(3)=F$:CF=LEN(CF$)+1
QU 4024 TRAP 4800
ZQ 4025 CLOSE #1:OPEN #1,4,0,CF$
OM 4026 ? "FILE EXISTS- 'Y' TO REPLACE":
:INPUT A$:IF A$<>"Y" THEN GOTO 4000
AL 4030 RETURN
IT 4100 CLOSE #1:LIST CF$,29999,30200
II 4110 OPEN #1,9,0,CF$
CC 4112 ? #1:"10 GOSUB 30000:DIM P$(Q*2
0);P$(Q);Q;"
AB 4114 ? #1:"20 RESTORE:FOR I=1 TO "Q*2
0":READ A$:P$(LEN(P$)+1)=CHR$(A):NEXT
I"
NW 4115 ? #1:"30 P(1)=ADR(P$):FOR I=1 TO
"Q-1":P(I+1)=P(1)+I*20:NEXT I"
RP 4116 FOR I=1 TO Q
NL 4118 ? #1:I+3*10;" DATA":
HK 4120 FOR D=1 TO 19
BW 4121 ? #1:P(I,D);";";
WK 4122 NEXT D: ? #1:P(I,20):NEXT I
DY 4123 CLOSE #1:RETURN
QB 4300 CLOSE #1:LIST CF$,29999,30200:CLO
SE #1
IN 4301 OPEN #1,9,0,CF$
PP 4302 ? #1:"10 GOSUB 30000:DIM P$(Q*2
0);P$(Q);Q";H$(20):TOTAL="":Q:CF=LEN(
CF$)+1
UC 4303 F$="STR":CF$(LEN(CF$)+1)=F$: ? #1
;" 20 CLOSE #1:OPEN #1,4,0,"CHR$(34):
CF$:CHR$(34)
EI 4304 ? #1:"30 INPUT #1,TOTAL": ? #1;"40
FOR I=1 TO TOTAL": ? #1;"50 INPUT #1:H
$:P$(LEN(P$)+1)=H$:NEXT I"
HB 4307 ? #1;"60 P(1)=ADR(P$):FOR I=1 TO
TOTAL-1:P(I+1)=ADR(P$)+I*20:NEXT I"
MU 4310 CLOSE #1
IB 4320 OPEN #1,8,0,CF$
XL 4330 ? #1,Q
RE 4340 FOR I=1 TO Q
CI 4350 FOR D=1 TO 20
JC 4351 ? #1:CHR$(P(I,D)):NEXT D: ? #1:NE
XT I
RA 4500 F$="PMG":CF$(CF)=F$
CS 4501 CLOSE #1:OPEN #1,8,0,CF$
EU 4502 ? #1,Q:FOR I=1 TO Q:FOR D=1 TO 20
: ? #1,P(I,D):NEXT D:NEXT I:CLOSE #1:RE
TURN
JE 4800 IF PEEK(195)=170 THEN GOTO 4030
WL 4999 GOTO 8800
KU 5000 ? " :
VD 5001 GOSUB 4001:GOTO 5002
DX 5002 ? " : GOSUB 62
TD 5003 ? " : GOSUB 66
RD 5004 ? " : GOSUB 66
OD 5005 ? " : GOSUB 66
AE 5006 GOSUB 4006:GOSUB 74
GC 5007 GOSUB 29000
QR 5008 IF PK=58 THEN GOSUB 5020
TO 5009 IF PK=28 THEN GOTO 50
WH 5010 IF PK=0 THEN GOTO 5099
SI 5011 IF PK=63 THEN GOTO 5300
TB 5015 GOTO 5007
RY 5020 TRAP 5050:POKE 82,2:POKE 83,37
LE 5021 ? " :
MC 5022 CLOSE #1:OPEN #1,7,0,"D:*.PMG"
ED 5023 INPUT #1,F$
RB 5024 IF F$(5,9)="FREE " THEN 5029
OM 5025 ? F$(3,13);";";
SE 5026 GOTO 5023
XS 5029 ? ? ? " : F$
MA 5050 POSITION 3,22: ? "PRESS ANY KEY"
:GOSUB 29000:POKE 82,2:POKE 83,39:G
OTO 5000
XS 5099 GOSUB 5100:GOTO 5101
CG 5100 GOSUB 5200: ? "DO NOT USE DRI
VE NUMBER OR EXTENDERS":RETURN
JW 5101 ? "WHAT FILE TO LOAD":INPUT F$
FG 5102 IF F$="" THEN GOTO 5000
QY 5103 TRAP 5800
EJ 5104 CF$="D":CF$(3)=F$:F$="PMG":CF$(
LEN(CF$)+1)=F$
ZN 5105 CLOSE #1:OPEN #1,4,0,CF$
XQ 5106 TRAP 5110:INPUT #1,Q:FOR I=1 TO Q
:FOR D=1 TO 20:INPUT #1,N:P(I,D)=N:NEX
T D:NEXT I
VD 5110 ? "PUTTING
LAST PLAYER IN BYTE REGISTER...":FOR T=
1 TO 20:BYTE(T)=P(Q-1,T):NEXT T
GE 5111 GOSUB 29601:EDIT=0:EDM=0:VIEW=0:G
OTO 50
RY 5200 IF Q>1 THEN GOTO 5210
KY 5201 FOR I=1 TO 20:IF BYTE(I)>0 THEN G
OTO 5210:NEXT I
AT 5203 RETURN
BQ 5210 ? "ERASE PLAYERS IN MEMORY (Y/N)
":GOSUB 29000:IF PK<43 THEN POP :GOTO
50
AO 5211 RETURN
ZC 5300 GOSUB 5100
IH 5301 ? "FIRST FILE NAME":INPUT F$:IF
F$="" THEN GOTO 5000:TRAP 5800
EF 5302 CF$="D":CF$(3)=F$:F$="PMG":CF$(
LEN(CF$)+1)=F$
ZJ 5303 CLOSE #1:OPEN #1,4,0,CF$
MW 5304 INPUT #1,N:N=N-1
AF 5305 ? "SECOND FILENAME":INPUT F$:IF
F$="" THEN GOTO 5000:TRAP 5800
ON 5306 A$="D":A$(3)=F$:F$="PMG":A$(LEN
(A$)+1)=F$
AL 5307 CLOSE #2:OPEN #2,4,0,A$
NQ 5308 INPUT #2,S:S=S-1:Q=0:Q=Q+S+N
JF 5309 IF Q>40 THEN ? "BUFFER
OVERFLOW!": ? "TO MANY PLAYERS TO HAN
DLE":GOTO 5700
OB 5310 FOR I=1 TO N:FOR D=1 TO 20:INPUT
#1,H:P(I,D)=H:NEXT D:NEXT I
WH 5311 FOR I=N+1 TO Q:FOR D=1 TO 20:INPU
T #2,H:P(I,D)=H:NEXT D:NEXT I
FC 5312 CLOSE #1:CLOSE #2:Q=Q+1:GOTO 5110
OD 5700 FOR I=1 TO 250:NEXT I:GOTO 5000
ZA 5800 IF PEEK(195)=170 THEN ? "FILE
NOT FOUND!":FOR I=1 TO 250:NEX
T I:GOTO 5000
RI 5801 GOTO 50
DN 6000 POSITION A,B:LOCATE A,B,C
IT 6001 IF C=ASC(" ") AND O=1 THEN 607
XR 6002 IF C=ASC("■") AND O=0 THEN GOTO 6
07
XF 6003 IF O=0 THEN POSITION A,B: ? " :GO

```



```

QT 5 REM (c)1988, ANTIC PUBLISHING
NH 6 REM DO *NOT* RENUMBER THIS PROGRAM!
XA 9 DIM P(40),P1$(800),F(40),T$(40)
PZ 10 TRAP 49:OPEN #1,4,0,"D:TEMP.ANM"
CP 11 INPUT #1,D:B=0
YG 12 FOR I=1 TO D-1:FOR M=1 TO 20:B=B+1
YU 13 INPUT #1,A:P1$(B,B)=CHR$(A):NEXT M:
NEXT I
YX 14 P(1)=ADR(P1$)
LR 20 FOR I=1 TO D-1:P(I+1)=P(1)+I*20:NEX
T I
YM 21 Q=D-1
BK 23 GOSUB 30000:POKE 559,0:POKE 705,1:G
OTO 100
SJ 49 TRAP 51
WX 50 ? "##### Can't find 'TEMP.ANM
'
Re-loading PMED":FOR I=1
TO 90:NEXT I:RUN "D:PMED.BAS"
KU 51 ? "##### Can't find 'PMED' p1
ease make sure the correct disk is
in drive1 and press [RETURN]"
MR 52 GOSUB 20000
MY 53 IF P=12 THEN 60
TY 54 GOTO 52
WA 60 TRAP 51:RUN "D:PMED.BAS"
ZA 90 ? "##### POSITION 2,15:? "Insert PMED
disk and press [RETURN]":TRAP 51:GOT
O 52
DB 91 ? "RE-LOAD PMED (Y/N)":GOSUB 20000

TB 92 IF P<43 THEN ? "##### GOTO 500
UQ 93 GOTO 90
BF 100 ? "#####
#####"
OL 101 ? " 0
0"
MC 102 ? " 0 #####
0"
AZ 103 ? " 0 #####
0"
JI 104 ? " 0 #####
0"
UX 105 ? " 0 #####
0"
LM 106 ? " 0 #####
0"
RP 107 ? " 0 #####
0"
WM 108 ? " 0 #####
0"
PJ 109 ? " 0
0"
EH 110 ? "#####
#####"
GQ 111 ? "#####
#####"
SY 112 ? "#####
#####:POKE 559,46
XB 113 FOR I=1 TO 590:NEXT I
HJ 114 POSITION 0,0:FOR I=1 TO 14:? "0";:
NEXT I:? "0"
XK 500 ? "#####
#####"
WE 501 ? "#####
#####"
XD 502 ? "#####
#####"
DT 503 ? " [S] Still Animation"?
ZL 504 ? " [H] Horizontal Animatio
n"?
YU 505 ? " [V] Vertical Animation"
:?
FT 506 ? " [R] Re-load Editor"? :
?
YF 507 ? "#####
#####"
CS 508 ? "##### PLEASE TAKE A SELECTION
#####"
XU 509 ? "#####
#####"
SQ 600 GOSUB 20000
PE 601 IF P=62 THEN 700
RS 602 IF P=57 THEN 800
WJ 603 IF P=16 THEN GOTO 900
FC 604 IF P=40 THEN 91
PC 699 GOTO 600
BC 700 POSITION 3,16:? "#####
#####"
HR 701 INPUT T$
HU 702 IF T$="ALL" THEN TL=Q:FOR I=1 TO Q
:F(I)=P(I):NEXT I:GOSUB 3000:GOTO 3006

```

```

QQ 703 IF T$="ODD" THEN TL=0:FOR I=1 TO Q
STEP 2:TL=TL+1:F(TL)=P(I):NEXT I:GOSU
B 3000:GOTO 3006
UZ 704 IF T$="EVEN" THEN TL=0:FOR I=2 TO
Q STEP 2:TL=TL+1:F(TL)=P(I):NEXT I:GOS
UB 3000:GOTO 3006
RQ 750 TRAP 751:T=VAL(T$):GOTO 752
WW 751 POSITION 3,16:? "##### INVALID
D INPUT! " :FOR I=1 TO 350:NE
XT I:? "#####:GOTO 500
GO 752 IF T<1 OR T>40 THEN GOTO 751
PE 753 TL=T:FOR I=1 TO T
TL 754 POSITION 2,21:? "0";I;" Player #";
:INPUT PL
BY 755 IF PL>Q THEN GOSUB 780:GOTO 754
VW 756 IF PL<1 THEN 500
EG 757 F(I)=P(PL)
XK 758 NEXT I:GOSUB 3000:GOTO 3006
LW 780 POSITION 3,16:? "##### NUMBER
OUT OF RANGE! " :FOR D=1 TO 350:NE
XT D:POSITION 3,16
NZ 781 ? "#####
#####:RETURN
PC 800 POSITION 3,16:? "#####
#####"
FZ 801 ? "0";:INPUT T$
FY 802 IF T$="ALL" THEN POSITION 3,16:? "
#####:F
OR I=1 TO 500:NEXT I:GOTO 800
RU 803 IF T$="ODD TO EVEN" OR T$="O TO E"
THEN TR=0:FOR I=1 TO Q STEP 2:TR=TR+1
:F(TR)=P(I):NEXT I:GOTO 820
GP 804 IF T$="EVEN TO ODD" OR T$="E TO O"
THEN TL=0:FOR I=1 TO Q STEP 2:TL=TL+1
:F(TL)=P(I):NEXT I:GOTO 821
SX 808 TRAP 809:T=VAL(T$):GOTO 850
XL 809 POSITION 3,16:? "##### INVALID
D INPUT! " :FOR I=1 TO 350:NE
XT I:? "#####:GOTO 500
DQ 820 B=1:TL=19:C=20:FOR I=2 TO Q STEP 2
:TL=TL+1:F(TL)=P(I):NEXT I:GOSUB 3000:
GOTO 4000
QR 821 B=20:TR=19:C=1:FOR I=2 TO Q STEP 2
:TR=TR+1:F(TR)=P(I):NEXT I:GOSUB 3000:
GOTO 4000
NW 850 IF T<1 OR T>20 THEN 809
DY 851 TR=0:B=1:FOR I=1 TO T:TR=TR+1
MZ 852 POSITION 2,21:? "0";I;" Player #
RIGHT";:INPUT 5
AU 853 IF S<1 THEN ? "#####:GOTO 500
SE 854 IF S>Q THEN POSITION 3,16:? "#####
##### NUMBER OUT OF RANGE " :FOR D
=1 TO 600:NEXT D:GOTO 856
FY 855 F(I)=P(S):NEXT I:GOTO 860
GP 856 POSITION 3,16:? "#####
#####:GOTO 852
OG 860 POSITION 3,16:? "#####
#####:POSITION 2,21:? "
#####"
RP 861 TRAP 809:INPUT T
OE 862 IF T<1 OR T>20 THEN 809
SP 863 TL=19:C=20:FOR I=1 TO T:TL=TL+1
MI 864 POSITION 2,21:? "0";I;" PLAYER #
LEFT";:INPUT 5
BC 865 IF S<1 THEN ? "#####:GOTO 500
AE 866 IF S>Q THEN POSITION 3,16:? "#####
##### NUMBER OUT OF RANGE " :FOR D
=1 TO 600:NEXT D:GOTO 876
AW 867 F(TL)=P(S):NEXT I:GOSUB 3000:GOTO
4000
OI 876 POSITION 3,16:? "#####
#####:GOTO 864
RN 900 POSITION 3,16:? "#####
#####"
GA 901 ? "0";:INPUT T$
XE 902 IF T$="ALL" THEN POSITION 3,16:? "
#####:F
OR I=1 TO 500:NEXT I:GOTO 900
KI 903 IF T$="ODD TO EVEN" OR T$="O TO E"
THEN TR=0:FOR I=1 TO Q STEP 2:TR=TR+1
:F(TR)=P(I):NEXT I:GOTO 920
BP 904 IF T$="EVEN TO ODD" OR T$="E TO O"
THEN TL=0:FOR I=1 TO Q STEP 2:TL=TL+1
:F(TL)=P(I):NEXT I:GOTO 921
UL 908 TRAP 909:T=VAL(T$):GOTO 950
XM 909 POSITION 3,16:? "##### INVALID
D INPUT! " :FOR I=1 TO 350:NE
XT I:? "#####:GOTO 500
GV 920 B=1:TL=19:C=20:FOR I=2 TO Q STEP 2
:TL=TL+1:F(TL)=P(I):NEXT I:GOSUB 3000:
GOTO 5000
TW 921 B=20:TR=19:C=1:FOR I=2 TO Q STEP 2
:TR=TR+1:F(TR)=P(I):NEXT I:GOSUB 3000:

```


GEM BATTLESHIP

Article on page 58

A LISTING 1

```
Rem Ship Combat
Rem by Marvin Jenkins
Rem (c)1988 Antic Publishing
Rez=Xbios(4)
If Rez>0
  Print "Sorry works only in low rez"
  Pause 100
End
Endif
Setcolor 0,15,15,4
Clear
Zp=0
Deftext 2,0,0,20
Print "PLEASE ENTER YOUR NAME ",Humans$
Print
Form Input 10,Humans$
Cls
Text 30,30," PLEASE WAIT"
Text 100,60,Humans$
Gosub Ship_dat
Cls
Dim Test(9,9),Sinks(2),Sinker(5),N(4),V(7),Computer(9,9)
Dim A$(22)
A$(0)=" Desk "
A$(1)=" About Ship Combat "
A$(2)="-----"
A$(3)="1"
A$(4)="2"
A$(5)="3"
A$(6)="4"
A$(7)="5"
A$(8)="6"
A$(9)=" "
A$(10)=" Options "
A$(11)=" Start "
A$(12)="-----"
A$(13)=" Quit "
A$(14)=" "
A$(15)=" Help "
A$(16)=" Read "
A$(17)=" "
A$(18)=" "
Menu A$()
On Menu Gosub Info
```

B

```
Do
  On Menu
  Mouse X,Y,K
  Y%=Y/11-3
  X%=X/12
  If K=1 And Zp=1 And Xc%=>0 And Y%=<9 And Y%=>0 And Xc%=<9 Then
    If Not Computer(Xc%,Y%)=10
      Gosub Computer_hit
      Gosub Brains
    Endif
  Endif
  If X%>13
    Xc%=X%-16
  Endif
Loop
Procedure Start
Cls
Arrayfill Computer(),0
Arrayfill N(),0
Arrayfill Test(),0
Arrayfill Sinks(),0
Arrayfill Sinker(),0
K=0
Dum1=0
Dum2=0
Dum3=0
Dum4=0
Dum5=0
Xc%=-1
Zp=1
Menu A$()
Return
Procedure Info
Value=Menu(0)
If Value=1
  Alert 1," By Marvin Jenkins! (c)1988 ; Antic Publish
ing ",1," OK ", B
Endif
If Value=11
  Gosub Start
  Gosub Grid
  Gosub Computer_place
Endif
If Value=13
```


C

```

Setcolor 0,14,15,15
Edit
Endif
If Value=16
  Gosub Instructions
Endif
Menu AS( )
Return
Procedure Brains
Ship:
If Sinker(1)=1 Or Sinker(5)=1
  Q=Int(Rnd*2)+1
  Sinker(1)=Q
  Sinker(5)=Q
Endif
If Sinker(1)>0
  Goto Jump
Endif
Cship=Random(10)
Rship=Random(10)
If Test(Cship,Rship)>1 And Test(Cship,Rship)<10
  Goto Jump
Endif
If Test(Cship,Rship)>0
  Goto Ship
Endif
If Test(Cship,Rship)=0
  Test(Cship,Rship)=Test(Cship,Rship)+1
  Xspot=Cship
  Yspot=Rship
  Color 4
  Gosub Hit_marker
Endif
Jump:
If Test(Cship,Rship)>1 And Test(Cship,Rship)<10
  Color 2
  Sinker(1)=1
  Cship=Cship
  Rship=Rship
  Xspot=Cship
  Yspot=Rship
  Gosub Hit_marker
Endif
If Test(Cship,Rship)=1 And Test(Cship,Rship)<10
  Color 2
  Sinker(1)=1
  Cship=Cship
  Rship=Rship
  Xspot=Cship
  Yspot=Rship
  Gosub Hit_marker
Endif
Arrayfill V(,0)
On Sinker(1) Gosub Rightsink,Upsink
If V(6)=1
  V(6)=0
  Gosub Upsink
Endif
If V(7)=1
  V(7)=0
  Gosub Rightsink
Endif
Gosub Check_sink
Z=Z+1
Mouse X,Y,K
If Sinker(2)=1
  Sinker(2)=0
  Gosub Stray_sink
Endif
Return
Procedure Rightsink

```

D

```

N(1)=N(1)+1
Xspot=Csink
Yspot=Rsink+N(1)
If Rsink+N(1)>9
  V(1)=1
  Goto Jump2
Endif
If Test(Csink,Rsink+N(1))=1 Or Test(Csink,Rsink+N(1))>10
  V(1)=1
  Goto Jump2
Endif
If Test(Csink,Rsink+N(1))>1 And Test(Csink,Rsink+N(1))<10
  Color 2
  Gosub Hit_marker
  Test(Csink,Rsink+N(1))=Test(Csink,Rsink+N(1))+10
  V(1)=0
Endif
If Test(Csink,Rsink+N(1))=0
  Color 4
  Gosub Hit_marker
  Test(Csink,Rsink+N(1))=Test(Csink,Rsink+N(1))+11
  N(1)=0
Endif
Jump2:
If V(1)=1
  N(1)=0
  Gosub Leftsink
Endif
Return
Procedure Leftsink
N(2)=N(2)+1
Yspot=Rsink-N(2)
If Rsink-N(2)<0
  V(5)=1
  N(2)=0
  Goto Jump3
Endif
If Test(Csink,Rsink-N(2))=1 Or Test(Csink,Rsink-N(2))>10
  V(5)=1
  N(2)=0
  Goto Jump3
Endif
If Test(Csink,Rsink-N(2))>1 And Test(Csink,Rsink-N(2))<10
  Color 2
  Gosub Hit_marker
  Test(Csink,Rsink-N(2))=Test(Csink,Rsink-N(2))+10
  V(5)=0
Endif
If Test(Csink,Rsink-N(2))=0
  Color 4
  Gosub Hit_marker
  Test(Csink,Rsink-N(2))=Test(Csink,Rsink-N(2))+11
  N(2)=0
Endif
Jump3:
If V(5)=1
  N(2)=0
  V(6)=1
Endif
Return
Procedure Upsink
N(3)=N(3)+1
Xspot=Csink-N(3)
Yspot=Rsink
If Csink-N(3)<-1

```

continued on next page

E

```

V(1)=3
Goto Jump4
Endif
If Test(Csink-N(3),Rsink)=1
V(1)=3
Goto Jump4
Endif
If Test(Csink-N(3),Rsink)>10
V(1)=3
Goto Jump4
Endif
If Test(Csink-N(3),Rsink)>1 And Test(Csink-N(3),Rsink)<10
Color 2
Gosub Hit_marker
Test(Csink-N(3),Rsink)=Test(Csink-N(3),Rsink)+10
V(1)=0
Endif
If Test(Csink-N(3),Rsink)=0
Color 4
Gosub Hit_marker
Test(Csink-N(3),Rsink)=Test(Csink-N(3),Rsink)+11
N(3)=0
Endif
Jump4:
If V(1)=3
N(3)=0
Gosub Downsink
Endif
Return
Procedure Downsink
N(4)=N(4)+1
Xspot=Csink+N(4)
If Csink+N(4)>9
V(1)=4
Goto Jump5
Endif
If Test(Csink+N(4),Rsink)=1 Or Test(Csink+N(4),Rsink)>10
V(1)=4
Goto Jump5
Endif
If Test(Csink+N(4),Rsink)>1 And Test(Csink+N(4),Rsink)<10
Color 2
Gosub Hit_marker
Test(Csink+N(4),Rsink)=Test(Csink+N(4),Rsink)+10
V(1)=0
Endif
If Test(Csink+N(4),Rsink)=0
Color 4
Gosub Hit_marker
Test(Csink+N(4),Rsink)=Test(Csink+N(4),Rsink)+11
N(4)=0
Endif
Jump5:
If V(1)=4
N(4)=0
V(7)=1
Endif
Return
Procedure Check_sink
Uboat=0
Battleship=0
Carrier=0
Destroyer=0
Tanker=0
I=1
J=0

```

F

```

For I=0 To 9
For J=0 To 9
Look_hit=Test(I,J)
If Look_hit=2
Uboat=2
Endif
If Look_hit=4
Battleship=4
Endif
If Look_hit=5
Carrier=5
Endif
If Look_hit=6
Destroyer=6
Endif
If Look_hit=3
Tanker=3
Endif
Next J
Next I
If Uboat=0 And Dum1=0
Dum1=1
Sinkes(1)=0
Arrayfill N(),0
Text 0,150,80,"U-BOAT SUNK"
Sinkes(2)=1
Endif
If Battleship=0 And Dum2=0
Dum2=1
Text 0,157,125,"BATTLESHIP SUNK"
Arrayfill N(),0
Sinkes(1)=0
Sinkes(2)=1
Endif
If Carrier=0 And Dum3=0
Dum3=1
Text 0,164,98,"CARRIER SUNK"
Arrayfill N(),0
Sinkes(2)=1
Endif
If Destroyer=0 And Dum4=0
Dum4=1
Text 0,171,116,"DESTROYER SUNK"
Arrayfill N(),0
Sinkes(2)=1
Endif
If Tanker=0 And Dum5=0
Dum5=1
Text 0,178,89,"TANKER SUNK"
Sinkes(2)=1
Endif
If Dum1=1 And Dum2=1 And Dum3=1 And Dum4=1 And Dum5=1 And Dum6=0
Print At(14,4);"COMPUTER WINS"
Zp=0
I=0
J=0
For I=0 To 9
For J=0 To 9
Computer_wins=Computer(I,J)
If Computer_wins>2 And Computer_wins<7
Deffill 2,2,8

```

```

      Fill I*12+195,J*12+34
    Endif
    Next J
  Next I
Endif
Return
Procedure Stray_sink
  S_boat=0
  S_tanker=0
  S_battle=0
  S_carrier=0
  S_destroyer=0
  I=0
  J=0
  For I=0 To 9
    For J=0 To 9
      Stray=Test(I,J)
      If Stray=12
        S_boat=S_boat+Stray
      Endif
      If Stray=13
        S_tanker=S_tanker+Stray
      Endif
      If Stray=14
        S_battle=S_battle+Stray
      Endif
      If Stray=15
        S_carrier=S_carrier+Stray
      Endif
      If Stray=16
        S_destroyer=S_destroyer+Stray
      Endif
    Next J
  Next I
  If S_boat=12
    Sinker(5)=1
    Sill=12
    Goto Jump8
  Endif
  If S_tanker=13
    Sill=13
    Sinker(5)=1
    Goto Jump8
  Endif
  If S_battle=14
    Sill=14
    Sinker(5)=1
    Goto Jump8
  Endif
  If S_carrier=15
    Sill=15
    Sinker(5)=1
    Goto Jump8
  Endif
  If S_destroyer=16
    Sill=16
    Sinker(5)=1
    Goto Jump8
  Endif
  I=0
  J=0
  For I=0 To 9
    For J=0 To 9
      Check=Test(I,J)

```

```

  If Check=Sill
    Csink=I
    Rsink=J
  Endif
  Next J
Next I
Jump9:
Return
Procedure Grid
  Define I,2,0,0
  Color 1
  For I=3 To 13
    Line 1,I*11,120,I*11
  Next I
  For J=0 To 10
    Line J*12,33,J*12,143
  Next J
  For I=3 To 13
    Line 192,I*11,311,I*11
  Next I
  For J=16 To 26
    Line J*12,33,J*12,143
  Next J
  DefText 2,4,0,13
  Text 20,30,70,Human$
  Text 210,30,90," Computer"
  DefText 2,4,0,10
  Text 10,190,300,"SHIP COMBAT"
  Gosub Place_ship
Return
Procedure Hit_marker
  Define O,2,0,0
  Circle (Xspot*12)+5,(Yspot*11)+38,2
  Color 1
Return
Procedure Place_ship
  Defmouse 3
  Pp=1
  Jump11:
  K=0
  Do
    Mouse X,Y,K
    Y%=Y/11-3
    X%=X/12
    Exit If K=1 Or K=2
  Loop
  If X%>0 And X%<9 And Y%>0 And Y%<=9 Then
    If K=2 And Y%<=8 Then
      If Pp=1 And Test(X%,Y%)=0 And Test(X%,Y%+1)=0
        Put X%*12,Y%*11+33,Vdestroyer$,7
        Pp=2
        Test(X%,Y%)=6
        Test(X%,Y%+1)=6
      Endif
    Endif
    If K=2 And Pp=2 And Y%<=7 Then
      If Test(X%,Y%)=0 And Test(X%,Y%+1)=0 And Test(X%,Y%+2)=0
        Put X%*12,Y%*11+33,Vboat$,7
        Pp=3
        Test(X%,Y%)=2
        Test(X%,Y%+1)=2
        Test(X%,Y%+2)=2
      Endif
    Endif
    If K=2 And Pp=3 And Y%<=7 Then
      If Test(X%,Y%)=0 And Test(X%,Y%+1)=0 And Test(X%,Y%+2)=0
        Put X%*12,Y%*11+33,Vtanker$,7
        Pp=4
      Endif
    Endif
  Endif

```

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```

Test(X%, Y%)=3
Test(X%, Y%+1)=3
Test(X%, Y%+2)=3
Endif
If K=2 And Pp=4 And Y%<=6 Then
If Test(X%, Y%)=0 And Test(X%, Y%+1)=0 And Test(X%, Y%+2)=0 And Test(X%, Y%+3)
=0
Put X%*12, Y%*11+33, Vbattles, 7
Pp=5
Test(X%, Y%)=4
Test(X%, Y%+1)=4
Test(X%, Y%+2)=4
Test(X%, Y%+3)=4
Endif
Endif
If K=2 And Pp=5 And Y%<=5 Then
If Test(X%, Y%)=0 And Test(X%, Y%+1)=0 And Test(X%, Y%+2)=0 And Test(X%, Y%+3)
=0 And Test(X%, Y%+4)=0
Put X%*12, Y%*11+33, Vcarrier$, 7
Test(X%, Y%+1)=5
Test(X%, Y%+2)=5
Test(X%, Y%+3)=5
Test(X%, Y%+4)=5
Goto Jump10
Endif
Endif
If X%>0 And Y%<=9 And Y%>0 And Y%<=9 Then
If K=1 And X%<=8 Then
If Pp=1 And Test(X%, Y%)=0 And Test(X%+1, Y%)=0
Put X%*12, Y%*11+31, Hdestroyer$, 7
Pp=2
K=0
Test(X%, Y%)=6
Test(X%+1, Y%)=6
Endif
Endif
If K=1 And Pp=2 And X%<=7 Then
Put X%*12, Y%*11+31, Hboat$, 7
Pp=3
Test(X%, Y%)=2
Test(X%+1, Y%)=2
Test(X%+2, Y%)=2
Endif
Endif
If K=1 And Pp=3 And X%<=7 Then
If Test(X%, Y%)=0 And Test(X%+1, Y%)=0 And Test(X%+2, Y%)=0
Put X%*12, Y%*11+31, Htanker$, 7
Pp=4
Test(X%, Y%)=3
Test(X%+1, Y%)=3
Test(X%+2, Y%)=3
Endif
Endif
If K=1 And Pp=4 And X%<=6 Then
If Test(X%, Y%)=0 And Test(X%+1, Y%)=0 And Test(X%+2, Y%)=0 And Test(X%+3, Y%)
=0
Put X%*12, Y%*11+31, Hbattleship$, 7
Pp=5
Test(X%, Y%)=4
Test(X%+1, Y%)=4
Test(X%+2, Y%)=4
Test(X%+3, Y%)=4
Endif
Endif
If K=1 And Pp=5 And X%<=5 Then
If Test(X%, Y%)=0 And Test(X%+1, Y%)=0 And Test(X%+2, Y%)=0 And Test(X%+3, Y%)
=0 And Test(X%+4, Y%)=0
Put X%*12, Y%*11+31, Hcarrier$, 7
Test(X%, Y%)=5
Test(X%+1, Y%)=5
Test(X%+2, Y%)=5
Test(X%+3, Y%)=5
Test(X%+4, Y%)=5
Goto Jump10
Endif
Endif
Goto Jump11
Jump10:
Defmouse 0
Return
Procedure Computer_place
Pp=1
Jump14:
Xship%=Random(10)
Yship%=Random(10)
Switch=Random(2)
If Switch=1
Gosub Vertical_place
Endif
If Pp=6
Goto Jump13
Endif
If Xship%<=6 Then
If Pp=4 And Computer(Xship%, Yship%)=0 And Computer(Xship%+1, Yship%)=0
And Computer(Xship%+2, Yship%)=0 And Computer(Xship%+3, Yship%)=0
Pp=5
Computer(Xship%, Yship%)=4
Computer(Xship%+1, Yship%)=4
Computer(Xship%+2, Yship%)=4
Computer(Xship%+3, Yship%)=4
Endif
Endif
If Xship%<=7 Then
If Pp=3 And Computer(Xship%, Yship%)=0 And Computer(Xship%+2, Yship%)=0
(Xship%+1, Yship%)=0 And Computer(Xship%+2, Yship%)=0
Pp=4
Computer(Xship%, Yship%)=3
Computer(Xship%+1, Yship%)=3
Computer(Xship%+2, Yship%)=3
Endif
Endif
If Xship%<=7 Then
If Pp=2 And Computer(Xship%, Yship%)=0
And Computer(Xship%+1, Yship%)=0 And Computer(Xship%+2, Yship%)=0
Pp=3
Computer(Xship%, Yship%)=2
Computer(Xship%+1, Yship%)=2
Computer(Xship%+2, Yship%)=2
Endif
Endif
If Xship%<=8 Then
If Pp=1 And Computer(Xship%, Yship%)=0 And Computer(Xship%+1, Yship%)=0
And Computer(Xship%+2, Yship%)=0
Pp=2
Computer(Xship%, Yship%)=6
Computer(Xship%+1, Yship%)=6
Endif
Endif
If Xship%<=5 Then
If Pp=5 And Computer(Xship%, Yship%)=0 And
Computer(Xship%+1, Yship%)=0 And Computer(Xship%+2, Yship%)=0 And
Computer(Xship%+3, Yship%)=0 And Computer(Xship%+4, Yship%)=0
Computer(Xship%, Yship%)=5
Computer(Xship%+1, Yship%)=5
Computer(Xship%+2, Yship%)=5
Computer(Xship%+3, Yship%)=5
Computer(Xship%+4, Yship%)=5

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K

```

Goto Jump13
Endif
Endif
Goto Jump14
Jump13:
Return
Procedure Vertical_place
If Yship%=<7 Then
If Pp=3 And Computer(Xship%,Yship%)=0 And Computer(Xship%,Yship%+1)=0 And Co
mputer(Xship%,Yship%+2)=0
Pp=4
Computer(Xship%,Yship%)=3
Computer(Xship%,Yship%+1)=3
Computer(Xship%,Yship%+2)=3
Endif
Endif
If Yship%=<8 Then
If Pp=1 And Computer(Xship%,Yship%)=0 And Computer(Xship%,Yship%+1)=0
Pp=2
Computer(Xship%,Yship%)=6
Computer(Xship%,Yship%+1)=6
Endif
Endif
If Yship%=<7 Then
If Pp=2 And Computer(Xship%,Yship%)=0 And Computer(Xship%,Yship%+1)=0 And Co
mputer(Xship%,Yship%+2)=0
Pp=3
Computer(Xship%,Yship%)=2
Computer(Xship%,Yship%+1)=2
Computer(Xship%,Yship%+2)=2
Endif
Endif
If Yship%=<6 Then
If Pp=4 And Computer(Xship%,Yship%)=0 And Computer(Xship%,Yship%+1)=0 And Co
mputer(Xship%,Yship%+2)=0 And Computer(Xship%,Yship%+3)=0
Pp=5
Computer(Xship%,Yship%)=4
Computer(Xship%,Yship%+1)=4
Computer(Xship%,Yship%+2)=4
Computer(Xship%,Yship%+3)=4
Endif
Endif
If Yship%=<5 Then
If Pp=5 And Computer(Xship%,Yship%)=0 And Computer(Xship%,Yship%+1)=0 And Co
mputer(Xship%,Yship%+2)=0 And Computer(Xship%,Yship%+3)=0 And Computer(Xship%,Ys
hip%+4)=0
Computer(Xship%,Yship%)=5
Computer(Xship%,Yship%+1)=5
Computer(Xship%,Yship%+2)=5
Computer(Xship%,Yship%+3)=5
Computer(Xship%,Yship%+4)=5
Pp=6
Endif
Endif
Return
Procedure Computer_hit
Dumm1=0
Dumm2=0
Dumm3=0
Dumm4=0
Dumm5=0
Dumm6=0
Look=Computer(Xc%,Y%)
If Look=>2
Deffill 2,2,8
Computer(Xc%,Y%)=10
Fill Xc%*12+195,Y%*12+34
Endif
If Look<2
Deffill 4,2,8
Computer(Xc%,Y%)=10
Fill Xc%*12+195,Y%*12+34
Endif

```

L

```

Comboat=0
Combattleshp=0
Comcarruier=0
Comdestroyer=0
Comtanker=0
I=1
J=0
For I=0 To 9
For J=0 To 9
Look=Computer(I,J)
If Look=2
Comboat=2
Endif
If Look=4
Combattleshp=4
Endif
If Look=5
Comcarruier=5
Endif
If Look=6
Comdestroyer=6
Endif
If Look=3
Comtanker=3
Endif
Next J
Next I
Defext 1,1,0,4
If Comboat=0 And Dumm1=0
Dumm1=1
Text 190,150,80,"U-BOAT SUNK"
Endif
If Combattleshp=0 And Dumm2=0
Dumm2=1
Text 190,157,125,"BATTLESHIP SUNK"
Endif
If Comcarruier=0 And Dumm3=0
Dumm3=1
Text 190,164,98,"CARRIER SUNK"
Endif
If Comdestroyer=0 And Dumm4=0
Dumm4=1
Text 190,171,116,"DESTROYER SUNK"
Endif
If Comtanker=0 And Dumm5=0
Dumm5=1
Text 190,178,89,"TANKER SUNK"
Endif
Jump15:
Gosub Noise
If Dumm1=1 And Dumm2=1 And Dumm3=1 And Dumm4=1 And Dumm5=1
Dumm6=1
Zp=0
Print At(14,4);" YOU WIN!:"
Endif
Return
Procedure Noise
Wave 1,1,12,900,5
Sound 1,15,5,5
Wave 8,1,0,5000,40
Sound 0,0,0,0
Wave 0,0,0,0
Return
Procedure Instructions
Sget Screens$
Cls
Print
Print "ShipCombat is similar to the board game"
Print "Battleship. When you click on START you"
Print "will see the hand icon. This is used"
Print "only to place your ships on the left"
Print "grid. You have five ships."

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continued on next page

ST Resource

All the latest news for the ST user

September 1988



IMPOSSIBLE MISSION 2—on ST, PC and C-64

Antic's first multi-computer game review

BY RICK TEVERBAUGH

Impossible Mission 2 is definitely not for beginners or for computer gamers with low patience levels.

As Field Agent Bravo 29, your target on this mission is Professor Elvin Atombender, one of the world's foremost experts on robotics, computers and codes—who has gone slightly bonkers. Elvin made a vast fortune from computer raids on the funds of major financial institutions. Now he is trying to break into military computer installations around the world and steal the launch codes of nuclear missiles. His goal is to either dominate Earth or blow it up.

Elvin carries out his nefarious plots from an impregnable eight-tower complex that's heavily guarded by his killer robots. In order to neutralize Elvin's central computer, you

must first assemble a three-number code for each tower. Next you need to locate a safe in each tower and collect the musical sequences inside. Then you must tie together *all* the pieces of music into a melody that opens the express elevator doors to Elvin's central tower control room. Once inside that room, you just need to disarm the missile launch control codes before they are launched and destroy the world—within an eight-hour countdown.

Each room you must explore is like a mini-maze filled with clues and moving platforms, and populated by six kinds of robots. The Sentrybot is the most common—and the most deadly. It has a plasma gun that is quite lethal. Since you have no such weapon, you'll need speed, cunning and guile—not to mention a well-timed somer-

sault or two—to get around this formidable foe.

There are also Minebots, which lay mines at random on the floor; Pestbots, which do nothing more than ride around on each room's moving platforms and mess up your search strategy; Squatbots, which simply stand in one place and go up and down at regular intervals, providing a good springboard for you; Bashbots, which try to push you off the nearest edge, most often to your death; and Suicidebots, which are similar to the Bashbots except that they will go off the edge with you.

There are six terminal commands that can be used in each room. The commands must be collected by examining objects in the room, but you can use them only from one of the computer terminals, usually found near the entrances to each room. They range from bombs and mines to an electric plug that temporarily deactivates the robots in the room.

The only thing you carry from room to room and tower to tower is a pocket computer that helps you use the pass-codes you collect. But be sure to finish your work in each tower and get that music sequence. Once you leave a tower, you can never return.

The documentation for the game is sparse but fairly well presented. You have several lives to work with. You get points for entering towers, exploring rooms, finding numbers and collecting musical codes. You can save a game almost any time. Early in your game experience, you'll still run out before the clock does. Later, the passage of time will become more of an enemy.

ST, PC, C-64 COMPARISON

I played versions of Impossible Mission 2 on the Atari ST, Commodore 64 and an IBM PC compatible. Coming soon from Epyx are additional versions for the Amiga and Apple II.

The mechanics of the game are virtually the same on all three computers I tried. Each version can use joystick or keyboard (also the ST and PC can use their keypads).

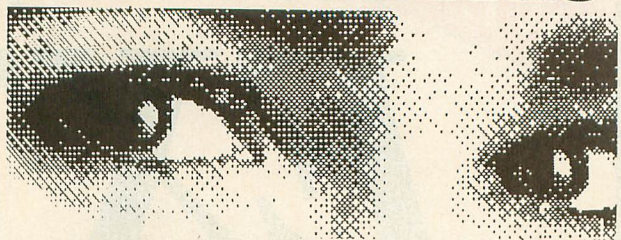
But both in terms of graphics and sound, the ST did the best job. It was quite easy to distinguish between robots and the joining together of the musical passages sounded much more pleasing. Both the IBM and the Commodore had chunkier graphics, although even the cheaper Commodore was graphically far superior to the IBM.

I ran the IBM version on a Tandy 1000 and the colors were of high quality, which might not be the case on every IBM PC compatible. The sound was also better on the Commodore than on the PC. Speed in loading was the main advantage of the PC over the Commodore 64.

In all, I believe Impossible Mission 2 will satisfy a wide variety of gamers. It has some hand-eye coordination elements to satisfy the arcade fanatic, but it also has problem-solving to please the great thinker in each of us. Plus, it won't be solved in a couple of sessions by even the best adventurer. ■

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By Gregg Pearlman, *Antic Assistant Editor*

LOOK IT UP

The **Atari ST Book** is 17 chapters of "Tips, Instructions, Secrets and Hints for the 520, 1040 and Mega STs." The information is aimed at the ST user rather than the programmer—which isn't to say that the programmer won't get something out of it also. Subjects covered include item selector and desktop tricks, printer suggestions, comparisons of word processors, RAMdisks, file management and more.

\$16.95. Index Legalis, P.O. Box 1822-5, Fairfield, IA 52556. (515) 472-2293.

PRO DATABASE

Superbase Professional adds many powerful new features to the original Superbase ST database (preferred in-house by most of the **Antic** staff). This upgraded software is now a full applications generator with VAR marketing potential. It includes a forms editor, text editor and database management language.

The forms editor works like a mini desktop publisher to let you create fully relational, multi-page screen forms, complete with cross-file validation, calculation and data checking, and you can also include DEGAS and NEOchrome pictures. The text editor lets you integrate external ASCII text blocks of any size into your database, and you can search on key words and patterns.

The database management language can automate all of Superbase's regular operations and lets you customize the entire interface, from screen appearance to pull-down menus. Superbase's report generator performs multi-file relational searches and turns your work into presentation-quality reports.

\$299. Progressive Peripherals & Software, Inc., 464 Kalamath Street, Denver, CO 80204. (303) 825-4144.

HEROES OF THE LANCE

Heroes of the Lance is SSI's first ST product for the new Advanced Dungeons & Dragons line. Heroes is an action-packed, single-player, joystick-controlled game in which you'll control eight characters.

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

KUMA PAIR

Just a game machine? Never! **K-Scope** lets you use your ST as an audio frequency oscilloscope. **K-Spect** turns it into a low-frequency, dual-channel spectrum analyzer.

Both products use a cartridge that plugs into the ST, plus relevant software. Both software packages utilize GEM, so the various settings are easy to adjust. The K-Spect software is available separately to K-Scope owners for about \$170.

About \$285 in British pounds. Kuma Computers Ltd., 12 Horseshoe Park, Pangbourne, Berkshire RG8 7JW. 07357-4335.

WHODUNNIT FOR \$\$\$

If you solve the crimes on a luxury liner called the S.S. Bourgogne in a computer game, you'll win a very real \$10,000—part of a total of \$500,000 being given away as part of a promotion for **Murder on the Atlantic** by IntraCorp. You'll be whisked back to 1938 as you explore the ship's 600 salons and staterooms and look for clues, messages—and booby traps. You'll have to track down all 40 suspects and take their statements.

Luckily you'll be given over 60 clues and 16 questions, including: What is the significance of the button and the paper clip? Who was the woman at the casino? Who kidnapped Wilhelm Reimann? And who killed Rene Vallette anyway?

In addition to the \$10,000 grand prize, 2,500 more sleuths will each win IntraCorp software gift certificates of up to \$200.

\$39.95. IntraCorp Inc., 14160 S.W. 139th Court, Miami, FL 33186. (305) 252-9040.

POWER

LDW Power is a spreadsheet with about 300 commands and 80 functions. Its macro recorder "records" actual keystrokes in creating macros, and it lets you work on four worksheet windows and a graph window all at once.

Power features a Lotus 1-2-3 (Release 2) environment that lets you transfer files between Lotus and Power, as well as a side-ways printing function and sophisticated graphing capabilities.

\$149.95. Logical Design Works, Inc., 780 Montague Expressway, #403, San Jose, CA 95131. (408) 435-1445.

DYNACADD

DynaCADD is a 2-D and *true* 3-D CADD package for electrical, mechanical, architectural and other applications. It reads and writes industry-standard DXF and DFX Entity file formats and is compatible with ISD's upcoming Calamus desktop publishing system.

The easy-to-use DynaCADD features context-sensitive online documentation and a full-featured graphic interface, as well as commands designed specifically to cut down on editing time. By changing a 3-D object in any view of any drawing, DynaCADD reflects the changes in all orthographic projections—and it updates all drawings on file.

DynaCADD's nine zoom modes allow magnifications by a factor of up to one million. You can zoom in or out, even on a 3-D view, scroll around a page, rotate a 3-D view to a predefined coordinate plane and overlay other programs from within DynaCADD.

\$695. ISD Marketing, Inc., 2651 John Street, Unit #3, Markham, Ontario, Canada L3R 2W5. (416) 479-1880.

TWO FROM EA

Lords of Conquest (\$19.95) is kind of a computer version of Parker Brothers' Risk. Up to four players vie for territory and supplies in a game that could take between 20 minutes and several hours. The 8-bit version of Lords was reviewed in the May, 1987 issue of **Antic**.

Computer Scrabble (\$39.95) is the computer version of the well-known board game—but it has four difficulty levels and it's *smart*. Just as in the real game, you'll try to place as many Q's and X's as possible, but the software won't accept misspelled or otherwise incorrect words (so don't try spelling "library" with one R again). Up to four players can play—although one wonders how they manage to keep their letters hidden from each other.

Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. (415) 571-5771.

New ST product notices are compiled from information provided by the products' manufacturers. Antic assumes no responsibility for the accuracy of these notices or the performance of the product.

New ST Word Processing Entries

Microsoft Write

Atari's new ST word processor, Reviewed by GREGG PEARLMAN

Of the seven editorial people at Antic Publishing who use the ST for word processing, four prefer ST Writer, one prefers Word Writer, another prefers Word Perfect and the last one says "the heck with it" and opts for the Flash capture buffer.

ST Writer is the ST Word Processor of Choice here at Antic Publishing because it does all we need. However, when a new word processor comes out for the Atari ST, the **Antic** and **START** editorial staffs are hot to review it, hoping that we'll *finally* see something that supplants ST Writer as the number one word processor. Believe it or not, it hasn't happened yet.

We had high hopes for Microsoft Write—it has some interesting approaches to word processing. But it hasn't topped any of the favorites here, and some of the reasons follow: The [ARROW] keys function differently than you'd expect, keyboard commands aren't terribly mnemonic, the [DELETE] key doesn't delete characters under the cursor, the program doesn't necessarily keep up with you as you type.

Also, the tutorial—as do they all, it seems—assumes that you assimilated every bit of its wisdom as you go along. It might tell you to "select a line," and your response might be, "Now how the heck do you select a line again?" If the manual said, "Select a line—here, again, are the steps:" and then described the procedure, the tutorial would be easier to follow.)

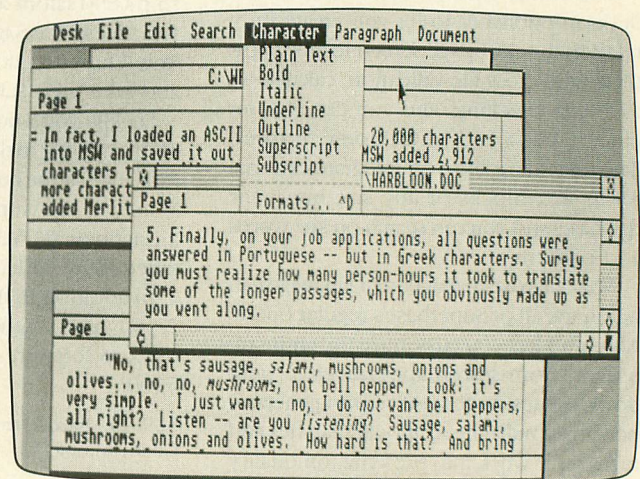
INTERESTING FEATURES

You could call Write a "full-featured" word processor. It's GEM-based and it can (but doesn't have to) run under GDOS. It can use any of several fonts in a WYSIWYG format. It has a search-and-replace feature as well as cut-and-paste, and a visible (non-editable) copy buffer called the Clipboard.

Write has an interesting Glossary window, comparable to macros, where you can store often-used text. Each Glossary entry has a name. Let's say that for some reason you plan to use the entire text of Lewis Carroll's poem, "Jabberwocky" in several documents. First, you'd type in the poem, complete with whatever formatting information is relevant. Next, you'd copy it to the Clipboard, open the

Glossary window and type in a "macro" name—"Brillig" in this case. Finally you'd paste the text to Brillig. When it's time for "Jabberwocky" to appear in the text, just type Brillig and then press [CONTROL] [BACKSPACE]. Boom!—"Jabberwocky" appears onscreen as if by magic.

This feature could be perfect for applications such as script writing: "eul" could mean "enters upstage left, and "xdr" could mean "crosses downstage right." When you're done with your script, just Find "eul," go to the end of that string and type [CONTROL] [BACKSPACE]. Then find the next "eul," and so on. This could take hours off the time you spend typing.



The search-and-replace feature (called "find-and-change") is interesting. Let's say you want to change every occurrence of the word "you" to the expression "the reader." That works fine, *and* whenever it encounters "You," it'll use the right upper-case letter and replace it with "The reader" I like that—it beats the heck out of doing *two* separate searches-and-replaces.

Microsoft Write, in addition to the program disk and a GDOS disk, furnishes disks with GDOS fonts and printer drivers for Star NB-15 and Epson FX-80 printers. Printing consists of setting up your printer and page dimensions, then printing a specified range of pages. While there probably should be an option simply to print the entire document, the printer setup is easy enough to use.

Typically, in most word processors, pressing [SHIFT] [UP-ARROW] or [SHIFT] [DOWN-ARROW] scrolls up or down one screen length, and [SHIFT] [LEFT-ARROW] or [SHIFT] [RIGHT-ARROW] move the cursor to the beginning or end of a line. Also, [CONTROL] [LEFT-ARROW] (or [RIGHT-ARROW]) often moves the cursor so many spaces (or one word) to the left (or right). In Write, however, any [SHIFT] [ARROW] combination highlights text for deletion (by pressing [RETURN]), cutting, copying, etc.

This takes some getting used to, but the worst thing is that some of the usual word processing keypress combinations (featuring [CONTROL], [DELETE], [INSERT] and the [ARROW] keys)—up or down one page, beginning or end of line, etc.—don't work in Write at all.

If you use a font other than "System," the program slows down, mainly at the end of a screen line, and especially if you combine font types. Boldface slows things down a bit. However, in italics the problem is that it's not just a "restatement" of the System font, but a completely different character set. Probably the worst offender is outline, which takes forever—I've found that the smartest thing to do when the program slows down like this is to avoid looking at the screen while typing.

Things like bold subscript would merely compound the problem, and outline subscript would be ridiculous. And when you use fonts other than plain text, screen scrolling slows down as well.

Write splits double-hyphens (—), meant to be used as em-dashes, when they occur at the end of a line. After a fairly short time, the program sometimes tells you that you've been working too long on a particular document, and that it's time to save it. In fact, the manual suggests saving your file every 15 minutes. Certainly it's a good idea to save your file every so often, but you shouldn't have to be forced to do so.

Write adds several characters to your file that describe formats, fonts, etc. In fact, I loaded an ASCII file of exactly 20,000 characters into Write and saved it immediately in Write format. Write added 2,912 characters to the file; no doubt it would add much more if I fooled with paragraph spacing or fonts. Most of those 2,912 characters were carriage returns.

Also, and this may be unique to Write, if you reach the

bottom of the text window and keep typing, instead of scrolling to the next window so you can see what you're doing, Write lets you continue typing at the bottom—hiding at least half of that line under the gray slider area at the bottom of the screen.

While for my purposes I don't think that Write needs a spell checker, I do think it should have a word counter. I *like* word counts. I'm tired of writing up and saving documents in ST Writer or Write, then quitting and booting WordPerfect—just to get a word count. It would also be nice if Write told you what page line *and* what document line you're on as you typed.

The mouse is a wonderful thing, but, for the most part, I'd rather do everything from the keyboard while word processing. Luckily, Write lets you perform many keyboard functions, but it does seem to rely on a lot of drag-and-click maneuvers.

One thing Write lacks which I use frequently is an upper/lower case toggle *a la* the [F3] key in ST Writer or [CONTROL] [SHIFT] [CAPS] in 8-bit PaperClip. Oddly, however, Write lets you increase and decrease font size. At least there's an extended character set, but the characters can only be accessed by pressing [CONTROL] [ALTERNATE] or [CONTROL] [SHIFT] [ALTERNATE] along with each character you want to type.

One annoying feature is the inability to set a default path—that is, I'd like it if, when I chose to load or save a file, the directory *of my choice* would appear onscreen *without* my having to set it during every session. Also, Write doesn't accept wildcards in the path name—the upshot of which is that disk directories consist only of files with a .DOC extender.

Write's oddly shaped mouse cursor is obtrusive, and there should be some kind of option to change its look, as in WordPerfect.

Microsoft Write hasn't generated much enthusiasm at Antic Publishing. The least-liked features are the bad keyboard response and strange [ARROW] key combinations, which no amount of interesting glossaries and searches-and-replaces can hide.

\$129.95, color or monochrome. Atari Corporation, 1196 Borregas Avenue, Sunnyvale, CA 94086. (408) 745-2000.

Fontz!

Typeface production the easy way, Reviewed by DAVID PLOTKIN

Fontz! (\$34.95) is a program for producing fonts for use with GDOS-based programs. It's generally successful at making font production—a difficult, tedious task—as simple and efficient as possible. Fontz! features several powerful drawing and scaling tools for designing and modifying fonts, as well as converting fonts from other formats (such as Macintosh) to GDOS.

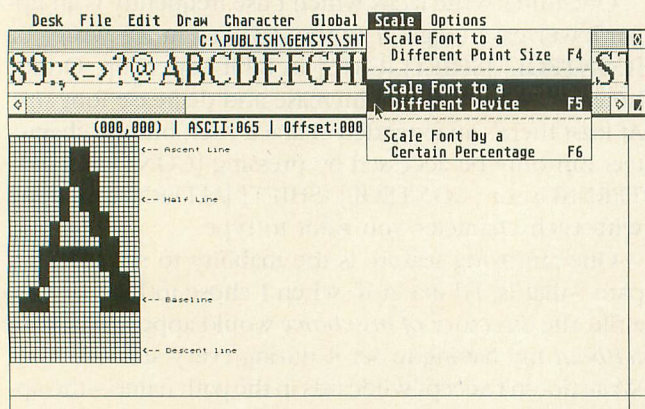
The number of programs that produce output using

GDOS is on the increase. They include Neocept's new WordUp word processor, MiGraph's Easy Draw layout program and Timeworks' Publisher ST. The primary reason for this increase—aside from the fact that Atari has finally released GDOS—is that not only does the screen show a close approximation of the printed output, but the resolution of the printout is as good as the printer can handle.

To use GDOS output effectively requires several fonts

to be used with the program. A font is a set of characters in a particular size and typeface. The size is measured in points, with 72 points per inch. A 10-point or 12-point font is normal for text, with perhaps a 24-point or 36-point font for headlines and an 18-point font for subheadings. The typeface refers to the way the letters are styled. Common typefaces include Helvetica, Courier and Times Roman.

To use a font in a program, you need several versions of it. First there's the screen version. Most GDOS-based programs do not use the low-resolution color screen, but you need versions for monochrome (high resolution) screen and medium resolution color (depending on your monitor). You also need a version of each font for your printer. As you can see, it can be a lot of work just to create all the versions of a single font that you need—especially if you have more than one printer.



Some fonts typically come with GDOS programs, but what do you do if you need either different-sized fonts or an entirely different typeface? Until now, you basically waited for the manufacturer to provide them. And you could end up paying substantial amounts of money for the fonts when they did become available.

The availability of Fontz! should change all that. Fontz! lets you: 1. Load a GEM font, modify it, and save it; 2. Scale a GEM font to a different size or printing device (with a different resolution); 3. Convert a font from the Amiga, Macintosh, Hippoword or DEGAS to standard GEM format, modify it and save it.

MODIFY GEM FONTS

It's much easier to create a new typeface by changing an existing face. For that purpose, Fontz! comes with a simple generic font. Once a font has been loaded, two windows open on the desktop. The window that's initially at the top of the screen contains an accurate rendition of all the characters in the current font. These characters may not be actual size, because if your output device has a different resolution than the screen, the character must be a different size in order to show all the pixels.

To select a character to edit, you can type the key (if it's a normal character, like a letter or number), double-click on the character in the top window, or enter the ASCII value of the character. The character then appears

in the edit window, which contains a grid which you can adjust for size. You can also set or erase individual points in the grid with the mouse, or use the drawing tools from the menus. When drawing with the mouse, the left button turns a pixel on, the right button turns it off—this is not documented, by the way.

Drawing tools include circles, disks (filled circles), frames, filled rectangles, pie slices, lines and arcs. Each shape can be drawn in black or white. Whenever you select a tool, a help box pops up to tell you how to use it. Though the box disappears shortly afterward, it can get pretty annoying once you're familiar with the tools—which are so intuitive that you'll pick up on them right away. It would be nice to be able to turn this "feature" off.

Fontz! also supports a buffer for cutting and pasting characters and sections of characters. The contents of the buffer can be overlaid or merged into another character, and you can even load a different font and move the contents of the buffer to the new font.

You can change a character's width or height by adding or deleting columns to the left, right, top or bottom. Note that this will affect the point-size. You can also shift or rotate a character as well as changing parameters such as the font identification number, name, location of the Ascent/Half/Base/Descent lines and special effects parameters such as bold and skew. Be careful when making changes—the font can be rendered useless, so keep a backup copy.

SCALING

Once you have gone to all the trouble of designing a font, you probably need to create other sizes. And you'll need *at least* two different device versions for your screen and printer. Fontz! provides tools for this as well, which can save vast amounts of time. You can scale a font up or down to a different point size, either selecting your new size from a dialog box of common sizes or typing in an arbitrary size.

Note that scaling down is not recommended, because information is lost. But I've found that if you scale down in small increments and do "touchups" at each step, you can get away with it. Scaling up doesn't lose information, but the results tend to be blocky, so that again, touchups will be necessary. But this is still much better than drawing each size from scratch!

You can also scale from the current device (often the screen) to a new device (such as a printer or different resolution screen). Again, scaling up (to a device with a higher resolution) is recommended, with accompanying touchups. If your ASSIGN.SYS file has the drive installed for the device you want to scale to, that device will show up as a choice in the scaling dialog box. Otherwise you can still scale to a different device, but you will need to enter the resolution (dots per inch) of the device you want to scale to. Fontz! also lets you specify scaling up or down by a specified percentage.

One problem facing someone who wants to use multiple fonts is that there aren't a lot of fonts to use. While

Fontz! lets you create your own fonts more easily, it also has another useful option: you can convert the hundreds of Macintosh and Amiga fonts to GEM format. Many can be downloaded from bulletin boards, avoiding the Mac-to-ST format conversion. (Data Pacific's Magic Sac Translator 1 will let you read Mac disks directly.) However, the conversion from Mac fonts to ST GEM fonts is not entirely straightforward and the manual isn't clear enough here. Still, the conversion does work well most of the time, and having access to all those fonts is very nice.

CONVERTING FONTS

Fontz! also lets you convert non-GDOS fonts for the ST to GDOS format. This is primarily for owners of programs that provided fonts (such as HippoWord and the original DEGAS) who would now like to use those fonts in GDOS-based programs. Fontz! will not convert Publishing Partner fonts, however.

The manual for Fontz! is generally well-written, although it needs reprinting (the README file detailing changes is quite large). It's also a little murky, especially

regarding problems with unmatched point-size and character height relationships. But it is the first time I have seen the filename format for GDOS fonts explained, and it also does a good job of explaining how to set up and modify your ASSIGN.SYS file—necessary if you want to use the fonts you have created. There is also a font troubleshooting guide, and a unique form of “copy protection:” a threat of bodily harm from the programmer (reputed to be a large, strong man) for anyone caught with a pirated copy. Works for me, but I'm kind of a coward. Fontz! is *not* copy protected in the traditional sense.

Creating fonts has always been difficult and tedious. Fontz! makes this task considerably less onerous. With its abilities to draw and modify characters, scale fonts to different sizes and devices, and convert fonts from different formats, Fontz! is a “must-have” for anyone who is even remotely interested in new sizes and typefaces of characters to dress up their output.

\$34.95. Neocept Corp., 908 Camino Dos Rios, Thousand Oaks, CA 91630. (805) 498-3840.

WordUp

MacWrite for the ST? Reviewed by GREGG ANDERSON

WordUp, Neocept's graphics-based ST word processor, boasts easy-handling power reminiscent of the Macintosh's famed MacWrite software.

WordUp takes full advantage of both GEM and GDOS and provides clear, sharp fonts and an excellent print quality. It also lets you mix pictures with text. The \$79.95 package contains two single-sided disks for 520STs, a double-sided disk for 1040STs and Megas and a thorough 284-page manual.

WordUp runs on a 512K system—provided you don't get too greedy with extra fonts and accessories. However, if you want a wide range of fonts (or the compatible Thunder! spelling checker), it's best to have at least a 1Mb system.

You can print graphics, straight ASCII or a range of pages, collate, set the number of copies, show or hide carriage return and paragraph symbols, etc., pause between pages (if you're using letterhead), quit or “quick quit,” which brings you directly to the desktop.

The search function is the most complete I've ever seen. It finds words, phrases, special characters and format symbols. The replace function gives you the option of one, prompt or all. However, though you can *search* special symbols, you can't use them in your replace string.

You can adjust line spacing in points rather than single or double spacing. Margins are set from the desktop ruler. WordUp allows for different page sizes—letter, legal, index cards, etc. Almost all format commands are available either from desktop menus or from the keyboard with [CONTROL] or [ALTERNATE] key commands.

One thing that makes WordUp so different is the Font menu, from which you select faces, point sizes and other features. Choosing a feature after highlighting a block resets the text to the selected style, font or size.

Choosing normal typeface gives you the standard form of whatever font and point size is selected. It also resets a special style back to normal. Other types include bold, light (best reserved for fonts of 12 points or larger—it's like the ashes that would remain if you burned the letters away), “skewed” (italics), outlined (which hollows characters for special effects) and three different underline features. Also available is strikethrough, which puts a solid line through the middle of each character.

You can access the ST's extended character set only in Graphics mode. Trying to do an ASCII dump with them will lock up the printer. For superscript and subscript, you can set the height of the characters in relation to the text line, and you can choose a different font and point size. Combined with the extended character set, this feature can create complex mathematical formulas.

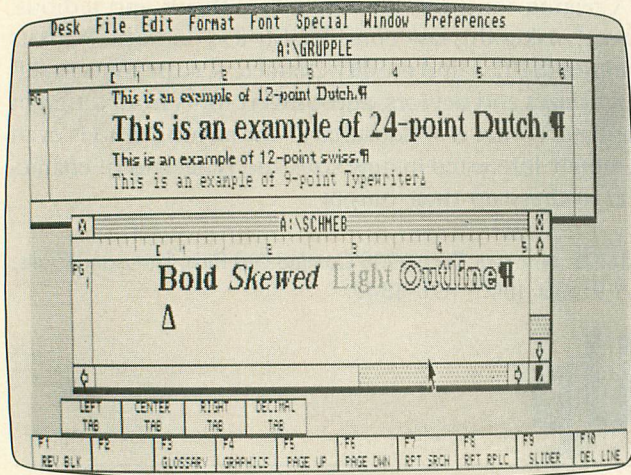
The face/points feature is where it really gets to be fun. Depending on how much RAM you have, WordUp allows an almost unlimited number of fonts (typefaces). WordUp comes with proportional Dutch and Swiss fonts in eight, 12, 14, 18 and 24 points, and a monospaced, 10-point Typewriter font.

During editing, as many as four text windows are available. Clicking on a window brings that document to the top for editing. The Glossary function is a powerful “super-macro” feature for words, phrases, special formats

or entire pages.

WordUp lets you insert footnotes from either the menu or keyboard. You select a symbol for your footnote to be placed in superscript next to the desired word—and at the bottom of the page, with space for the footnote. The program makes room on each page for both text and footnotes.

The mail merge feature handles inputs from more databases than I can list. The master page creates your headers and footers and can also add graphics. These are then reproduced (in the background) on odd, even or all pages.



The page numbering feature offers the choice of Arabic, Roman or alphabetical format. The Insert Time and Insert Date features put the current time and date (from the system clock) into your document.

Other options include automatic backup of files, saving a cut block of text that's in memory (upon exiting the program), giving you the chance to undo block or file deletes, and presetting your delimiters for the Mail Merge function.

PERFORMANCE

So how does it perform? Very nicely! Since WordUp is a 100% WYSIWYG word processor, everything appears on the screen exactly as it will on the printed page, including your fonts, graphics and even footnotes.

One of WordUp's best features is its constant, automatic reformatting of text as you type. The automatic reformatting and multiple fonts have virtually no impact on the overall speed of WordUp.

WordUp's keyboard response is constant, regardless of the font being used. However, I did find a slight speed loss when editing documents of 10 pages or more, or on pages containing footnotes.

WordUp's screen and printer fonts are both sharp and easy to read, though some of the 8-point screen fonts require some squinting. Print speed seems to be on a par with EasyDraw, with a dual-pass print used for each line. This is with a 9-pin printer, of course; the new Atari laser printer is supposed to be able to crank out a text and graphics page in under 30 seconds.

WordUp comes with drivers for Epson-compatible 9-

Pin printers and will offer drivers for Epson-compatible 24-pin units, the HP Laserjet and Atari's SLM804 laser.

Importing graphics into your text is as simple as selecting Graphics, then choosing the graphic type and the file name. No conversion program is needed. Even nicer is the way text automatically flows around the graphic as you type. To speed up printing, use a RAMdisk or hard disk as your working drive to hold graphics files.

WordUp accepts .NEO, DEGAS .PI3 or .IMG picture files into text files. They can be sized, adjusted or cropped. The graphics menu options duplicate the functions of an activated graphics window for manipulation.

Since fonts and .IMG files are 100% interchangeable, WordUp is the perfect companion for those who have other GDOS based programs, such as Migraph's EasyDraw. And between WordUp, EasyDraw, Microsoft Write, and Neoccept's new font editor, Fontz!, we should soon be up to our eyebrows in fonts.

I'd liked to have seen features such as a Caps indicator for the [CAPS LOCK] key, along with an available RAM display. A built-in spelling checker and thesaurus would have been nice, but for such a low price, I'm not going to cry about it. I'd also like to be able to use the printer's built-in draft and NLQ modes with complete bold, italic, and other styles instead of the straight ASCII dump.

You can "force" dual-column print using the Master Page feature, but it's a less than elegant solution. WordUp also lacks the context-sensitive undo feature found in Microsoft Write, so any deletion you make is permanent.

I'd also have liked to see .TNY files added as a graphics option. My final suggestion would be a limited drawing function for lines and boxes to emphasize your text.

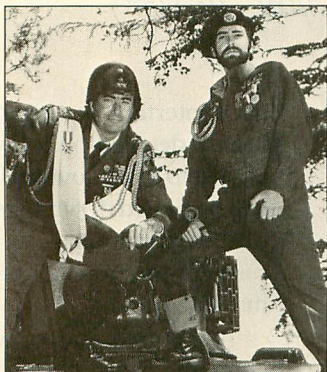
The only real bug in the program concerns deleting footnotes. The correct procedure is to delete the footnote number (or symbol) next to the footnoted word. Attempting to delete the footnote itself can crash the program. Also, a handful of the initial disks suffer from an undocumented bug in Atari's Malloc function (an operating system flaw) that limits the number of graphics per page to one. Neoccept discovered this too late to stop the initial release, but quickly wrote a PD patch to fix it and will provide upgrades for registered owners.

So what's the final score? WordUp is a *very* impressive program that can please even the most demanding user. It's fast, flexible, and produces a print quality that only GDOS or Postscript can provide. The user interface is intuitive (I learned to use it completely without documentation), yet the program offers features and power previously found only in expensive professional-level systems. Even better, it's far from expensive.

Though delayed, WordUp was well worth the wait. Neoccept had a choice: release it on time with fatal bugs, or wait until it was bulletproof. They also chose *not* to copy-protect the program, trusting us not to pirate WordUp. Let's not rip them off.

\$79.95, color or monochrome. Neoccept, 908 Camino Dos Rios, Thousand Oaks, CA 91360. (805) 498-3840. ■

LATE NEWS FLASHES



JOINING FORCES: Electronic Arts president Trip Hawkins (left) and SSI president Joel Billings.

SSI GOES TO EA

Strategic Simulations Inc., the biggest publisher of wargames, has enlisted with Electronic Arts for affiliated label distribution. It is EA's largest affiliated label deal ever. No word yet if this means a cutback in SSI Atari releases. Meantime, SSI has launched a recall drive for defective XL/XE disks of Sons of Liberty.

NEWSROOM 850 GLITCH

Antic and Springboard Software are looking into complaints that the Newsroom page designer program (reviewed July 1988) sporadically prints an extra linespace or some garbage characters when used with the Atari 850 interface. *Antic's* early investigations suggest that the problem is restricted to older 850 units. We'll report more details next month.

Meanwhile, Springboard is also searching for a fix and will give a full refund to purchasers who don't want to wait (only three takers so far). The company reports that it is very satisfied with the direct sales of 8-bit Atari Newsroom and associated picture library disks.

EA SUED

In a separate Electronic Arts story, the publisher has been sued for \$7.3 million by Bethesda Softworks, developers of the Gridiron! football simulation. EA had contracted for exclusive Atari ST and Amiga rights to Gridiron!, which won a 1987 Family Computing Award. Bethesda's lawsuit claims that EA halted release of Gridiron after incorporating major portions of the program into a proposed John Madden Football game.— NAT FRIEDLAND, ANTIC EDITOR

GOT A MERCEDES THAT WON'T TURN LEFT?

... or a great database with a killer limitation or bug? Now there's an 8-BIT program that *works*, and does *all* those things required in a small business...

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—ANTIC, Dec. '87

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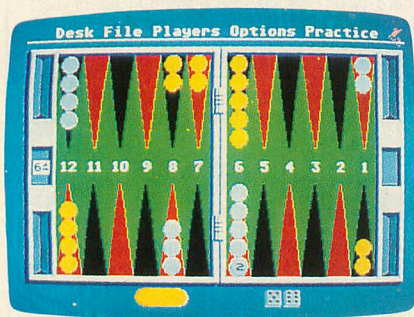
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ST Games Gallery

Blockbuster, Ultima IV, Club Backgammon, Jinxter



CLUB BACKGAMMON

Club Backgammon's screen display is great. The monitor fills up with an simulated backgammon board, as chips slide rapidly into their starting positions. Touch the cursor to the piece you want to move, tap the button to pick it up, then move it where you want. The software won't allow illegal moves, but the numerous options in the pull-down menus let you do almost anything you wish—analyze moves, set pieces anywhere on the board, print a log of all moves, save games.

Unfortunately, when it comes to playing backgammon, the program just doesn't make the best moves.

Generally backgammon players try to avoid "blots" — a single piece on a point—which can be sent back to the beginning. Club Backgammon violates this strategy whenever it rolls a 4 and a 1 on the opening turn. The program chooses to separate its pieces, placing them six and eight points from its opponent's outer two pieces. Invariably, one of the computer's pieces is sent to home, putting the ST at an immediate disadvantage. And I played only in expert mode.

The manual is complete and concise, explaining both the operation of the program and the rules of the game. One particularly paranoid option allows you to roll the dice and input the results, if you think the computer might cheat you. Club Back-

gammon is fun to play, even if it's less than challenging. But with a little more fine tuning of its play algorithm, Club Backgammon couldn't be beat.—STEVE PANAK

\$34.95, color or monochrome. California Dreams, Logical Design Works, Inc., 780 Montague Expressway, #403, San Jose, CA 95131. (408) 435-1445.



JINXTER

Jinxter, when reduced to its commonest denominator, is a work of interactive fiction enhanced by images. However, unlike many similar products, Jinxter gives each of these two components its full attention, with the result being closer to a novel than to a comic book, and more engaging than your standard video game.

Jinxter's storyline centers around the city of Aquitana—once a paradise, now deteriorating. A magical charm bracelet which protected the town has mysteriously lost its power. Consequently, the once happy inhabitants are now falling under the influence of evil Green Witches. In fact, things are so desperate that the only hope is for you to retrieve the seven charms of the bracelet. To do so, you'll have to travel the land, meet other characters and generally have a great adventure.

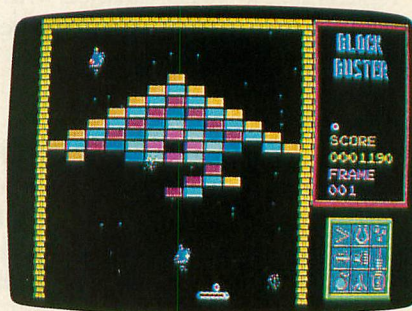
Jinxter is first-class all the way. The

user interface is elegant, with four highly detailed pull-down scrolls attached to a windowshade-like bar that can be pulled down to reveal as much of the current image as you want, or pushed up to read previous commands and text.

You communicate with the program by using complete sentences which, easing the pain of chronic typos, can be recalled and edited at will. A nice feature lets you assign any command string to each of the 10 function keys, speeding entry of repetitive commands. The lively prose is a rapidly paced narrative that pulls you in. Colorful characters bring the entire world of Jinxter to life.

While the stunning (though static) graphics spice up the game, the text is so descriptive, so engaging, that these images quickly take a back seat to the story. Overall I can recommend Jinxter as a fine work of interactive fiction, one with a sense of humor that will make it a joy to read.—STEVE PANAK

\$39.95, color or monochrome. Magnetic Scrolls (Rainbird). Distributed by Activision, 3885 Bohannon Drive, Menlo Park, CA 94025. (415) 329-0800.



BLOCKBUSTER

Breakout was always one of my favorite games. I spent many happy hours knocking out onscreen bricks with a

rebounding cursor. **Blockbuster** takes this concept to new heights of color, animation and sound, while maintaining the same simple play mechanics.

In **Blockbuster**, you use a mouse or joystick to maneuver a paddle across the bottom of the screen. Each screen contains a different pattern of colorful bricks, which must be removed by bouncing the ball off them. Some bricks require multiple hits, others cannot be removed at all, and still others are invisible. Removing all the *removable* bricks sends you to the next screen, while missing the ball with your paddle costs you one ball.

Complicating this further is the presence of some cleverly animated aliens, which can deflect the path of the ball, although hitting an alien is good for a lot of points. Some aliens release bombs which can freeze your paddle briefly.

Some bricks release bonus devices. Catch these with your paddle as they move off the screen, and your bonus points go up. Alternatively, you can buy extra weapons with your bonus points to help you make it through the screen. These weapons include a magnet for holding onto the ball, larger paddle, force field for the ball, missiles and ball slow-down device.

Blockbuster comes with 80 different screens, although I have yet to see very many of them. You start with five balls, and new balls are very hard to get, so there is little danger of running out of screens.

Blockbuster has a utility that lets you design your own screens. The type and layout of bricks, number of aliens and bonus devices, speed of the ball and overall screen difficulty can all be set. While not especially hard to use, the utility makes no use of the mouse, forcing you instead to memorize keystrokes.

Aside from the inconvenience of using the screen designer, however, I like **Blockbuster** a lot and I especially recommend it for all oldtime Breakout fans.—DAVID PLOTKIN

\$39.95. Mindscape, Inc., 3444 Dundee Road, Northbrook, IL 60062. (800) 221-9884.

ULTIMA IV

Arguably the finest example of computer role-playing adventure games to date, **Ultima IV: Quest Of The Avatar** has arrived at last for the ST. The sheer scale of the game is enough to gladden any armchair adventurer—16 times larger than **Ultima III**, with an estimated playing time of 150 to 200 hours.

Those familiar with the **Ultima** series will feel right at home. Many elements from the earlier games have been retained—creature types, weaponry and armor, teleportation gates and spell casting. But all have been refined or expanded.

**Despite
the strong
philosophical
roots, there's
enough combat to
satisfy even a
berserker.**

Newcomers should familiarize themselves with the rich command vocabulary and game play before going too far. There are 26 action commands and 26 different magical spells that can be cast, assuming you have the necessary ingredients. It is not necessary to have played the previous games in the **Ultima** cycle.

The game comes on two disks and is copy protected. Two handbooks are included, one describing the geography and local customs and the other covering the practice of magic. The mouse can be used for several different actions including movement control, attack, transactions and entering locations. Player statistics and inventories also can be reviewed using the mouse.

In a novel twist, your initial status is decided through your answers to a series of morality questions during the opening sequence, creating a highly personal sense of involvement

which quickly draws you into the game world.

Your quest in **Ultima IV** is to prove yourself as a champion and, if found worthy, become a symbol of good for the people to follow—an Avatar. It will not be easy. You must seek out all who can teach you the ways of an Avatar and find various mystical objects needed on the quest. Eventually you might discover the Codex, a hidden book of wisdom lost in the depths of a perilous dungeon.

Of course there are still evil creatures who must be dispatched. While the game plot has strong philosophical roots, you will get enough combat to satisfy even a berserker.

You will not be alone. To complete the game, you'll need to gather a band of eight adventurers. Finding them is part of the game, as they may choose not to join you until your character has reached a certain attribute level. A seer is available in the castle of Lord British to give counsel on your moral growth as you progress in the quest.

Talking with other characters (well over 150 in the game) is vital to your quest. Many characters take a perverse glee in supplying only partial information, then directing you to another character—typically far away—for the next tidbit. Keeping a logbook is essential to organize all the clues and information.

I loved the terrain features during combat, both on land and in the dungeons. When fighting in the mountains, you can hide behind a rock formation and snipe away at enemy forces. Other scenarios include waging wars across bridges, slugging it out in poisonous swamps, guerilla warfare in the forests and literally hundreds of different dungeon rooms.

Ultima IV is an excellent adventure game and great value for your money. Some similar programs boast better graphics or an improved mouse interface, but none can match **Ultima IV** for the total package of story, layout and play.—JIM PIERSON-PERRY

\$59.95, color. Origin Systems, Inc., 136 Harvey Road, Building A, Londonderry, NH 03053. (603) 644-3360. ■

ST Resource

By MARVIN JENKINS

GEM Battleship

Aboy there, Captain GFA

OFFICIAL U.S. NAVY PHOTOGRAPH

Type-In Software

I didn't think I was asking for too much, just to play against my ST in a GEM-based Battleship program with graphics representing the ships instead of squares. But I had no luck finding such a game so—thanks to GFA BASIC—I programmed GEM Battleship myself.

The main part of the program is the logic which launches the missiles. First it has the computer fire randomly until it hits one of your ships. Then it concentrates on sinking that particular ship. I tried to make the computer guess what was the size of the ship it hit, and whether the ship was positioned horizontally or vertically, just as a person would. After the ship is sunk, the computer starts firing randomly again until it sniffs out another ship. This continues until all of either your ships or the computer's ships are sunk.

I drew the ships with my favorite drawing program. It was easy to load the picture file containing the ships by using the Get and Put commands to display them on-screen, but the program would be dependent on the picture file. This wouldn't do, so I got around it by writing a utility program that reads the picture file, cuts out the ships using the Get command, then writes the data file to disk for each ship. After all the data files were created, I used the Merge option in GFA BASIC to merge them into my program. After this, the rest of the program was fairly easy.

GEM Battleship works only in low resolution, so a color monitor is required. Antic Disk owners will find a stand-alone version (no GFA BASIC required) of the program, SHIPCOMB.PRG on Side B of this month's Antic Disk. See the disk's ST Help file for information about how to transfer the program to a 3 1/2 inch disk.

GETTING STARTED

Type in Listing 1, SHIPCOMB.BAS, and Save a copy before you Run it. When Run, GEM Battleship will prompt you to enter your name and press [RETURN]. Be patient

for a moment while the program initializes.

When you see the menu, go to Option and click on Start. The grids are displayed and the pointer becomes a hand. Now you're ready to place your ships—in the left grid only, please. The right-hand grid is where the computer places its ships. Using the hand icon, place your ships horizontally by clicking the left mouse button or vertically by clicking the right mouse button. The ship length is checked from right to left and from top to bottom.

Your ships and their lengths are:

Destroyer	2 squares
U-boat	3 squares
Tanker	3 squares
Battleship	4 squares
Carrier	5 squares

The program won't let you put a ship in an area too small to hold it. The length of a ship is equal to the number of hits required to sink it. When you're done placing your ships, the hand icon changes back to the pointer icon. You're ready to do battle.

Move the pointer to the right-hand grid and click the left mouse button on a likely square. The computer will immediately fire at your target. Hits are represented by a red square on the computer's right-hand grid and a red dot on your left grid. Blue is a miss. Sunken ships are displayed at the bottom of each grid. The object is to sink all the computer's ships before it sinks yours. If the computer wins, it will display the locations of its remaining ships.

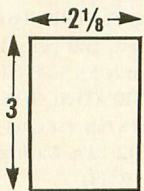
You can start a new game any time by clicking on Start. If you need help while playing, you can use the Help option. ■

Texan Marvin Jenkins is a student at ITT Technical Institute and has owned Atari computers since 1981.

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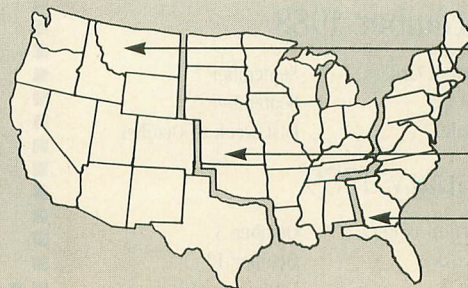
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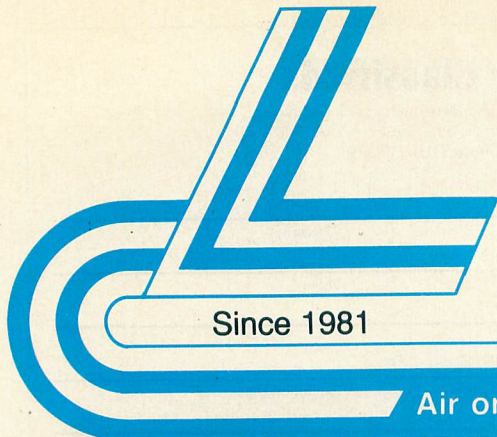
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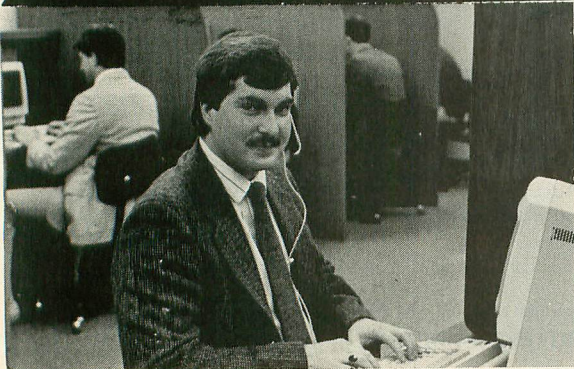


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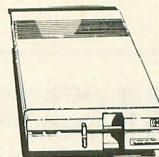


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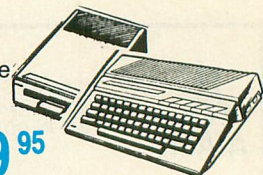
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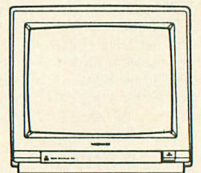


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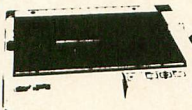
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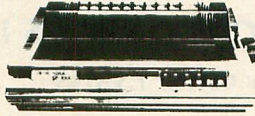
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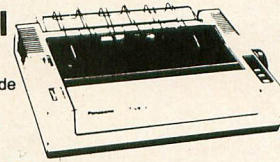


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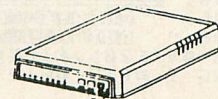
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Tech Tips

AUTOGO BASIC

By CARL EVANS

A

Don't type the
TYPO II Codes! 

utoGo BASIC helps you create AUTORUN.SYS files for your BASIC programs. When you boot your computer from drive 1 with a disk that's compatible with DOS 2 or 2.5, if the computer finds DOS.SYS it automatically RUNs any *machine language* program called AUTORUN.SYS.

If you have a binary load (machine language) file that you want to run automatically upon power-up, all you need to do is rename it AUTORUN.SYS. But things are different with BASIC programs.

AUTOGO.BAS creates a special AUTORUN.SYS file that, in effect, tells the computer to RUN a specified BASIC file. For this to work, BASIC must be installed and the filename you specify must actually be on the disk. (*Antic Disk owners receive an AUTORUN.SYS file on each monthly disk that enables them to run any BASIC program called MENU.*—ANTIC ED)

When you LOAD and RUN AUTOGO.BAS, a Graphics 2 screen will prompt you to type the name of the BASIC file you want to AUTORUN. (Make sure it's on a DOS 2.0 or 2.5 disk.) You don't need to specify a drive number, since it's always assumed to be "D1:". After you enter the filename, AUTOGO.BAS will write that AUTORUN.SYS file to your disk and return the screen to Graphics 0.

At this point, you can turn off the computer for a few seconds and then turn it on again. If all the previous steps went well, your BASIC file will automatically LOAD and RUN.

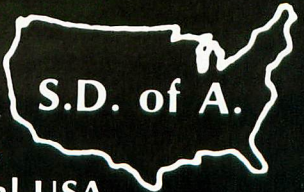
```
XO 100 REM AUTOGO
MM 110 GRAPHICS 18:POKE 752,1
RR 120 ? #6;"          AUTOGO"
NU 130 ? #6;"          AUTOGO"
FW 140 ? #6;"          AUTOGO"
RN 150 ? #6;"          AUTOGO"
FO 160 DIM A$(128),FILES$(12)
AJ 170 ? #6:? #6:? #6;"    enter filename
"
SI 180 TRAP 650:OPEN #1,4,0,"K":FIRST=1
UG 190 FOR X=1 TO 8
KT 200 GET #1,KEY
BP 210 IF FIRST AND (KEY<65 OR KEY>90) TH
EN FIRST=1:GOTO 200
AX 220 IF KEY=155 THEN POP :GOTO 330
DZ 230 FIRST=0:IF KEY=46 THEN POP :GOTO 2
70
BJ 240 IF KEY=126 AND X>1 THEN X=X-1:POSI
TION X+3,8:? #6;" ";:GOTO 200
```

```
AI 250 IF NOT ((KEY>47 AND KEY<58) OR (K
EY>64 AND KEY<91)) THEN 200
NE 260 POSITION X+3,8:? #6;CHR$(KEY);:FIL
E$(X,X)=CHR$(KEY):NEXT X
MJ 270 ? #6;" ";:FILES$(LEN(FILES$)+1)=" ";
SIZE=LEN(FILES$)+1
IE 280 FOR X=SIZE TO SIZE+3
RL 290 GET #1,KEY:IF KEY=155 THEN POP :GO
TO 330
QR 300 IF KEY=126 AND X>12 THEN X=X-1:POS
ITION X+3,8:? #6;" ";:GOTO 290
WF 310 IF NOT ((KEY>47 AND KEY<58) OR (K
EY>64 AND KEY<91)) THEN 290
BW 320 POSITION X+3,8:? #6;CHR$(KEY);:FIL
E$(LEN(FILES$)+1)=CHR$(KEY):NEXT X
LF 330 CLOSE #1
QF 340 TRAP 630:OPEN #1,8,0,"D:AUTORUN.SY
S"
GP 350 TRAP 640:FOR COUNT=1 TO 4:READ BYT
E:PUT #1,BYTE:NEXT COUNT
TT 360 A$(1,3)="RUN":A$(4,4)=CHR$(34):A$(
5,6)="D:"
PU 370 A$(LEN(A$)+1)=FILES:A$(LEN(A$)+1)=
CHR$(34)
RN 380 L=123+LEN(A$)-1:PUT #1,L:PUT #1,6:
FOR COUNT=1 TO 123:READ BYTE
FU 390 IF COUNT=64 THEN PUT #1,LEN(A$)-1:
GOTO 410
HF 400 PUT #1,BYTE
EL 410 NEXT COUNT
FS 420 FOR COUNT=LEN(A$) TO 1 STEP -1:PUT
#1,ASC(A$(COUNT,COUNT)):NEXT COUNT
DH 430 FOR COUNT=1 TO 8:READ BYTE:PUT #1,
BYTE:NEXT COUNT:CLOSE #1:END
WE 440 DATA 255,255,0,6
YW 450 DATA 162,0,189,26,3,201,69,240
KE 460 DATA 5,232,232,232,208,244,232,142

WM 470 DATA 105,6,189,26,3,133,205,169
EO 480 DATA 107,157,26,3,232,189,26,3
QS 490 DATA 133,206,169,6,157,26,3,160
NI 500 DATA 0,162,16,177,205,153,107,6
NC 510 DATA 200,202,208,247,169,67,141,11
1
JU 520 DATA 6,169,6,141,112,6,169,10
MJ 530 DATA 141,106,6,96,172,106,6,240
WD 540 DATA 9,185,123,6,206,106,6,160
IC 550 DATA 1,96,138,72,174,105,6,165
DB 560 DATA 205,157,26,3,232,165,206,157
JQ 570 DATA 26,3,104,170,169,155,160,1
ED 580 DATA 96,0,0,0,0,0,0,0
LN 590 DATA 0,0,0,0,0,0,0,76
XC 600 DATA 0,0,0
S5 610 DATA 255,255,226,2,227,2,0,6
ME 620 REM ERROR HANDLERS
KA 630 GOSUB 660:? "ERROR WHILE OPENING D
ISK FILE":GOSUB 680:RUN
AC 640 GOSUB 660:? "ERROR WHILE WRITING T
O DISK":GOSUB 680:RUN
BR 650 GOSUB 660:? "ERROR DURING KEYBOARD
INPUT":GOSUB 680:RUN
SQ 660 CLOSE #1:GRAPHICS 0:POSITION 2,10:
POKE 752,1:RETURN
BY 670 REM TIME DELAY
UC 680 FOR DELAY=1 TO 500:NEXT DELAY:RETU
RN
```

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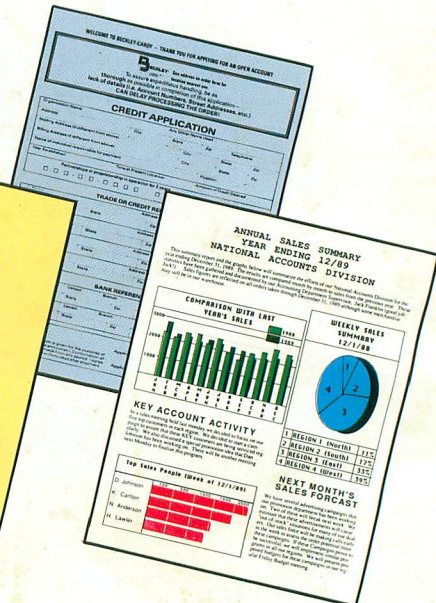
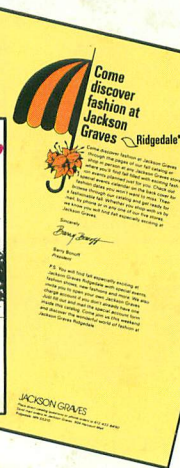
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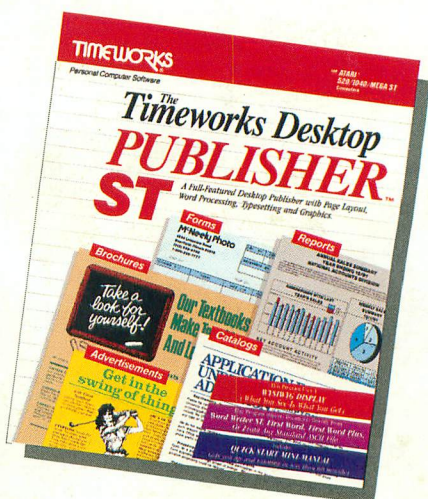
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