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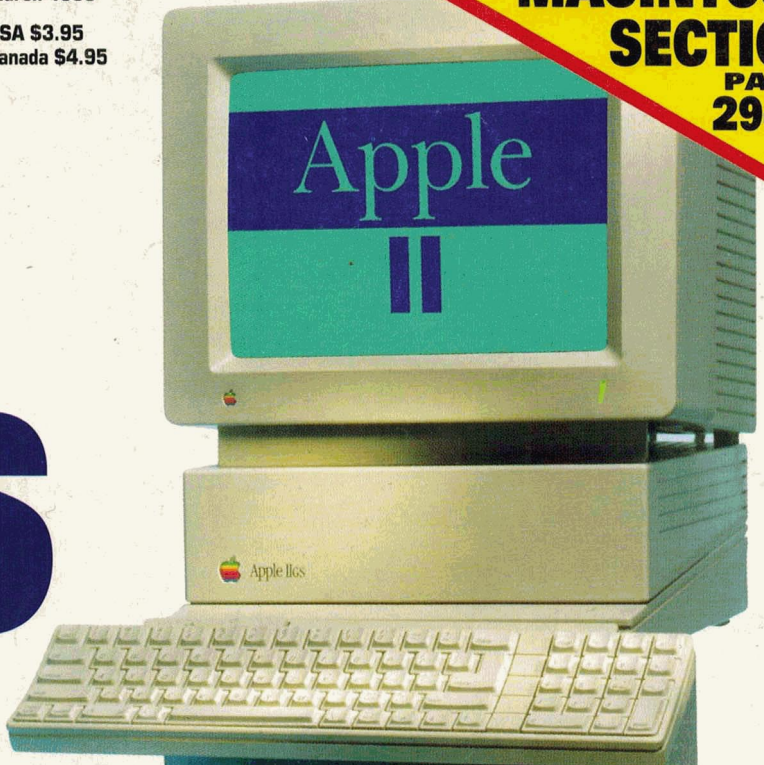
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USA \$3.95
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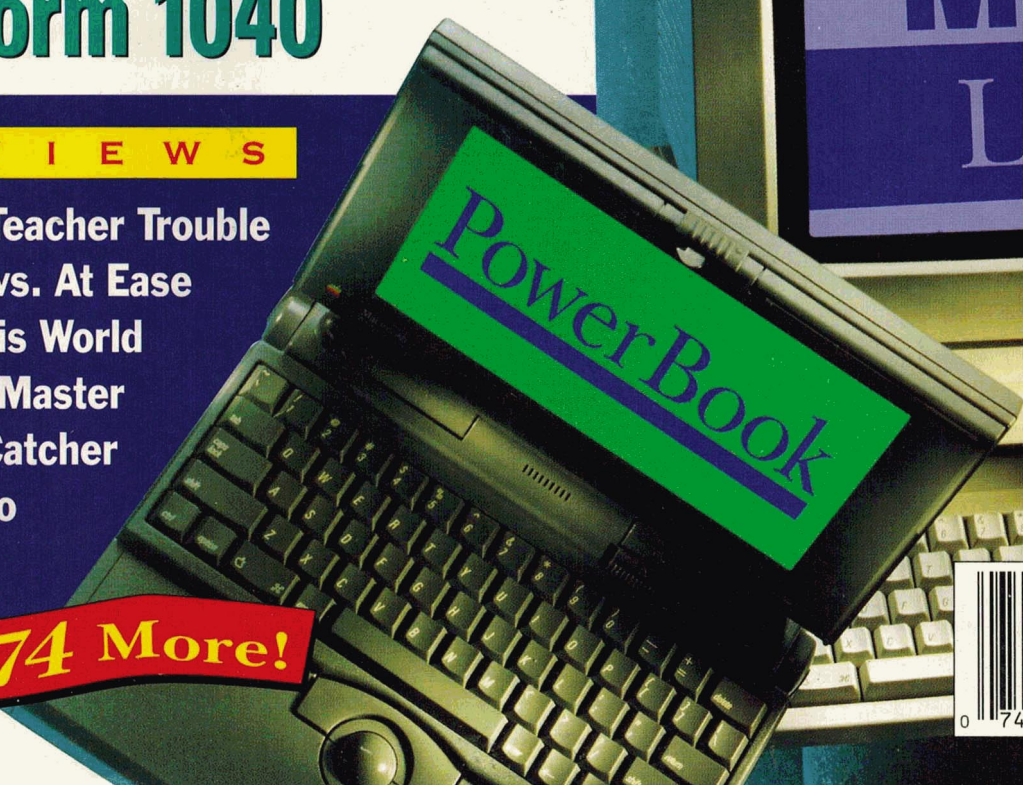
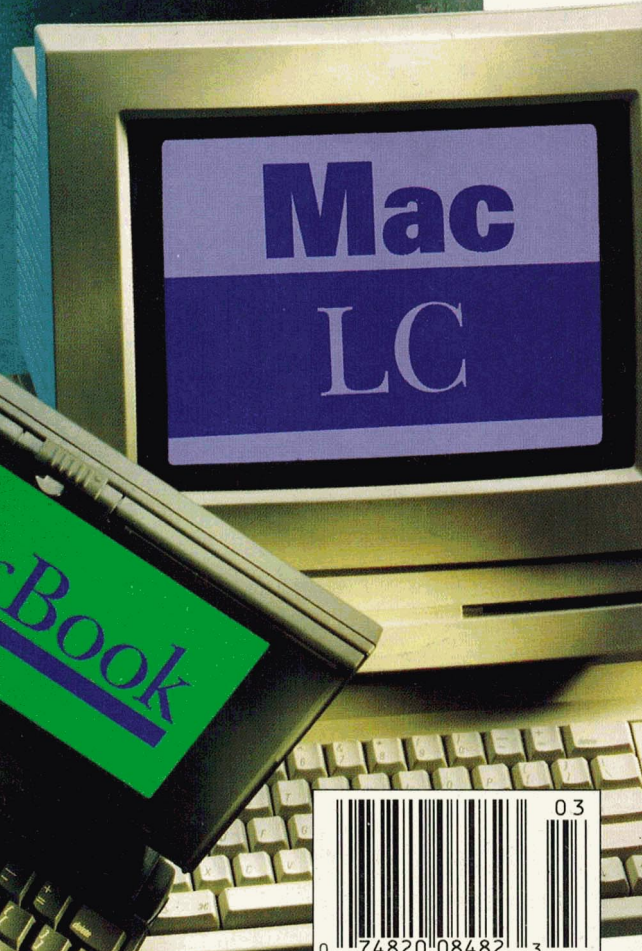
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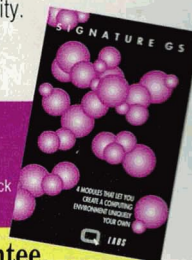
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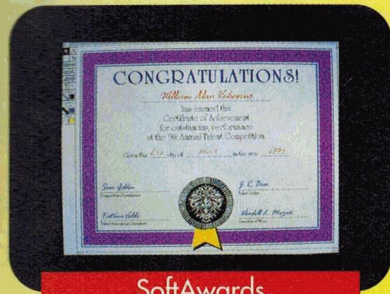


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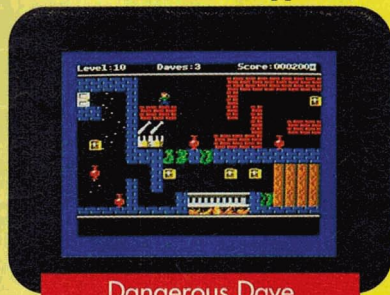
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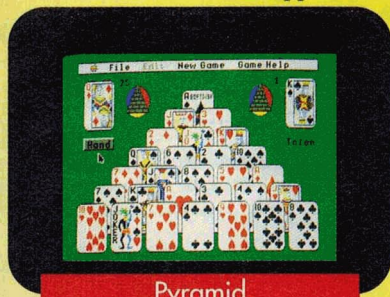
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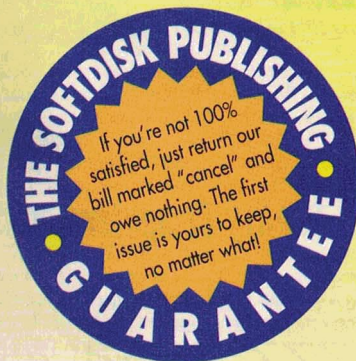
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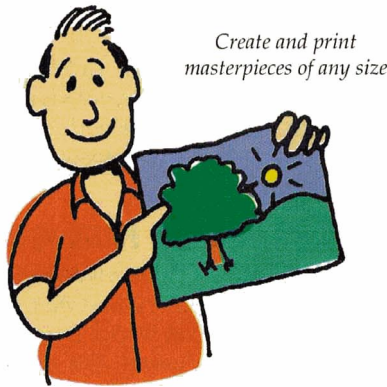
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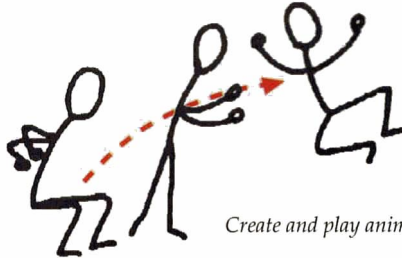
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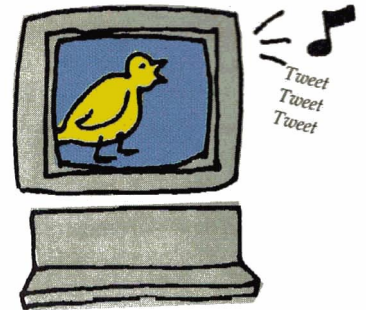
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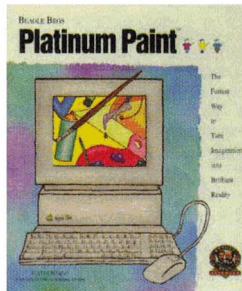
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THE VIEW FROM INSIDE

SEPARATE BUT EQUAL

As promised, for this month and henceforth we're separating Apple II and Macintosh editorial. Our design team has put those sometimes-competing voices into discrete sections of *inCider/A+*. You should no longer be confused about whether we're an Apple II or a Mac magazine: We're both, and have been for more than two years. But now you choose which; we think you'll find both sections invaluable.

We also welcome Cynthia Field to our staff. Yes, she

By WILLIAM KENNEDY, Ph.D. *
EDITOR IN CHIEF

surprising: Word-processing, spreadsheet, and data-

base applications give us an easily understood and practical reason to purchase a computer. Since the inception of the personal-computer revolution, those applications have been the most common ones. 'Fess up, though. You don't just compose family letters, keep gradebooks, or figure your annual contribution to Caesar on your Mac or Apple II, do you? You probably have a game or three, a graphics program, an education title or two. And the group of children (and adults — don't kid yourself) that regularly crowd around the computer screen to play Carmen Sandiego or Stickybear just can't get close enough to the keyboard and mouse.

Our design team has also made subtle but effective changes in the magazine that let us editors pack more information into what has become a "tighter" book. You've noticed? Space for ink is at a premium these days; we agonize each month over how to give you the most information about Apple IIs and Macs in an ever-more-limited number of pages.

Your Super Nintendo game machine or VCR isn't in a back room connected to some tiny old black-and-white TV, is it? Nor is your stereo tucked away in a hidden corner. An Apple II or Mac is all those things combined. You paid good money for it — get it out where you can use it.

For instance, where do most children congregate before dinner? Maybe there's a TV in the kitchen to keep them occupied so they aren't underfoot? Why not put a computer there instead to capture the kids' attention and keep their minds active, not dulled by the "vast wasteland"? You'll all sleep better at night.

Better yet, bring that Apple II or Mac out into the leisure room where everyone can get their hands on it. By simply moving your Apple II or Macintosh to the places your family tends to congregate, you'll find that it will get a lot more use. And that means enhanced productivity from an expensive machine without spending another dime. □

WHERE DOES YOUR APPLE BELONG?

From the moment we first begin to understand simple commands like "pick up your toys," we're reminded constantly to put "things" away "where they belong." Trained from birth, we put our possessions in a place some supreme authority (Mom or Dad) deems appropriate. That proper place is often where that item gets the most use — the refrigerator and microwave in the kitchen, power tools in the garage or basement, TV in the den.

So why do we put our Apple II or Mac on a desk or table in the far corner of some back room? Or in the back of the classroom? Probably because we still don't quite understand just what that computer is, so we can't decide where best to put it.

Many of us cling to the archaic view that a computer is a glorified typewriter, calculator, or filing cabinet. That's not

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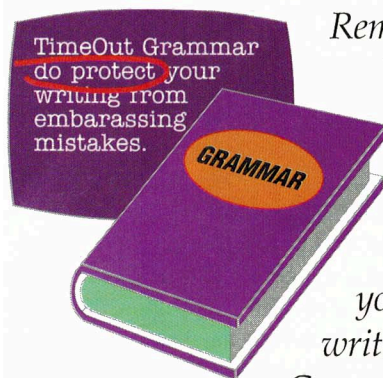
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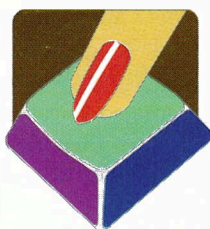
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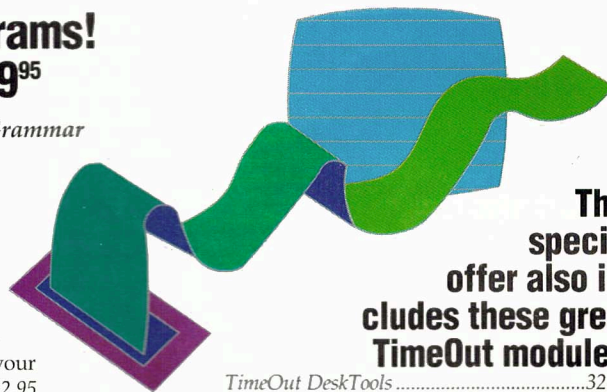
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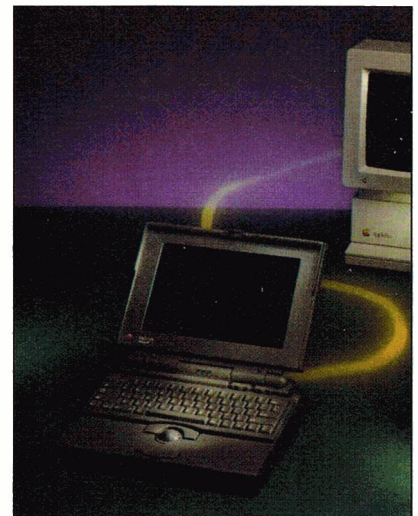
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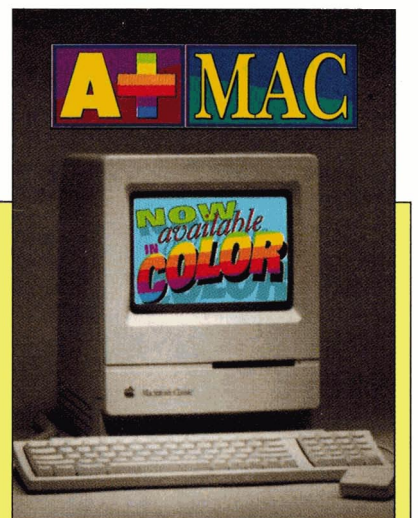
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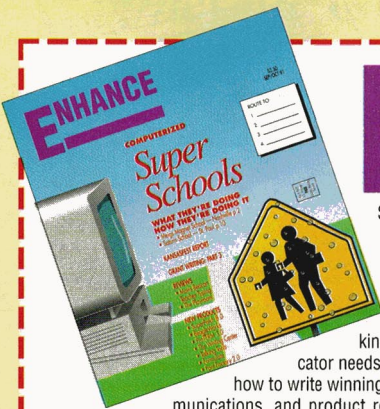
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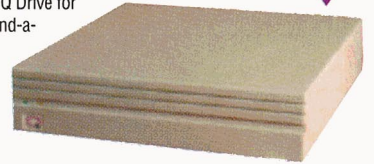
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The Q Drive eliminates disk swapping and helps you work twice as fast!

Thousands of drives later, experts still are praising the Q Drive for its performance and value. *inCider/A+* gave it a four-and-a-half-star rating. Our customers are using words like "amazing" and "fantastic" to describe the way the Q Drive has changed their computing.



The Q Drive features a fast, reliable Quantum mechanism using the latest technology, including auto-parking heads, a voice-coil actuator, and a track buffer. And since the Q Drive uses the industry-standard SCSI interface, you get complete compatibility with your current computer system—and your next, whether it's an Apple II, Macintosh, or IBM.

Q-RAM GS

The Q-RAM GS is an economical way to add up to 4 MEG of memory to your Apple IIes. It's fully compatible with all Apple IIes hardware and software—including the IIes RAM Disk and DMA peripherals like the Apple II High Speed SCSI Card. And it's so small that it fits in your shirt pocket.



4-Meg. Q-RAM comes with FlashBoot FREE!

When you install the Q-RAM GS life becomes just a little easier. Programs load completely into memory at startup, eliminating disk swapping. Out-of-memory error messages disappear. You'll have memory to spare—memory to load desk accessories, or to set up a RAM disk.

Installation is simple. You can expand a Q-RAM GS by snapping in standard SIMMs—we even include the necessary diagnostic software for your peace of mind. And since the Q-RAM GS uses SIMMs, your memory investment won't go to waste.

Of course, since you're dealing with Quality Computers, you get an unconditional 30-day money-back guarantee and a five-year warranty. And the price is the best news of all—a 2 MEG Q-RAM GS costs about the same or even less than other IIes memory cards in a 1 MEG configuration!

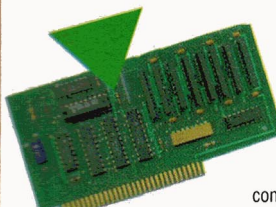
Q-RAM GS

1 Meg.	\$99⁹⁵
2 Meg.	139 ⁹⁵
4 Meg.	219 ⁹⁵
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Plus, with the 4 MEG Q-RAM GS, you get FlashBoot FREE! FlashBoot lets you quickly save and load a super-fast, super-convenient RAM disk.

Q-RAM IIe

Snap the Q-RAM IIe into your Apple IIe, and you'll create a whole new computing experience. Programs load faster—and completely. A lot less disk swapping. A lot more productivity. All of AppleWorks, plus your TimeOut applications will completely load into RAM. That means you can concentrate on working—not waiting for disk drives. Plus with a huge 1 MEG. treasure trove of RAM, you can create huge documents, and not encounter a single "Out of Memory" message.



The Q-RAM IIe fits snugly into your IIe's auxiliary slot, and comes with diagnostic software, a 5-year warranty, a 30-day money back guarantee, and is 100% software compatible.

ASK ABOUT QUANTITY DISCOUNTS ON Q-RAM CARDS

Q-RAM IIe

1 Meg.	\$99⁹⁵
-------------	--------------------------

Comes with Switch Hitter and 15 MEG. of free software

Are you interested in upgrading to System 6 but afraid of compatibility problems? **Switch Hitter is your solution, allowing you to keep System 5 on your hard drive when you add System 6! A simple keyboard command selects the desired System version at boot time. Additionally, Switch Hitter lets you change your IIGS's System Speed and Startup Slot at boot time and start up a 3.5" or 5.25" disk, all without having to wait for your hard drive to boot into the Finder.**



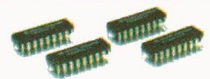
And remember, you're dealing with Quality Computers, the hard drive leader. The Q Drive comes with a 30-day money-back guarantee and a one-year limited warranty. A great drive and great support, at a great price—that's the Q Drive. Find out why it's the best Apple hard drive value—test drive one today!

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42 Meg.	\$329⁹⁵
85 Meg.	399 ⁹⁵
127 Meg.	499 ⁹⁵
170 Meg.	549 ⁹⁵
44 Meg. Removable	499 ⁹⁵
Apple II H.S. SCSI Card	109 ⁹⁵

RAM Chips

256K (8)	\$19⁹⁵
256K x 4 (2)	19 ⁹⁵
1 Meg. (8)	49 ⁹⁵

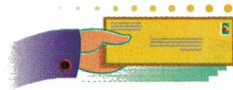


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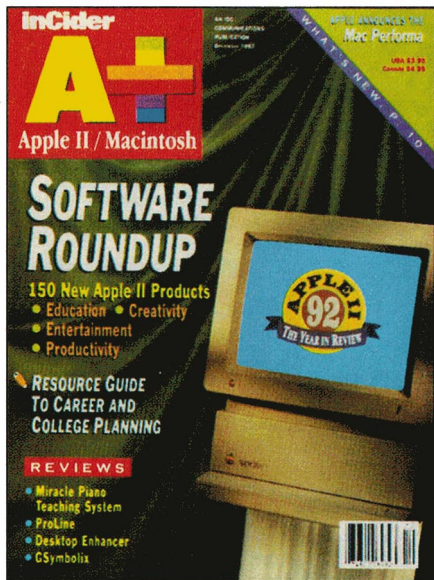
1 Meg.	49 ⁹⁵
2 Meg.	99 ⁹⁵
4 Meg.	179 ⁹⁵

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LETTERS



PROLINE UPDATE

I WAS THRILLED BY THE FIVE-star review **ProLine** received in your December 1992 issue (p. 27). It may seem ungrateful to critique such as glowing evaluation, but your readers should be aware of a few inaccuracies:

- ProLine doesn't work with the IIc; it runs only on a IIe or IIGs.
- ProLine can work with high-speed modems (19,200 bps or faster). It isn't limited to 9600 baud.
- You need an accelerated IIe only with a 19,200-baud or faster modem, not if you use a 9600-baud or slower modem.
- Once installed, ProLine uses only 1.5 megabytes of hard-disk space.

We'd also like to note that ProLine owners can receive professional customer assistance and on-line support through the major information services — essential backup, particularly for BBS system operators.

**Morgan Davis, President
Morgan Davis Group
Rancho San Diego, CA**

FALLOUT

PLEASE TELL ME IT ISN'T TRUE. I read in [*SoftDisk, AppleWorks Forum*, on line . . .] that *inCider/A+* is going completely Mac beginning with the February 1993 issue.

I've been a faithful reader since [1982 - . . .]. I love my Apple II [GS, e, c, Plus . . .], and I'm not ready to give it up. *inCider/A+* has been a vital source of [information, good stuff, great reviews . . .] for me. If you go Mac, I'm going to [cancel my subscription, I don't know what, kill . . .].

**Randall R. Evans
Des Moines, IA**

**Johhny Lum
Norwalk, CT**

**Matthew J. Ghio
San Pedro, CA**

and a score of others . . .

Tales of our demise are just rumors and lies — the proofs right here before your eyes.
— eds.

STITCH IN TIME

IN JANUARY'S APPLE CLINIC (p. 17) Diane Hubbard of Morgantown, North Carolina, asked about software that can produce cross-stitch graphs. Cynthia Field listed one source, but there are others, as well.

For instance, **Stitch-It** by Sheridan Software works with any Apple II, including the II Plus. **Stitch-It** is also available for the Mac; that version lets you overlay pictures on a grid to produce cross-stitch graphs. **Stitch-It** for PC compatibles converts a picture automatically to a cross-stitch graph.

**Roger Sheridan
Sheridan Software
Freeland, WA**

IIE EMULATION

MY WIFE AND I RECENTLY purchased a Mac LC with a IIE emulation card. We're both teachers. Although we do about 60 to 70 percent of our work on the Mac, we prefer to do our grade keeping and other spreadsheet work, as well as some word processing, with IIE programs.

Although IIE productivity programs work fine, we're just now discovering

CORRECTIONS

Although **Big Red Computer Club** (Norfolk, NE) and **Public Domain Exchange** (Santa Clara, CA) carry a number of fine products, they apparently don't stock many of the shareware products mentioned in the January 1993 feature "Enriching System 6" (p. 34). For sources and information concerning the availability of these products and other freeware and shareware programs, contact the author of the article, **Joe Kohn**, at 166 Alpine Street, San Rafael, CA 94901.

Western Design Center notes that the complete model name of its new GS microprocessor chip, referred to in the recent news item "Fast Chip" (February 1993, p. 14) is **W65C816SPL-E**. For further information, send a self-addressed, stamped (75 cents) envelope to Western Design Center, 2166 East Brown Road, Mesa, AZ 85213, (602) 962-4545, or contact the company via its **Mensch Computer** bulletin board at (215) 646-7247.

that some other Apple II programs won't run on the IIe card — **Print Shop**, **Oregon Trail**, and **Carmen Sandiego**, for example. This is a problem that has made us question the wisdom of our investment in the IIe emulation card for the Macintosh.

We realize many of these programs are also available for the Mac, and in some cases run better on an LC than an Apple II. But our schools are equipped with Apple IIs, so we need to prepare our lessons and preview new programs for the IIe, preferably at home.

Our request, therefore, is that when you review Apple II products you also indicate whether they also operate properly on a Mac in IIe emulation.

John R. Klees, Jr.
Tamaqua, PA

In general, Apple II products that are copy protected (Oregon Trail, for instance) or use a non-standard disk filing system (early versions of Print Shop, for example) won't work under the Mac's IIe emulation. (We should note that our copy of Carmen Sandiego worked fine with the Mac IIe emulation card; perhaps you have a very early version.) Several of the software manufacturers we've contacted recently are taking steps to provide Apple II product versions that will work under Mac IIe emulation, so contact the program's publisher for an update if you have problems.

We'll also take your suggestion to include Mac IIe emulation information in our reviews. For additional commentary on II/Mac connectivity, see "Power Peripheral" in this issue, p. 42. — eds.

LISTEN UP

I'M LOOKING FOR A **UFONIC Voice System** for the Apple IIe to replace the one our children were using in class until it was stolen. The software we use requires the Ufonic System, and I'd be grateful if you or any of your readers have a clue as to where I could locate one.

Eugene Broyles
Chicago, IL

A company spokesman tells us that Jostens Learning Corporation continues to support all its Apple IIe customers, including those

who use the Ufonic Voice System. Contact the company at 7878 North 16th Street, Suite 100, Phoenix, AZ 85020, (602) 678-7272, (800) 752-6684 to replace the unit stolen from your classroom. — C.F.

LOST AND FOUND

WITHIN THE PAST YEAR I purchased **Music Studio 2.0** for my Apple IIGs, but destroyed the manual accidentally. The program was produced originally by Activision, but that company has since

gone out of business. Where can I get a new copy of the manual?

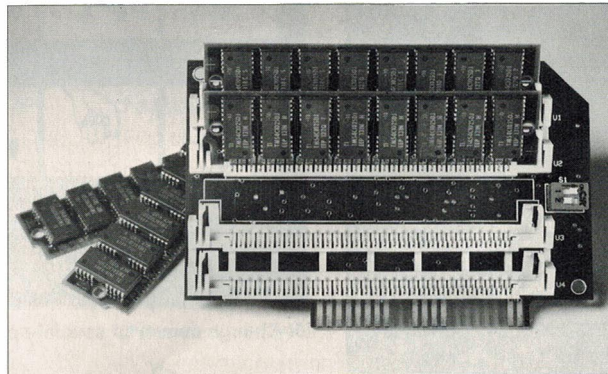
Howard Tatar
Highland Park, IL

The folks at Big Red Computer Club sell Music Studio 2.0. Contact them for a new manual (423 Norfolk Avenue, Norfolk, NE 68701, 402-379-4680). — eds.

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The IIGs Super Ram adds an additional 1, 2, or 4 Meg of RAM to your existing Apple IIGs computer. This added memory is vital to running today's more intensive software. And nothing could be easier than to just plug the card in and begin to enjoy the benefits of added memory. Your computer will soar to new heights with the IIGs Super Ram!

Choose from three models for full power now or expandability later:

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CHARLES AND DI: THE DISK

Y

ou've read the tabloids — now, thanks to AV Systems' new **Crisis Gaming** series (48K required), you can dream up your own stories about

world-shattering events, including covert government operations (**Xear**), alien landings (**Them**), and, yes, even murder in Buckingham Palace (**Hang Charles?**). AV Systems' President Adrian Vance, a former producer of educational filmstrips, describes "crisis gaming" as a secret activity engaged in by military officers at national war colleges and by the inner circles at major corporations.

Each \$19.95 program in the Crisis Gaming series (a site license costs only \$20 extra) includes a story starter. In **Zero**, for example, the uh-oh scenario goes something like this: Washington, D.C., is atom-bombed by terrorists, killing 1 million people. Mario Cuomo declares himself President, and the states secede one by one. Cuomo calls for an attack on the Middle Eastern country thought to have bombed Washington. But then it's discovered the bomb came from within.

Vance explains that small groups of social-studies students or writers can "advance the story within the warp and woof of the main plot" by anticipating events, predicting effects, and documenting their thoughts on disk. A password-protected log-on system safeguards each student's contribution.

You can also use the built-in **Predictor** program to compute the probability of an event. As Vance points out, events with lower probabilities often have more story appeal — something supermarket tabloids discovered a long time ago. For more information or to request a free catalogue listing AV's programs, contact AV Systems, 1445 Estrella Drive, Santa Barbara, CA 93110, (805) 569-1618. — C.F.

SOMETHING SPECIAL

Good things come in small packages: That old saying certainly applies to Academic Software, a small educational research and development firm specializing in computer products for the elderly, for persons with disabilities, and for professionals who work with those groups. According to company president Warren E. Lacefield, Ph.D., Academic Software develops, maintains, and distributes one of only two full-spectrum

professionals in corporations responding to ADA (*Americans with Disabilities Act*) priorities, and school personnel who perform physical-disability assessments or prepare IEPs (*Individualized Educational Plans*). Others for whom ADLS represents an important resource are professionals and volunteers who work in universities, schools, hospitals, clinics, sheltered workshops, rehabilitation agencies, or any other facility that offers

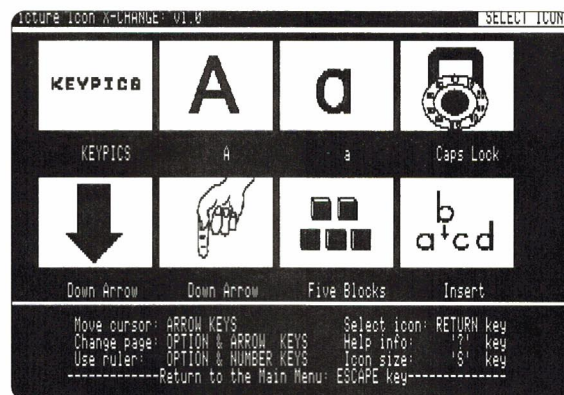
services or trains others to provide information on adaptive and assistive technologies for basic living, communication, mobility, environmental improvement, and workplace modifications.

Academic Software isn't a one-product company, however. "We're one of the largest suppliers of picture graphics or, at least, picture vocabularies for augmentative communication for the Apple II family," adds Cindy

George, senior research associate. Academic Software's 4500-plus images work with the company's **Unicorn Overlay Express**, a \$140 desktop-publishing system that lets Apple II users create paper overlays for Unicorn Keyboards — alternative-input devices for adults and children who are physically or speech-impaired.

The company recently released a \$40 graphics converter, **Picture Icon X-Change**. This utility lets you use Mayer-Johnson Company's Picture Communication Symbols as well as Core Picture Vocabulary (from Don Johnston Developmental Equipment) and Academic Software's own **Keypics** and **Holidays** graphics libraries with programs such as AppleWorks GS, Print Shop, and Tutor-Tech Hypermedia Toolkit.

For information, contact Academic Software, 331 West Second Street at Broadway, Lexington, KY 40507, (800) 842-2357 or (606) 233-2332. — C.F.



X-Change converts special-needs graphics for DTP use.

national databases of commercially available assistive-technology products.

The **Adaptive Device Locator System 1.6** (ADLS) covers more than 1000 assistive products in categories such as *Communication, Environmental Adaptation, In-Situ Motion, Rehabilitation, and Travel*. A *Sports and Recreation* database is the company's newest enhancement, providing device descriptions and pictures as well as sources of products and product information. Thanks to ADLS, you can automatically generate mailing labels and form letters for any of the 700 manufacturers and distributors represented.

ADLS costs \$195. The program runs on any 128K Apple IIe, IIc, IIc Plus, or IIGS, as well as on the Mac LC/LC II and Performa 400 or 600 with IIe Card. (Mac and PC versions are also available.)

Among those who can benefit most from ADLS, says the company, are individuals with disabilities, counselors who work with the elderly, human-resource

NEW SOFTWARE

COSMIC EXPERIENCE

Everyone's favorite spice-colored teddy takes the throttle as students in kindergarten through grade 3 practice vowel-sound recognition in **Cinnamon Bear's Outer Space Adventure**. The lessons in this entertaining, animated drill-and-practice program feature consonant-vowel-consonant and consonant-vowel-consonant-e word patterns.

When each brightly colored hi-res picture appears on screen, the child tries to think of the associated three- to five-letter word. He or she then presses the arrow keys to select the correct vowel sound/symbol from the ten short and long vowels displayed on screen.

Each correct answer moves a tiny rocket around the program's solar-system-like game board. When the spaceship lands on a planet, the student can try his or her hand piloting the craft through an arcade-style meteor-shower game.

Dr. Kay B. McCormack, president of McCarthy-McCormack, explains, "We do

a lot of field testing to make sure the program is something kids love. Teachers feel good because the children are learning."

School administrators and budget crunchers can feel good, too. Cinnamon Bear's Outer Space Adventure costs only \$49.95. That price includes a school-building site license, which means you can make all the copies you need at no extra charge. Just use the 5.25- and 3.5-inch master disks included in the package.

Cinnamon Bear's Outer Space Adventure requires an Apple IIe, IIc, IIc Plus, or IIGS with 128K. You can write to McCarthy-McCormack at 2885 Downhill Drive, Colorado Springs, CO 80918, or call toll-free (800) 869-1446. The company's fax number is (719) 598-5579. For more information, circle number 350 on the Reader Service card.

UGGA, UGGA

If you enjoyed Clan of the Cave Bear, you'll feel right at home with **The Lost Tribe**, a new social-studies "edutainment" program for the Apple IIGS from Lawrence Productions. They're the folks who

brought you McGee and Katie's Farm, two popular "no words" programs for preschoolers. But compared with McGee and Katie, the characters in The Lost Tribe are, well, different.

In this beautifully designed prehistoric strategy game, players aged 8 and up assume the role of tribal leader. To achieve your goal — returning your people to their ancestral homeland — you must learn how to cope with natural disasters as well as placate dis-grunt-led clan members.

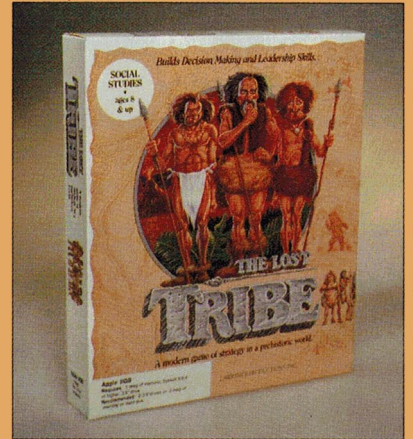
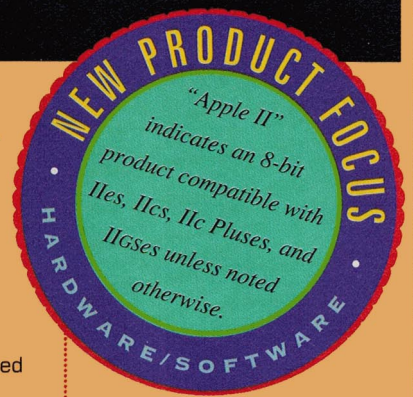
The program sums up the challenge this way: "Find the right volcano to call home, and the tribe will shower you with praise. Fail, and your name will be Muck."

An on-line survival guide offers clan personality profiles as well as information about prehistoric animals, artifacts, and trivia. On the serious side, you can learn about early recycling efforts, medicinal herbs, and shamans.

The Lost Tribe also features an attractive hypermedia-style interface. Don't be surprised, though, to find an incongruous smiley-face icon emblazoned among the authentic-looking hieroglyphs.

Digitized photographs of clan members add a comic touch. Just wait 'til you meet Burple, for example — this guy had to be the original Hair Club for Men president.

Sometimes The Lost Tribe's humor is très sec, as when Glurg challenges Bloop for the office of Drain Commissioner. You cast your vote on election day by selecting from this



Think you can lead this bunch home?

multiple-choice list: A. Bloop, the incumbent, B. Glurg, the challenger, or C. Nobody. Your single vote wouldn't make any difference anyway. Suffice it to say that the program's wonderful humor makes The Lost Tribe laugh-provoking as well as thought-provoking.

The Lost Tribe is priced at \$49.95. For more information, use your opposable thumb, grab a stick of graphite, and bull's-eye number 351 on the Reader Service card.

More highly evolved beings can contact Lawrence Productions at 1800 South



The more-serious side of Lost Tribe features information on prehistoric culture, artifacts, and magic.

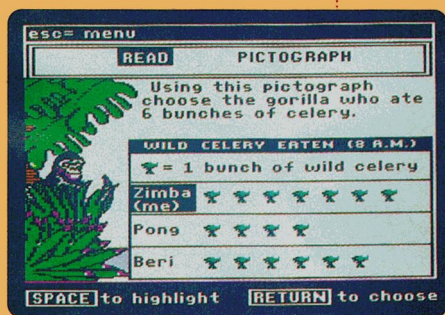


Kids learn their vowels as they blast off with Cinnamon Bear.

35th Street, Galesburg, MI 49053-9687, (800) 421-4157, (616) 665-7075, or (616) 665-7060 (fax).

MEMORY SHORTAGES? NOT!

While our Macintosh- and PC-using friends spend all their money on SIMM modules to keep up with the memory demands of all that really cool software, devel-



Graph Maker features a database of information on rainforests of the world, while teaching kids how to use pictographs and other types of charts.

opers such as Troll Associates continue to release Apple II programs requiring a miserly 48K. At press time, the company was readying five new educational products: **Graph Maker: Introduction to Graphs and Charts**, **Let's Learn About Geography: U.S.A.**, **Parts of Speech: Fun with Adjectives and Adverbs**, **Reading for Understanding: Native Americans**, and **SOS Planet Earth: Puzzle Games**. With the exception of **Reading for Understanding: Native Americans**, which retails for \$29.95, these new Troll programs cost \$39.95 apiece.

Graph Maker: Introduction to Graphs and Charts incorporates animated tutorials, a graph-design module, and a **Mystery Spinner** game to help

children in grades 3 to 5 learn about charts and tables as well as bar, line, circle, and pictographs.

The program's built-in database contains information about rainforests of the world, as well.

Let's Learn About Geography: U.S.A. includes a database of historical and geographic information organized around five themes: location, place, human/environmental interactions, movement, and regions.

In **Geo Rally**, students travel around a game board, land on squares, and answer questions about the United States.

Questions are e-mailed by imaginary Geo Whiz Pen Pals, whose electronic postcards are delivered by a Troll Postal Service truck tooting across the top of the program screen.

Ann Anchor, the Oprah Jessie Donahue of the Troll Parts of Speech TV Network, is your host in **Parts of Speech: Fun with Adjectives and Adverbs**.

Ms. Anchor interviews a series of animated guests, such as fashion designer Ralph Trendi, circus acrobat I.M. Best, and jockey Truly Swift as they help students learn how to use adjectives and adverbs to describe, modify, and compare words.

In the **Name That Adjective or Adverb** game, third- to fifth-graders choose the word form required to complete a fill-in-the-blank sentence correctly.

Reading for Understanding: Native Americans introduces students in grades 4 to 6 to the stories of Pocahontas, Sacajawea, Sequoyah, Sitting Bull, and Squanto.

This comprehensive package combines five paperback books and a software program featuring a TV talk-show simulation, plus **Quote Quest** and **Name That Book** quiz games.

SOS Planet Earth: Puzzle Games contains four paperback books (**Air Scare**, **Nature in Danger**, **Power Failure**, and **Water Squeeze**) and four coordinated software disks.

Each disk includes crossword, word search, or coded-sentence puzzles and other activities to help improve reading comprehension, stimulate logical thinking, and build science vocabulary.

For additional information, contact Troll at 100 Corporate Drive, Mahwah, NJ 07430, or call (800) 526-5289, (201) 529-4000, or (201) 529-0953 (fax), or circle number 352 on the Reader Service card.

LET'S BE CAREFUL OUT THERE

Skills for Living, a new series of Apple II programs for secondary and adult students from Hartley Courseware, explores several consumer- and job-related subjects. The ten programs in the series teach students how to use credit cards wisely, manage a checking account, interview for a job,

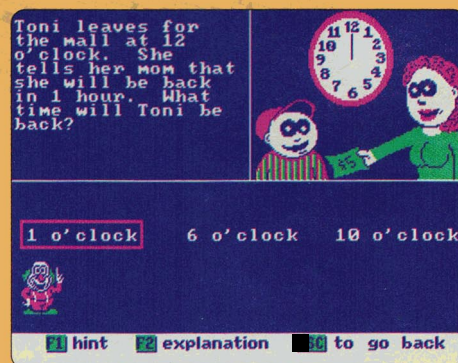
behave on the job, shop wisely, buy a used car, and evaluate goods and services.

Written at the fourth-grade reading level, the programs feature simulations and games. Teacher's guides and black-line masters are included. Hartley's new life-skills package runs on any 128K Apple II and costs \$650. Selected titles are available separately for \$69.95 each, or in two sets priced at \$350 each. For more information, contact the company at 133 Bridge Street, Dimondale, MI 48821, (800) 247-1380, or (517) 646-6458, or circle 353 on the Reader Service card.

CIRCUS, CIRCUS

With help from a baby elephant, children in grades 1 to 3 can learn to solve math word problems while they explore circus tents in the **MathLand** theme park. **MathLand** requires only 48K and runs on any Apple II. It features eight categories, including numbers and counting, money, time and calendars, measurement, distance and travel, math scramble (arranging equations), fractions, and graphs and charts.

The child uses the arrow keys to move a baby elephant



MathLand's circus characters teach kids time.

from screen to screen in search of its mother. In each circus tent the child encounters colorful animated math challenges — or surprises such as Curtis the Magnificent's magic show.

Intelligent Software says MathLand's goal is to help children learn to use arithmetic in their everyday lives, and its scenarios and assorted activities seem to do just that. The Apple II version (which should be available by the time you read this) costs \$49.95, from Intelligent Software, 9609 Cypress, Munster, IN 46321, (800) 521-4518 or (219) 923-6166. Circle 354 on the Reader Service card for more information.

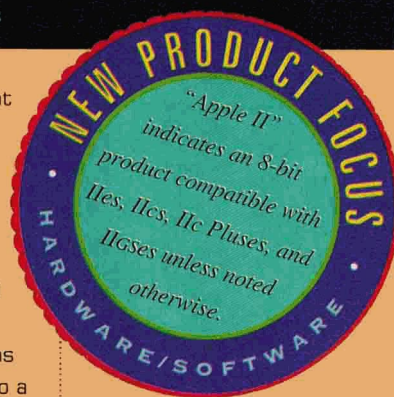
NEW RESOURCES

◆ YOU OUGHTA BE IN PICTURES

When you're ready to take a break from test-driving new Apple II products, pop some corn in the microwave and fire up your VCR — Tom Snyder Productions (TSP) has a free video for you. **The One Computer Classroom and More!** demonstrates five practical ways in which you can incorporate a single computer into your curriculum and ease your administrative workload. For best results, invite teaching colleagues to share the video with you. The film and accompanying *Technology*

Planning Guide are excellent resources for brainstorming sessions or in-service workshops. Among other things, the guide includes suggestions for starting a technology bulletin board in the faculty room. It also provides simple instructions for hooking up an Apple II to a TV or large-screen display for classroom instruction or group presentation.

The video and planning guide are available free on 30-day loan, with permission to make copies for educational purposes. Cynics may quibble that the video is just a TSP marketing tool — and it does feature generous coverage of the company's software products.



But see for yourself: The real stars in this program are teachers, kids, and Apple IIs.

If you'd like to borrow the video, contact Tom Snyder Productions at 80 Coolidge Hill Road, Watertown, MA 02172-2817, (800) 342-0236. For more information, circle number 355 on the Reader Service card.

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**SHAREWARE SOLUTIONS
BY JOE KOHN**

SPACE WARS

Ever notice that a lot of computer aficionados seem to also have a major fascination with science fiction in general and *Star Trek* in particular? As a result, outer-space simulations are some of the most popular freeware and shareware programs available. Your Apple II can conjure up whole new galaxies to conquer, and it can take you to places where not even NASA has gone before. There's a multitude of exciting games to choose from — so don your space helmet, fasten your seat belt, and ready and steady that trigger finger as we blast off for deep-space fun and excitement.

- **Battle Zone**, by Russell Nielson. \$5 shareware. Battle Zone is a colorful arcade game for the IIe/IIc/IIgs. As war rages on the planet Bannore, you're the only person who can stop the evil invaders from destroying the peaceful inhabitants. Using either keyboard commands or a joystick, you pilot a ground vehicle over rocky terrain, as you try to avoid outcroppings and alien bombs. You'll start with 20 lives, but each direct hit costs you one life. The game includes 25 levels. One through 9 are easy to complete; as you get to level 10, though, bombs come fast and furious, and you'll be trying to avoid huge boulders while firing at anything that moves. Happy hunting, space ace.

- **Creature Features**, by Russell Nielson. \$5 shareware. It's another wild-and-woolly outer-space shoot-'em-up arcade game for the IIe/IIc/IIgs. In this one, you'll encounter a number of weird-looking alien creatures; some you protect, some you zap. Using a joystick, you'll try to defend the friendly creatures at the bottom of the screen from creatures falling from alien bombers. The hostile ones also direct energy bombs your way; if you're hit, your controls freeze for a moment. When all four friendly aliens are dead, you lose the game.

- **Ship Zone**, by Russell Nielson. \$5 shareware. More arcade action, controlled by keyboard commands. You start with three lives; whenever an alien ship appears, try to blast it. There's just one problem: Three fast-moving barriers block your shots if your timing is off. With lots of wild sound effects and unlimited shots, at least you'll be treated to a good animation when you're blasted into oblivion.

- **Star Trek: First Contact**, by Jim Royal. Freeware. First Contact is a double-hi-res graphics-based strategy game for the 128K IIc/IIgs/enhanced IIe. Based on the simulator used by first-year students at Starfleet Academy, this one puts you in command of a *Galaxy*-class starship on an exploration mission near the center of the Federation's frontier — a region populated by 38 star systems and two Deep Space Outposts. Your objectives are to explore as many planets as possible and decide which are likely candidates for successful contact; you'll then be responsible for first-contact procedures with those worlds. You must also deal with the presence of an alien vessel somewhere in the quadrant; the intruder's purpose changes each time you run the mission simulator. Just like Captain Picard and Commander Riker, you'll have full command-level access to navigation, computer, engineering, and transporter functions, scanner controls, and tactical and communication functions. Do you have the right stuff to be a successful starship captain — or will you violate the Prime Directive?

- **Invaders from Space**, by David and April Taylor. \$5 shareware. This GS game is a variation of one of the all-time-great arcade titles, Space Invaders. Wave upon wave of enemies crisscross your screen, dropping deadly bombs. With three barriers to protect you, you'll be shooting back with your mouse, taking out lots of amusing-looking animated ships. These invaders aren't your basic run-of-the-mill spaceships, either — they're Mac computers, happy faces, Easter bunnies, and Christmas-tree ornaments. Upon payment of the shareware fee, you'll receive an even livelier version of the game (with sound effects) by mail.

- **Missile Attack**, by Terry Burdett. \$5 shareware. This one's another arcade game for the GS — an updated version of the popular Missile Command from the early 1980s, complete with sound effects. Using both mouse and keyboard, you try to defend three cities from incoming alien attackers. You'll need steady reflexes and a fast trigger finger.

- **Solarian GS**, by David Tolson. \$10 shareware. Based on a Mac shareware title, this version gives you three lives and several seconds of shield protection to start with. Your colorful enemy flies in a circular formation; with unlimited mouse-activated fire-power, you'll try to blast everything that moves. Watch out, though — the enemy shoots back. Complete with lots of digitized sound effects, Solarian is like a super Space Invaders with bombs and fireballs. Released in December 1992, this one quickly became one of the most popular GS games thus far. While high on the mayhem meter, Solarian sports a socially responsible aspect, as well: Players are directed to submit the shareware fee to Tolson's favorite elementary school.

- **SpaceArrow**, by Tom Gooding. \$10 shareware. This is one of those rare shoot-'em-ups that require both strategy and a steady trigger finger to win. It's suitable for one or two players. All action is displayed simultaneously in colorful windows. Controlled by keyboard commands or joystick, the game features an extensive built-in help system plus lots of stereo sound effects. You can also customize SpaceArrow to your liking: The software includes an artificial-intelligence module that lets you produce your own scenarios or modify any of the eight battle scenarios included. SpaceArrow is nothing if not challenging; novices may want to load several scenarios during setup so that the computer represents both players.

- **Space Cluster**, from Miami Beach Productions. Freeware. Space Cluster is the brainchild of a now-defunct French development team. It's an action-packed, super-hi-res, Galaxian-style shoot-'em-up for the GS, complete with fabulous sound effects and a thrills-and-chills soundtrack. Play by keyboard or joystick; you'll start with five spaceships and will soon find yourself the target of 18 enemy vessels. For the first few seconds, your adversaries will fly in formation, and you can pick them off easily. But watch out when they swoop in for the kill; they'll be coming from all directions in an unrelentless attack formation.

Equipped with an Apple IIe/c or a IIgs and any of these freeware or shareware simulations, you too can wander the farthest reaches of the galaxy — battling evil aliens and safeguarding civilization without ever leaving the safety and comfort of your own computer room.

GAMES MENTIONED ABOVE ARE AVAILABLE ON DISK FROM JOE KOHN. FOR MORE INFORMATION, SEND A SELF-ADDRESSED, STAMPED ENVELOPE TO 166 ALPINE ST., SAN RAFAEL, CA 94901. SOME TITLES MAY ALSO BE AVAILABLE FROM APPLE II USER GROUPS, OR BY DOWNLOADING VIA MODEM FROM THE ON-LINE INFORMATION NETWORKS AMERICA ONLINE, COMPU SERVE, AND GENIE.

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System 6.0™: System 6 brings a new dimension of power, ease of use, and versatility to the Apple IIGS. This item includes six disks: Install, System Tools 1 & 2, Fonts, SystemDisk and synthLab, plus the official Apple *IIGS System 6 User's Reference*. This 400-page manual tells you all about System 6, including FSTs, Finder, Teach and Archiver. **Order product number SX52 for \$39.**

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Shanghai II: Dragon's Eye™: Shanghai II gives you 8 beautifully detailed tile sets, over a dozen different layouts, animated tilesets and over 100 sound effects. Several ways to play – Solitaire, Challenge & Tournament. Beyond all this there is the interactive version of the Dragon's Eye, a special challenge for superior Shanghai players. **Order product number BR92 for \$49.95.**

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Sequential Systems RAM-GS™: With memory expansion this cheap, there's no excuse for "Out of Memory" errors. RAM-GS is a low-cost, 4 Megabyte memory expansion for the IIGS. Easily installed, it is fully compatible with GS/OS, DMA and all software. Its multi-layer circuit design makes it run cool and draw less power. **Order product number SQ50 for only \$140.**

Other Great Apple IIGS Programs

Title	Members Price	Non-Members Price	Title	Members Price	Non-Members Price
<i>Mindscape</i>			<i>Software Toolworks</i>		
Balance of Power 1990	\$15	\$20	Gin King/Cribbage King	\$15	\$20
Captain Blood	\$15	\$20	Hunt for Red October	\$10	\$15
Deja Vu I or Deja Vu II	\$10	\$15	Life & Death	\$15	\$20
Shadowgate	\$10	\$15	Mavis Beacon Typing	\$15	\$20
<i>Electronic Arts</i>			<i>Activation</i>		
Bard's Tale I or II	\$15	\$20	GBA Basketball	\$20	\$20
Cartooners	\$10	\$15	Hacker II	\$20	\$20
Instant Music	\$10	\$15	The Last Ninja	\$20	\$20
Instant Synthesizer	\$15	\$20	PaintWorks Gold	\$34	\$39
Deluxe Paint II	\$10	\$15	Music Studio 2.0	\$34	\$39
Keep the Thief	\$15	\$20	Shanghai	\$20	\$20
The Immortal	\$24	\$30	<i>Michtron</i>		
Zany Golf	\$20	\$25	Airball	\$20	\$20
<i>Interplay</i>			<i>California Dreams</i>		
Neuromancer	\$10	\$15	Blockout	\$15	\$20
<i>Sierra On-Line</i>			Tunnels of Armegeaddon	\$15	\$20
Black Cauldron	\$20	\$25	Club Backgammon	\$8	\$10
King's Quest I, II, or III	\$20	\$25	Triango	\$8	\$10
King's Quest IV	\$20	\$25	Vegas Craps	\$10	\$15
Gold Rush	\$20	\$25	Vegas Gambler	\$10	\$15
Manhunter – New York	\$15	\$20	<i>Britannica</i>		
Mixed Up Mother Goose	\$15	\$20	Gnarly Golf	\$7	\$9
Police Quest	\$20	\$25	Great Western Shootout	\$10	\$15
Space Quest I or II	\$20	\$25	Jigsaw!	\$10	\$15
Thexder	\$15	\$20	<i>FTL Software</i>		
<i>MicroIllusions</i>			Dungeon Master	\$20	\$25
Fire Power	\$20	\$20	<i>Casady & Greene</i>		
Accolade			Crystal Quest	\$20	\$20
Bubble Ghost	\$10	\$15	<i>JaDa Graphics</i>		
Hardball	\$10	\$15	Basic Paint	\$30	\$45
Jack Nicklaus' Golf	\$20	\$25	<i>Seven Hills Software</i>		
Mean 18 Golf	\$20	\$24	Express	\$26	\$26
Serve and Volley	\$15	\$20	SuperConvert	\$26	\$26
4th & Inches	\$15	\$20	Space Fox	\$30	\$30
<i>FTA</i>			<i>DreamWorld Software</i>		
Photonix II	\$15	\$20	DreamGrafix	\$69	\$69
Three Sixty Pacific			<i>Software Solutions</i>		
Warlock	\$10	\$15	Your Money Matters	\$79	\$79
Dark Castle	\$10	\$15			

Xenocide™



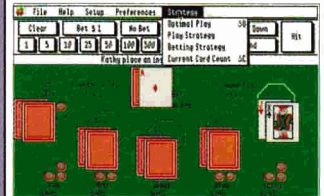
Xenocide™: An alien race has taken over a research outpost on a moon. Your job is to travel across the moon's surface in your hovercraft, then go into the underground caverns and locate five explosive devices. Next get to the Bio-lab and place the bombs in the nuclear reactors to destroy the moon and the aliens. **Order product number MR50 for only \$23.**

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Blackjack Academy™: The ultimate tutorial program for learning to play Blackjack, the most popular Vegas card game. It features a five player table, multiple table rules like in Las Vegas, Reno and Atlantic City and different play strategies. The program will teach you when the odds are in your favor. Are you good enough to bust the bank? **Order product number BR91 for \$20.**

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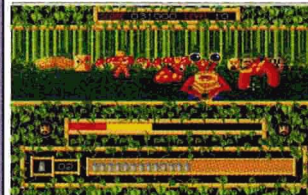
423 Norfolk Avenue, Norfolk, NE 68701

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The Gate™: Fight your way through a castle riddled with mazes to save a bewitched kingdom. Battle against ghosts, magicians, snakes and other evil monsters. You'll need to use your head to solve the puzzles and your agility to conquer the action. Nintendo type action for the IIGS. It earned InCider's Editors' Choice award. **Order product number SV71 for only \$30.**

Shareware Game 10-Pack



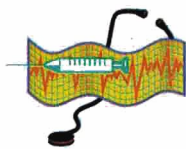
Shareware Game 10-Pack: Get ten 3.5" disks full of the greatest shareware & freeware games for the Apple IIGS including Milestones GS, Star Trek Classic, Bouncing Ferno, Columns, Floorlites, Cosmocade, Cribbage, Blackjack Tutor, Space Clusters and many others. Requires 1.25 Megs of memory and a joystick. **Order product number GP54 for only \$28.**

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The Immortal™: The best adventure game ever written for the IIGS. Venture into the dungeon and unravel the mysteries of the levels below. Fight against animated trolls and goblins. See the blood spray off the edge of your sword and hear the last groan of your enemy. Can you get past the whirlpool? **Product number EA82 is only \$30 for non-members or \$24 for members.**

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BY CYNTHIA E. FIELD, Ph.D.

NETWORK NEWS

I HAVE AN APPLE IIGS SYSTEM, A GCC Technologies **BLP Elite** laser printer, and an ImageWriter II. The laser printer operates over AppleTalk; the ImageWriter is a "direct connect" device. Is there any way to switch between my laser printer and the ImageWriter II without having to swap cables and reset the Control Panel?

David Holmes
Duncan, BC
Canada

I HAVE A MACINTOSH LC, AN Apple IIGS, an Apple Personal LaserWriter NTR, and an ImageWriter II with an AppleTalk-compatible controller — all connected with PhoneNet cabling. I can use either printer from the Mac, but I've been unsuccessful getting my GS to print. Should I install AppleShare on my GS? Which folder(s) should contain the ImageWriter and LaserWriter printer drivers?

Nordeana Nimphius
Delavan, WI

OUR SCHOOL NEWSPAPER OFFICE uses a Macintosh IIfx, a Mac Classic, and two Mac Classic IIs with Apple LaserWriter and Hewlett-Packard **Desk-Writer** printers. Can you suggest an under-\$400 network we could use to transfer files and share printers?

David Xu
San Francisco, CA

The quick answer for you, David Holmes, is to plug the ImageWriter into your IIGS' modem port (2), and set up Slot 2 on the Control Panel for a printer. Thereafter, simply select the printer you prefer from the Chooser, or print to Slot 2.

If both GS ports are already in use, or if you want to connect more devices — computers and printers — you should invest in a local-area network (LAN). In fact, all of you can best share your printers — and files — among Macs and Apple IIs over an AppleTalk network. Because Apple builds AppleTalk into all the latest Macs and the IIGS, networking is a snap and costs you only a few dollars for connectors and cables.

If you're looking for a short (really short!) course on AppleTalk networks, you've come to the right place. For a more-exhaustive treatment of the subject, be sure to read back issues of inCider/A+, particularly Gregg Keizer's Bridging the Gap columns, which help foster the peaceful coexistence of Macs and Apple IIs — specifically "Printer Polygamy," May 1991, p. 68; "Update: Printer Polygamy," August

1991, p. 25; "Tricks of the Trade," January 1992, p. 20; "Teamwork," August 1992, p. 18; and "Taming the Beast," November 1992, p. 20. You may also want to pick up a copy of the Apple LAN Primer, which contains self-paced instructions on how to configure and use AppleTalk and other networks.

In a nutshell, first make sure each device you want to connect in an AppleTalk network has a "LocalTalk" interface. (LocalTalk refers to the network's hardware; AppleTalk includes those connections and the enabling software.) Your Macs and IIGSes use the printer port for LocalTalk. As you already know, Nordeana, Apple's laser printers also have built-in LocalTalk interfaces, as do some third-party printers, including your HP DeskWriter, David Xu.

You can purchase optional LocalTalk interfaces from Apple for other devices, such as an **ImageWriter II/LQ LocalTalk Option Card** for your ImageWriter, David Holmes, or an **Apple II Workstation Card** for a IIe. A **Timbuktu PhoneNet Kit** (connectors included) from Farallon lets you connect a PC compatible to an AppleTalk network.

Unfortunately, you can't make all third-party printers "AppleTalk-ready" — be sure to check with the printer's dealer before you buy a unit that's destined for an AppleTalk network. And follow the manufacturer's instructions carefully to configure the LocalTalk interface properly. For instance, you have to reset the ImageWriter's DIP switches to enable AppleTalk.

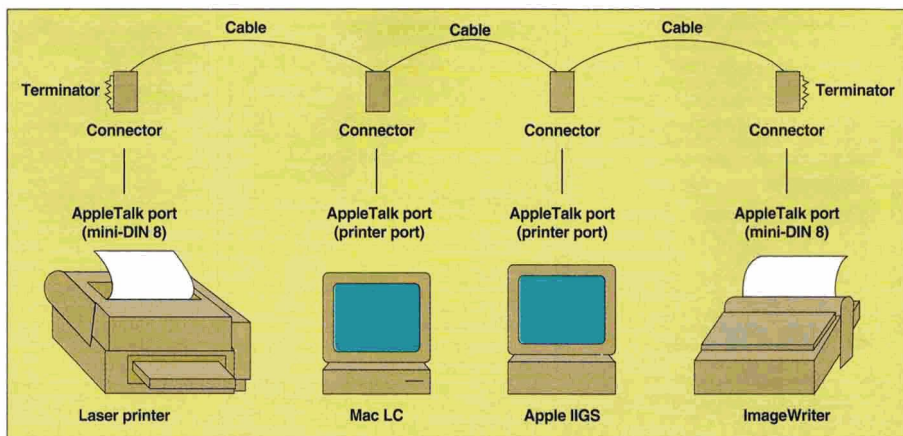


Figure. Sharing two printers on an Apple IIGS/Macintosh AppleTalk network.

Next, you need to purchase some LocalTalk connectors and run cabling to tie all the devices together. Apple sells the connectors and cables, but that's the more-expensive option. Instead, other companies, such as **Farallon, Hardware That Fits, and Maya Computer**, sell LocalTalk connectors that use standard four-wire telephone cable to tie devices together. Depending on the source, each connector costs about \$15 to \$20. Some manufacturers include the cable with the connectors.

For maximum flexibility in configuring your network wiring, head for your local Radio Shack or other electronics-supply outlet and buy a spool of four-wire telephone cable, standard RJ-11 four-conductor telephone connectors, a pair of wire strippers, and a modular-plug

crimping tool (to crimp those telephone connectors onto the ends of your cables). Or get precut lengths of telephone wire with connectors from the same sources.

The simplest LocalTalk network is linear: Each device (computer or printer) is daisy-chained to the next one in series; the order isn't important. Insert a terminating resistor (supplied with each LocalTalk connector) into the empty RJ-11 jack on the connector attached to the first and last devices in the network chain. (Apple's LocalTalk connectors don't need terminators.) How far can your network extend? The **Hyper-Net RJ-11 Network Connectors** we use support as many as 32 LocalTalk devices located along 3000 network feet. Once you've run wires between connectors, plug those LocalTalk connectors into each printer, into the PC's Timbuktu PhoneNet or the IIe Workstation Card, and into the printer port of your Mac or IIGs.

Next, if you haven't done so already, install the appropriate AppleTalk and printer device-driver software in your Mac, GS, PC, and/or IIe from the appropriate system Installer. For example, with the System 6 Installer program found on your GS/OS Install Disk, click on the Customize button, then select to install AppleTalk and the AppleTalk options for each of your printers. The Installer puts the needed device drivers into the GS/OS System/Drivers folder. Similarly, install the proper Mac printer drivers in the Mac's System folder.

You're nearly there. Finally, enable AppleTalk on each of the computers on the network. On the GS (ROM 01 systems), set Slot 1 in the Control Panel to Your Card and Slot 7 to Built-In AppleTalk. On the Mac you activate/inactivate AppleTalk from the Chooser. Thereafter, just select the printer you prefer from the Chooser.

For David Holmes, an AppleTalk setup will cost about \$150 because you'll need to invest in an ImageWriter II/LQ LocalTalk Option Card. Nordeana, your network probably looks something like the accompanying **Figure**, at a cost of less than \$200. The arrangement David Xu could use may be only slightly more complicated, because of the two additional computers in the newspaper office. The connector/cable assemblies you need should set you back no more than \$100 — well within your \$400 budget.

Beyond printer sharing, there's also an added benefit to an AppleTalk network: file and application sharing. By installing AppleShare on each of your computers, you can gain access to other computers and their disk drives — but that's a story for another Clinic.

BYOD

TO MAKE MY APPLE IIGs MORE useful, I'd like to attach a 40-mega-byte Quantum ProDrive LPS hard drive that was removed recently from a Macintosh IIsi. I'd like to install the hard drive in a case outside the GS. I know I need to buy an Apple II High-Speed SCSI Card, but what other components do I need?

Charles R. Gundersen
Poulsbo, WA

For hands-on types like you, Charles, Sun Remarketing sells the **BYOD (Build Your Own Drive) SCSI Kit**, including case, power supply, fan, and switch. Jan Quayle, a Sun Remarketing salesperson, says the case accommodates drives up to half-height in size (5.75 by 4 by 1.5 inches). She suspects your drive may be smaller than that, so you'll need to purchase appropriate mounting brackets elsewhere. Try the folks at **Jameco Electronic Components**; they sell mounting plates, bezels (to fill empty space), and rails.

Unless your Quantum drive is internally terminated (check the manual if you have one, or ask a local Apple dealer), you'll need a \$19 **SCSI terminator**.

Because the drive is currently formatted with Macintosh system software, you'll also have to reformat the unit before using it with your GS. Formatting software is included with the **Apple II High-Speed SCSI Card**.

Sun Remarketing can provide the final link: a **SCSI cable** (\$19) to connect this do-it-yourself drive to the GS.

NETWORK PRODUCTS

Apple II Workstation Card

Part No. A1047, \$195

Apple LAN Primer

Part No. A1055, \$100

ImageWriter II/LQ LocalTalk Option

Part No. A980314, \$119

LocalTalk Locking Cable Kits

Part No. M2066, \$65 10 meters

Part No. M2069, \$105 25 meters

LocalTalk Locking Connector Kit DIN-8

Part No. M2065, \$65

The Apple Catalog

1 Apple Plaza

P.O. Box 9001

Clearwater, FL 34618-9001

(800) 795-1000

(302) 678-9200 fax

BLP Elite

GCC Technologies

209 Burlington Road

P.O. Box 9143

Bedford, MA 01730-9143

(800) 422-7777

\$1299

DeskWriter

Hewlett-Packard Co.

19310 Pruneridge Ave.

Cupertino, CA 95014

(800) 752-0900

\$599

Hyper-Net RJ-11 Network Connector

Hardware That Fits

610 South Frazier

Conroe, TX 77301

(409) 760-2400

\$27

Maya Computer 2.0

Bridge St. Marketplace

Box 1239

Waitsfield, VT 05673

(800) 998-0092

(802) 496-6596

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(800) 795-1000

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\$105

BYOD SCSI Kit, \$99

SCSI Cable, \$19

SCSI Terminator, \$19

Sun Remarketing

P.O. Box 4059

Logan, UT 84323

(800) 821-3221

(801) 755-3311 fax

Jameco Electronic Components

1355 Shoreway Road

Belmont, CA 94002

(800) 831-4242

(415) 592-8097

(800) 237-6948 fax

UDDERLY POSSIBLE

WE'RE USING APPLE IIes DATING back to 1984 as data-acquisition systems to monitor artificial-heart experiments. Over the years most of the utility software we currently own, as well as the source listings for our programs, have been destroyed, lost, or eaten by the cows in which we install the artificial hearts. We need to modify our software. Can you suggest a good assembler/disassembler so that we can reconstruct the source code?

Also, we have the utility program **Copy II Plus**, but it needs at least an enhanced IIe. Can we install the IIe enhancement kit (with its 65C02 processor and new ROMs) without affecting our assembly-language programs adversely?

Pat Thomson
Artificial Heart Lab
University of Utah
Salt Lake City, UT

According to a spokesman at Roger Wagner Publishing, assembly-language programs run just as well after you install the four chips of the **Apple IIe Enhancement Kit** as before. Depending on the motherboards in your IIes, however, you may also need the **Apple IIe Revision A to Revision B Logic Board Upgrade**. It's free from your local Apple dealer. See "Free Lunch," Apple Clinic, December 1992, p. 17, for details.

Roger Wagner Publishing's **Merlin 8/16** software may meet your assembly-language programming needs. The package includes four assemblers, among them 8-bit ProDOS 8 and 8-bit DOS 3.3 versions, as well as a disassembler.

IIe UPGRADES

Apple IIe Enhancement Kit

Part No. A2M2052
The Apple Catalog
1 Apple Plaza
P.O. Box 9001
Clearwater, FL 34618-9001
(800) 795-1000
(302) 678-9200 fax
\$49

Copy II Plus

Central Point Software
15220 NW Greenbrier Parkway
Beaverton, OR 97006-5764
(503) 690-8080 tech support
\$49.95, \$15 upgrade 5.25" or 3.5" disk,
\$20 upgrade 5.25" and 3.5" disks

Merlin 8/16

Roger Wagner Publishing
1050 Pioneer Way
El Cajon, CA 92020
(619) 442-0522
\$124.95

WHO YA GONNA CALL?

I'VE RECENTLY UPGRADED MY Apple IIgs to System 6.0. Now I need to update my copy of the *Apple IIgs Toolbox Reference* to reflect GS/OS' new features. How can I contact the Apple Programmers and Developers Association (APDA) to update my manuals?

David Meyer
Bloomington, IN

For more than a year now, David, Resource Central has handled all APDA products, including the three-volume **Apple IIgs Toolbox Reference**. But Resource Central's Tom Weishaar says that what you probably need is The Byte Works' **Programmers' Reference for System 6**. This book contains all the information you need about the Apple IIgs Toolbox and GS/OS, including System 6.

TOOLBOX RESOURCES

Apple IIgs Toolbox Reference Volumes 1 and 2,

\$26.95 each
Apple IIgs Toolbox Reference Volume 3, \$39.95
GS/OS System 6
\$39 with manuals
Programmers' Reference for System 6, \$45
Resource Central
P.O. Box 11250
Overland Park, KS 66207
(913) 469-6502

The Byte Works, Inc.
4700 Irving Blvd. NW
Suite 207
Albuquerque, NM 87114
(505) 898-8183

THE WRITE STUFF

I USE APPLEWORKS 1.1 FOR WORD processing on my Apple IIc. Are there any spelling- or grammar-checker programs that work with AppleWorks?

Darryl Matter
Portis, KS

Two Apple II grammar checkers come to mind, Darryl. **Sensible Grammar** — an Apple II family classic — is a stand-alone program. It analyzes ProDOS word-processing files created with programs such as AppleWorks. To grammar-check a document, you must first "print to disk" or save the text in ASCII format. The, start up Sensible Grammar and load that text file. According to a Quality Computers spokesman, you can make some of the recommended editorial improvements from within Sensible Grammar itself. For more-extensive

changes you need to re-open the file in your word-processing program.

TimeOut Grammar, a much newer Apple II product also marketed by Quality Computers, works within AppleWorks. That means you don't have to shuttle files back and forth between a word processor and a grammar checker. Time-Out Grammar requires **AppleWorks 3.0**, which includes the spell checker you want. You can order an AppleWorks 3.0 upgrade through Claris Corporation.

CHECKING UP

AppleWorks 3.0

Claris Corporation
5201 Patrick Henry Drive
Santa Clara, CA 95052-8168
(408) 727-8227
\$249
\$79 upgrade

Sensible Grammar, \$49.95

TimeOut Grammar, \$49.95

Quality Computers
20200 East Nine Mile Road
St. Clair Shores, MI 48080-0665
(800) 777-3642
(313) 774-7200
(313) 774-2698 fax

DISAPPEARING ACT? (NOT!)

THE 40-MEGABYTE CHINOOK Technology hard drive that's attached to my IIc is on its last legs. Although the drive hasn't crashed recently, I don't trust it. Is Chinook still around? How can I contact the company?

Ron Sullivan
Newport News, VA

Sequential Systems has acquired the Chinook Technology product line, Ron. According to Joseph Yandrofski, company president, Sequential Systems sells and supports Chinook drives and honors all warranties.

CHINOOK SUPPORT

Sequential Systems, Inc.

1200 Diamond Circle
Lafayette, CO 80026
(800) 999-1717
(303) 666-4549
(303) 665-0933 fax

BLAST FROM THE PAST

A FRIEND GAVE ME A DC HAYES Micromodem IIe. Where can I get an instruction manual?

James Taylor
Shaw Air Force Base
Sumter, SC

A customer-service representative at **Hayes Microcomputer Products** says you can purchase a copy of the Micromodem IIe manual for \$99. But don't get out your checkbook yet, James. For one thing, the Micromodem IIe runs at a snailish 300 baud — a rate that's way too slow for today's telecommunications needs. Unless you're just going to log onto local BBSes (bulletin-board systems), you're better off investing in a newer, faster (2400-baud plus) Hayes-compatible modem. You say you already have a Super Serial Card, so you should consider purchasing an external modem, which you can connect physically to another computer when it's time to upgrade from the Apple IIe.

MODEM RESOURCES

Hayes Microcomputer Products
5953 Peachtree Industrial Blvd.
P.O. Box 105203
Norcross, GA 30092
(404) 441-1617 customer support

THANKS FOR THE MEMORY

WILLIAM L. DUNHAM OF BOYNE Falls, Michigan, tells us he experienced several annoying problems with his **StyleWriter** printer until he increased his GS' memory from 2 megabytes to 3 megabytes. Among other things, the StyleWriter now prints **Pyware Music Writer** scores correctly and handles larger (20-point plus) **AppleWorks GS** text, as well. If you've experienced similar problems with the StyleWriter, William's tip may help.

PRINT SOLUTIONS

AppleWorks GS 1.1
Clarix Corporation
5201 Patrick Henry Drive
Santa Clara, CA 95052-8168
(408) 727-8227
\$299

Pyware Music Writer
Pygraphics Corporation
P.O. Box 639
125 East Worth
Grapevine, TX 76051
(817) 481-7536
\$119/\$295/\$595

StyleWriter,
unavailable for ordering
StyleWriter II, \$360
Apple Computer Inc.
20525 Mariani Ave.
Cupertino, CA 95014
(408) 996-1010

WRITE TO APPLE CLINIC, *INCIDER/A+*, 80 ELM ST., PETERBOROUGH, NH 03458, AND ENCLOSE AN SASE. BECAUSE OF THE VOLUME OF LETTERS, HOWEVER, WE'RE UNABLE TO RESPOND TO ALL QUESTIONS INDIVIDUALLY.

PICTURE PERFECT

✓ If you're connected to **Internet**, either directly or through a mail gateway, you already have the ability to send electronic-mail messages around the world. But did you know you can also send Apple II programs and files via Internet e-mail?

To do so, first compress your program or file with Andy Nicholas' freeware utility **ShrinkIt**. Then process the compressed file through David Whitney's freeware utility **BinSCII 1.0.3**. In a message posted on Usenet's [comp.sys.apple2](mailto:comp.sys.apple2@newsgroup) newsgroup, Todd Whitesel describes BinSCII as "a program for the Apple II series that encodes and decodes Apple ProDOS files to allow convenient and error-free transmission over computer networks. BinSCII is the functional equivalent of UNIX's `encode/decode` utilities, as it allows any local file to be transferred via mail in a format that consists entirely of printable text, including the file's local attributes, so that the file may be re-created perfectly on the destination system."

Once you've transmitted the file via e-mail, the recipient must process it first through BinSCII and then through ShrinkIt. The resulting file, extracted and decompressed, will be an exact duplicate of the original.

ShrinkIt is available via modem from any Apple II-oriented BBS or on-line network. BinSCII may be a little harder to locate; if you're having difficulty finding it, send a request to Joe Kohn at 76702.565@compuserve.com and by return e-mail you'll receive a 15K file that includes an executable version of BinSCII, along with Todd Whitesel's complete instructions describing how and when to use it.

PRINT SHOP UPDATE?

✓ The biggest stumbling block for Apple II owners who have purchased a Hewlett-Packard **DeskJet** or **LaserJet** printer is that they can't use it with Broderbund's popular desktop-publishing programs **Print Shop**, **New Print Shop**, and **Print Shop GS**. Although Broderbund offers an update that includes HP printer drivers for the IBM versions of Print Shop, the company says it currently has no plans to do so for the Apple II versions. If you'd be interested in purchasing a Print Shop update that would work with HP

printers, write to the folks at Broderbund and tell them so. If enough of us respond, maybe they'll reconsider. Send your requests to Broderbund Software, attn: Product Manager/Apple II Print Shop, P.O. Box 6125, Novato, CA 94948-6125.

TIME OUT

✓ If you have a **TimeOut UltraMacros**-enhanced version of AppleWorks Classic, press the open-apple, shift, and comma keys simultaneously, and you'll see an important "Easter egg" message displayed in the lower right-hand portion of your screen.

✓ Randy Brandt, creator of UltraMacros (published originally by Beagle Bros, now marketed by Quality Computers), has released a significant update, **Ultras 4.1**, through his own company, JEM Software, 7578 Lamar Court, Arvada, CO 80003, (303) 422-4856. The program provides numerous new enhancements and features, more than 100 new commands, task-file caching, ten times the variables, an enhanced **Find** command, and user-defined labels.

Ultras 4.1 runs on any IIgs, IIc, or enhanced IIe with at least 256K of RAM. It requires **AppleWorks 3.0** and **TimeOut UltraMacros 3.1**. Retail price is \$60. As a special offer to *inCider/A+* readers, mention *Grapevine* when you place your order and get Ultras 4.1 for \$47 plus \$3 shipping.

Brandt offers ongoing technical support for Ultras 4.1 on GEnie's **A2** area in **category 13, topic 16**. In addition, *inCider/A+* contributor Will Nelken is offering an on-line tutorial for Ultras on GEnie's **A2Pro** area. If you have access to the **A2Pro** library, download file #2939 for an overview, and file #2940 for the first lesson. For those of you who don't own a modem or don't subscribe to GEnie, Nelken has published a 100-page book, titled **ULTRA — to the Max!** It includes all the Ultras 4.1 lessons, tutorials, hints, and tips, plus a disk of sample macros. The book/disk combination sells for \$24.95 from Marin MacroWorks, 1675 Grand Avenue, San Rafael, CA 94901.

CONTACT JOE KOHN AT **JOKO** (AMERICA ONLINE), 76702.565@compuserve.com, **J.KOHN** (GENIE), 76702.565@compuserve.com (INTERNET), OR joko@aol.com (INTERNET).

REVIEWS

★ ★ ★ ★ ★
POOR GOOD GREAT

OUT OF THIS WORLD

It's beautiful, it's haunting,
it's a whole new digital universe.

The next generation of GS game software has arrived, and it's Out of This World. Created by French developers Delphine Software and ported to the GS from the Super Nintendo version by Bill Heineman, Out of This World is filled with level after level of ominous yet dazzling animated graphics and eerie digitized music and sound effects. There's never been a computer game quite like it before; playing Out of This World is like being thrust into someone's interactive paranoid nightmare. This one's in a class by itself, blending

successfully the best elements of strategy games and fast-action outer-space shoot-'em-ups. The sheer beauty of its murky and mysterious scenarios makes it a marvel to look at and an experience to play.

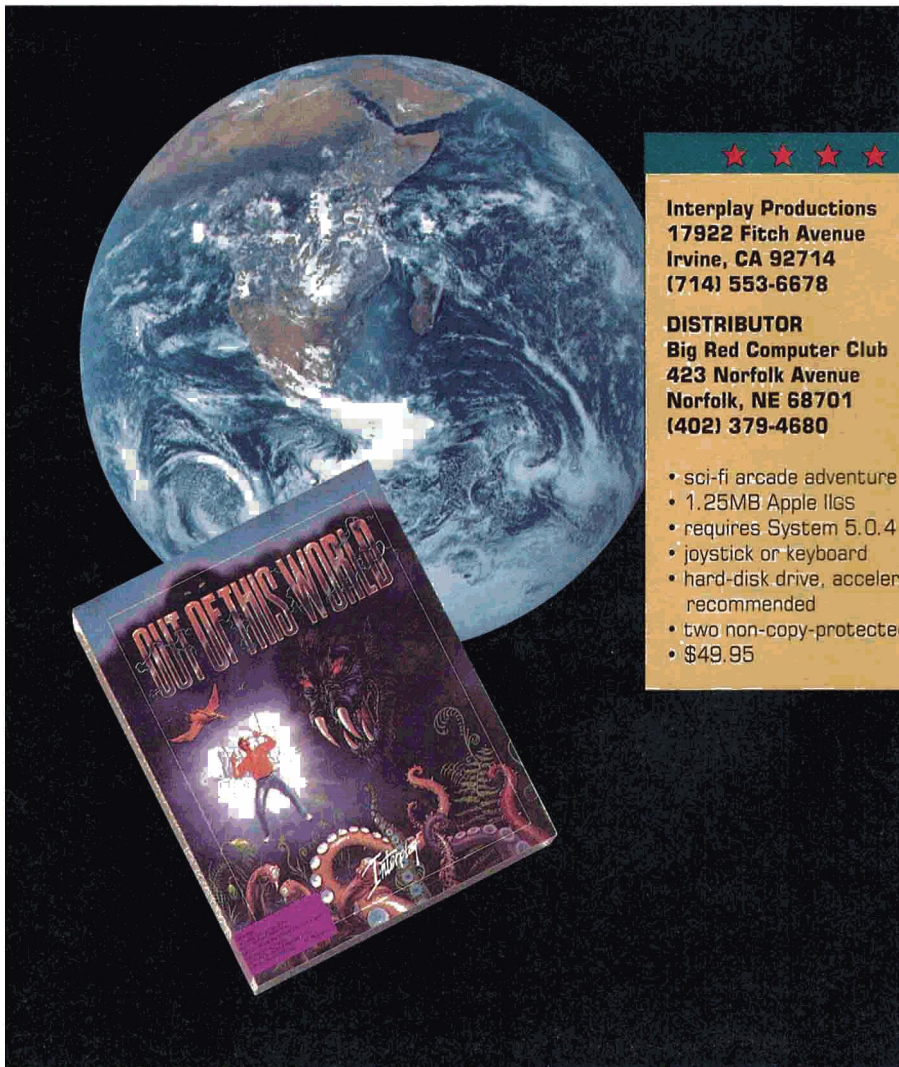
THEY'RE BACK . . .

Out of This World contains 15 perilous levels of super-hi-res fun and nerve-racking excitement. You'll watch in amazement and horror as your latest particle-accelerator experiment goes awry. Struck by a lightning bolt that causes a massive explosion, you'll be transported out of this world into a beautiful yet dangerous universe, a world where wild beasts stalk you and death awaits around every corner — a world filled with deadly earthquakes, killer slugs, voracious wild beasts, carnivorous vines, and sadistic, trigger-happy guards whose sole purpose is to put you out of your misery.

You'll soon be swimming, crawling, running, kicking, swinging, and shooting at an unrelentless adversary that grunts in an incomprehensible alien tongue. Along the way to fast-action arcade adventure, you'll find yourself traversing rock-filled caverns and leaping bottomless chasms, shooting everything that moves, running and ducking alien-fired lasers.

You'll die a thousand deaths, but you'll learn from your mistakes. You'll find yourself inside prison cages and war machines, escaping from alien arenas and harems, falling and crawling through underground passages. You'll make friends with an alien fellow prisoner who will ultimately save you from your hellish environment, *if* you're persistent and lucky.

You'll learn how to avoid fatal situations, and you'll become an expert on alien weaponry. Out of This World is nothing if not challenging, and there's no room for hesitation or error.



Interplay Productions
17922 Fitch Avenue
Irvine, CA 92714
(714) 553-6678

DISTRIBUTOR
Big Red Computer Club
423 Norfolk Avenue
Norfolk, NE 68701
(402) 379-4680

- sci-fi arcade adventure
- 1.25MB Apple IIGS
- requires System 5.0.4 or later
- joystick or keyboard
- hard-disk drive, accelerator recommended
- two non-copy-protected disks
- \$49.95

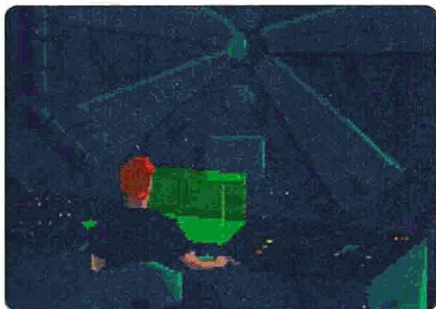
Cinematic themes are evident throughout the game, from the configuration menu that lets you play in 16mm full-screen mode or half-screen TV resolution, to the closing scene, which depicts you flying off into the sunset. State-of-the-art, real-time polygonal graphics and rotoscoped animation make you wonder whether you're playing a computer game or watching a multimillion dollar Hollywood sci-fi epic. From the opening notes of the Pink Floyd-style soundtrack to the closing *Star Wars*-type scrolling credits, you're surrounded by a high-tech masterpiece that redefines for all time the status of GS gaming.

HOOKED ON THE CHALLENGE

No doubt about it, *Out of This World* is hard to play. The manual is purposefully vague — figuring out the sequence of moves that will let you escape your worst nightmare is where the fun and challenge lie. Timing's critical; one misstep or missed shot may result in instant annihilation. Whenever you die, the game lets you restart on the last level played — but even though you've overcome the same perils before, you may have difficulty duplicating those exact moves the next time. No one ever said that fighting for your life was easy.

Out of This World may be the best game ever released for the Apple IIGS. Its mass appeal will have both teenagers and adults coming back night after night, month after month. The only problem is that once you've played it, all your other computer games will seem low-tech and obsolete. Good thing Interplay has plans for a sequel to this *Out of This World* experience.

Joe Kohn
San Rafael, CA



Out of This World: You'll die a thousand deaths, but you'll keep coming back for more.

Getting the most from your Apple IIGS sometimes demands a little extra — in terms of both time and money. Take the problem of data storage, for example. If you're running out of disk space, file-compression software can help you squeeze more into every kilobyte. That extra room doesn't come without a price, though — you'll have to wait for compressed files to unpack and launch. Is it worth it to install still another utility? This one's worth it — AutoArk is one solution that packs a wallop.

THE BASICS

AutoArk installs as part of the Apple IIGS operating system, putting a new menu on your Finder and space-saving utilities at your fingertips. It consists of a GS/OS INIT and a system extension that activate when you boot your GS. The program requires a minimum of 1 megabyte of RAM, Finder 6.0, and GS/OS 6.0; it won't work with earlier Apple IIGS operating systems.

When you boot up with AutoArk, the Finder's *Extras* menu is activated with five new items (*Compress*, *Encrypt*, *Expand*, *Archive Info*, and *Configure AutoArk*); two new selections appear under the *Apple* menu (*AA Compress File* and *AA Expand File*). So what can you do with all these wonderful new system modifications?

Selecting files from a hard or floppy drive and choosing *Compress* from the *Extras* menu will start compression and

display a dialog box listing the pertinent file(s), compression percentage, and number of bytes saved. A nifty document "thermometer" shows graphically how compression is proceeding.

The *Expand* menu selection activates decompression and a similar dialog box. *Encrypt* lets you add password security before compressing a file. Choosing a file and selecting *Archive Info* brings up a dialog box displaying filename, original type, original and archived size, creation and modification dates, and the file's encryption status.

Choosing *Configure AutoArk* produces a dialog box from which you can customize the way the program works, including enabling and disabling the AutoArk selections in the *Extras* menu, creating a temporary compressed file, verifying compressed and expanded data, and displaying compression and expansion dialogs.

The AutoArk configuration dialog box includes two additional selections: *Key Equivalents*, which lets you set keyboard shortcuts for AutoArk's *Extras* menu items, and *Assign Compressors*, which gives you a list of application types with default compressors assigned. You can assign each application type a specific compressor from a list that includes *Run Length*, *UM/LZW*, *Huffman/Adaptive*, *Huffman/816*, and *Huffman/ASCII* — industry-standard compression schemes. Econ recommends UM/LZW compression for most applications.

AA Compress File and *AA Expand File*, installed on the *Apple* menu, let you select files to compress or expand from a dialog box. You can work from within an application, which saves you the trouble of navigating through your hard-drive and folder icons to find the files you want.

Files compressed with AutoArk are displayed on the Finder desktop as AutoArk icons with archive filetypes. In the file dialog of a desktop application like AppleWorks GS, however, compressed files appear with their native filetypes and names. AutoArk lets you run compressed files by double-clicking on a compressed-data or application-file icon. This unpacks the file and then (in the case of a data file) launches the application that created it. The process is surprisingly fast. AutoArk is a GS "desktop"

	LZW/TEXT	LZW/SHR	HUFF/TEXT	HUFF/SHR
accelerated compression time	27 seconds	5 seconds	44 seconds	8 seconds
unaccelerated compression time	50 seconds	10 seconds	98 seconds	15 seconds
compressed file size	91K	3K to 7K	100K	11K
compression %	44%	79% to 91%	39%	67%
accelerated expansion time	19 seconds	4 seconds	40 seconds	5 seconds
unaccelerated expansion time	38 seconds	8 seconds	85 seconds	7 seconds
expanded file size	164K	33K	164K	33K

Table. AutoArk compression/decompression times. LZW/TEXT= LZW compression mode/text file; LZW/SHR = LZW compression mode/640-by-200 single-hi-res graphics screen dump; HUFF/TEXT= Huffman/Adaptive compression mode/text file; HUFF/SHR = Huffman/Adaptive compression mode/640-by-200 single-hi-res graphics screen dump.

application, so you'll have to unpack files created by text-based applications such as AppleWorks Classic before you can use them.

ROOM AT THE TOP

Compressing and expanding files on your hard drive creates the potential for file corruption in the case of a power outage or system reset midway through a job. To guard against data loss, AutoArk lets you create temporary files for each compression or decompression (*Configure AutoArk* menu), which it deletes upon successful completion of the job. Choosing *Data Verification* from the *Configure AutoArk* menu ensures that the original and final data files match before the original is deleted, an additional safety feature. Selecting these options adds to file compression/decompression time, though, and requires disk space for temporary files.

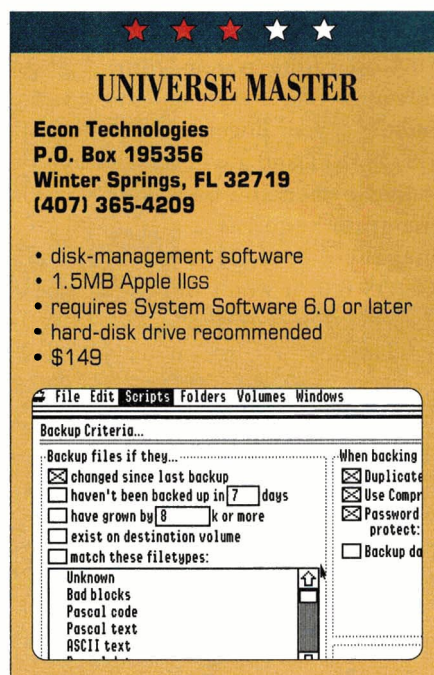
Adding new extensions to a loaded GS/OS system carries the potential for disastrous conflicts all on its own, as well. I tried to "break" AutoArk by running it on a system loaded with other extensions; the program ran with no problems. That doesn't guarantee that AutoArk won't cause problems with your particular system, but it's some indication that the program is fairly compatible.

To gauge AutoArk's performance, I ran it accelerated and unaccelerated, and used UM/LZW and Huffman/Adaptive compression to evaluate different compression techniques on a variety of single-hi-res 640-by-200 graphics screen dumps and a 164K text file. Compression times (even unaccelerated)

and the degree of compression were impressive. (See the accompanying **Table**, above.)

The extras are all here, too. Many of the program's configuration options and special features aren't offered anywhere else. Menus are well designed; the documentation is comprehensive, with a number of useful "screen shots" showing program menus and dialog boxes. An on-disk help file provides last-minute information on AutoArk's compression options and update plans. If you need to get more productivity from your Apple IIGS, AutoArk is a worthwhile addition to your system.

Garry Howard
Vancouver, BC
Canada



The Apple IIGS is the last personal computer for which a hard-disk drive was considered (until recently) just a peripheral; 40 megabytes of space for data and programs is what even inexpensive PCs and Apple's lean PowerBooks start with. Because the hard disk came late to the GS, the machine's Finder software doesn't manage the hardware as well as it might.

Universe Master fills that gap. It can recover files you damaged or deleted by mistake; it can repair disks, create backup copies of valuable files, and even keep the files on your hard drive tidy for optimum performance. But Universe Master's greatest strength isn't what it does, but how it does it: Its user interface is easy to understand and operate.

That's especially important when it comes to backing up data files. Keeping separate copies of data is something every computer user should do, but most don't, because it's too much trouble: You have to find the files you want to back up, check to see whether they've changed since the last backup, copy them, perhaps even compress them. Universe Master offers a solution: It writes a "script" containing step-by-step instructions the software will follow, detailing the files you want to copy, where you want to keep the copies, and when you want them. Each script you write is a Universe Master file — you can keep your scripts on the Finder desktop and simply double-click on a script each time you want to back up. You can even "chain" scripts together to perform all your backups at once, or to make changes to a script you wrote earlier.

It's fast, too. Backing up a folder containing everything I wrote for *inCider/A+* in a year — about 100 AppleWorks files, each 10K to 20K in size — took only 30 seconds. And it's painless: Just make it a habit to run your script at the end of each workday as you shut down your GS.

But even taking Universe Master's simple interface into account, the business of backing up calls for a certain level of hard-drive organization if you're going to avoid disaster. Organization is something software can't do for you — yet — but Universe Master's excellent documentation offers a straightforward

guide to keeping your files in order. It's important to understand, for instance, that Universe Master isn't designed to back up whole volumes, such as your entire hard drive, at a time, but instead keeps copies of files associated with your current work.

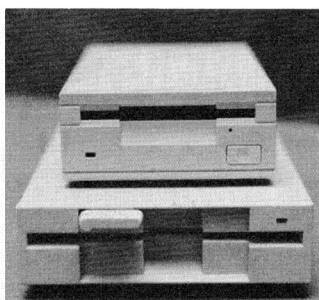
Universe Master includes a wealth of additional features: password protection, printed tree catalogs, file-attribute modification, file copying and deletion. Universe Master also works with Econ's AutoArk (reviewed on p. 21), using the same file-compression routines. If you're using AutoArk to archive the files on your GS' hard drive, it makes sense to use Universe Master as your file-management program. (If you're using a program such as Apple's System 6 Archiver or WestCode's Hard-Pressed, Universe Master can't expand or compress your archived files.)

I was less impressed with some of Universe Master's other features. Its file-recovery program, for example, was unable to return my deleted AppleWorks Classic files to a usable form, and my luck was no better with AppleWorks GS documents. Universe Master does include a block editor, which you can use to recover files manually by restoring header information, as you do with ProSel, but I expected more from a program that backs up data so effortlessly.

Let's hope an improved file-recovery function is in the works for a future version of Universe Master. There's every reason to believe it is; Econ has offered two free upgrades to registered users since version 1.0. The next version promises to offer backups of entire volumes onto a number of floppies and better optimization of hard-drive space. (The program currently offers only the ability to "zero out" unused blocks.)

If you have a hard disk, all your valuable data is probably in one place. When I switched from using floppies, which distributed my data over many disks, to a hard drive, it took a hard-disk crash to convince me of the necessity of backing up. Don't take that chance — if you're looking for a simple way to ease your disk-management chores, Universe Master is a great choice, and a program that also holds a lot of promise for the future.

Paul Statt
Senior Editor, inCider/A+



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256K . . . \$115.00 \$89.00 \$99.00	IIc \$49.00	
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SUPER SERIAL CARD	SUPER SERIAL CARD	
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Graphics Printer Card w/Cable	For Apple II+ & IIe	
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Parallel Text Only \$36.95	CPM Card \$36.95	
CPM Card \$36.95	IIe Numeric Keypad \$34.95	
IIe Numeric Keypad \$34.95	IIc Numeric Keypad \$39.95	
IIc Numeric Keypad \$39.95	II+ OWNERS	
II+ OWNERS	16K Card \$36.95	
16K Card \$36.95	128K Card \$64.95	
128K Card \$64.95	80 Column Card \$49.95	
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	DB 25 A/B \$24.95	
	DB 25 A/B/C/D \$34.95	
	Parallel A/B \$24.95	
	Parallel A/B/C/D \$34.95	

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THE HOLZBERG REPORT

APPLE II



MUST BUY!



FORGET IT



WORTH A SECOND LOOK



CROSSCOUNTRY CALIFORNIA

Didatech Software
4250 Dawson St.
Suite 200
Burnaby, BC V5C 4B1
Canada
(800) 665-0667, (604) 299-4435

- new geography simulation
- 128K Apple II
- color monitor recommended
- hard disk installable
- \$77

"California Dreaming" becomes reality as kids take to the highway in Didatech's new interactive geography simulation. Students work as truck drivers, delivering payloads of commodities. Challengers determine the best routes to travel; the goal is to reach a target destination in the shortest time with the lowest expenses, while avoiding traffic violations and accidents. This fast-action simulation motivates youngsters to improve map skills as they learn the political, economic, and physical geography of California.



FOOD FRIENDS NUTRITION PROGRAM

CoNi Corporation
5839 Abbott St.
Fort Wayne, IN 46816
(219) 447-2337

- new nutrition-education program
- 64K Apple II
- \$29.95
- \$39.95 with Activity Book

If you still think of ketchup and relish as vegetables, take a look at Food Friends. Six game-style activities use colorful animated graphics and sound effects to teach kids aged 4 to 7 how to recognize the four basic food groups and plan balanced meals. Although you can't exit an activity in midstream or erase typing errors, Food Friends is both entertaining and informative. Note that the program requires adult supervision, though, because it involves reading and constant disk swapping. An optional Activity Book provides lesson plans and suggestions for additional pursuits.



FREEDOM!

MECC
6160 Summit Drive North
Minneapolis, MN 55430-4003
(800) 685-MECC, (612) 569-1500

- new history simulation
- 128K Apple II
- \$59

It's not easy teaching children about the horrors of slavery. MECC's new simulation of the Underground Railroad simplifies that task by giving youngsters in grades 5 through 9 an electronic taste of what life was like for enslaved African Americans trying to escape to freedom. The action takes place in 1830 in the slave states of Delaware, Maryland, and Virginia. Escaping slaves travel through hill country, mountains, and swampland, with game experiences based on historical fact. Players learn to follow the stars, forage for food, and survive by their wits. The goal of the simulation is to reach freedom before personal indicators (nourishment, stamina, health, and injury) lead to capture or death. Games include four levels of difficulty; those who succeed become Freedom Achievers in the program's hall of fame. Freedom! is an excellent simulation because it personalizes the slavery experience in a way textbooks can't.



GATE

**Seven Hills Software/
Big Red Computer Club**
423 Norfolk Ave.
Norfolk, NE 68701
(402) 379-4680

- new adventure game
- 1MB Apple IIGS
- requires one 3.5" drive
- two disk drives recommended
- not hard-disk compatible.
- \$30

All work and no play makes for a very unhappy day. That's why computer games were invented — you can escape to faraway lands and distant times without ever leaving home. In Gate, each player becomes a warrior with a mission: Your goal is to escape from prison, find Darg the evil Firemaster, and beat him in a duel to the death, thus restoring peace to the troubled land of Divesia. As you travel through the castle, you collect special objects, weapons, and money for all those

supplies you'll need. You'll encounter daunting obstacles, challenging puzzles, and any number of castle rooms you'll want to explore. But beware — if your health indicator hits zero, the game ends. Gate plays like Nintendo's Legend of Zelda on steroids, with colorful animated graphics, lively music, and realistic sound effects. Not every program has to be educational, but if you're a purist, take heart: You can boost your foreign-language skills by playing this action-packed adventure game in French instead of English.



GRAPHS, CHARTS, AND TABLES IN THE SCIENCES

Educational Activities, Inc.
P.O. Box 392
Freeport, NY 11520
(800) 645-3739, (516)223-4666

- new graph package
- 48K Apple II
- \$119

This solid, self-paced tutorial introduces students to the value of representing numerical data in pictorial format. Part 1 offers an interactive discussion of five kinds of graphs and charts: pictographs, horizontal and vertical bar graphs, line graphs, and circle graphs (pie charts). Part 2 requires students to read information from graphs, then answer questions. (Graph data comes from life science, earth/space science, and physical science.) In Part 3, students convert tables of values to bar, line, or circle graphs. All three activities provide immediate feedback, with questions tailored to student responses. Four reproducible print worksheets reinforce concepts.



READING STRATEGIES

Hartley Courseware, Inc.
133 Bridge St.
Dimondale, MI 48821
(800) 247-1380, (517) 646-6458

- new reading-comprehension program
- 128K Apple II
- \$69.95 single level
- \$240 levels 2 through 5
- classroom pack 2 – 5 \$189.95 each

Activities in this package teach students (grades 2 to 5) to read for details. The program emphasizes

"location" strategy, a technique that helps kids look for clues that answer questions. Students read a high-interest, non-fiction story, then answer multiple-choice questions. They receive visual reinforcement for correct answers; if readers answer incorrectly, they can return to the story or ask the computer for help. Each Reading Strategies package contains ten stories. Readers learn to identify a story's most important words, look for text containing those words, read target words in sentence context, and determine whether a sentence with those words helps answer a question. Activities are also suitable for youngsters who need remedial reading practice.

ROCKET FACTORY

MECC
6160 Summit Drive North
Minneapolis, MN 55430-4003
(800) 685-MECC, (612) 569-1500

- new physical-science package
- 128K Apple II
- \$59

You don't have to be a rocket scientist to build model rockets. In this new two-part simulation from MECC, children in grades 3 through 6 learn about force and motion as they construct and launch several types of rockets. In Rocket Factory, the first activity, youngsters design a variety of rockets to see how high their machines can fly. Experimenting with different nose cones, fins, engines, and payloads, they determine how size, shape, and weight affect flight patterns. An on-line chart keeps track of all launch data. In Cloud Chasers, the program's second activity, children use information learned in part 1 to construct a rocket that reaches a smoke-trail target. Successful launches earn points; high scores depend on the size of the rocket's payload on impact. Management options let teachers configure the program for English or metric measurements with English or Spanish text; a well-written manual provides bilingual instructions, lesson plans, and worksheets. Rocket Factory is great for teaching kids about controlled experiments and the scientific method.

STORY TAILOR: WHO WILL HELP ME?

Humanities Software Inc.
408 Columbia St., Suite 222
Hood River, OR 97031
(800) 245-6737

- new reading- and writing-skills program
- 128K Apple II
- \$99

The Story Tailor series from Humanities Software lets teachers personalize popular children's stories and poems by placing student names, school information, and other individualized data into the original text. A built-in word processor lets children add their own words and ideas. A Draw Frame option automatically inserts blank screens for student illustrations. Who Will Help Me? comes with a colorful print version of The Little Red Hen, which serves as a story starter for six on-line activities, helping children in kindergarten through grade 3 develop reading and process-writing skills in an engaging, open-ended way.

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A+ EXTRACTS



Looking for the right Apple II software or hardware? Here's a quick summary of the more than 35 products we looked at in depth over the last year. In each category is the product name, the critical rating it received from the *inCider/A+* reviewer, which Apple II computer(s) it runs on, its retail price, the publisher or manufacturer you can contact to purchase the product, a nutshell summary of the review, and the review's issue date and page number. Although the product version, price, and ordering information are up to date, we've indicated those cases in which we reviewed an earlier version of the product.

APPLICATIONS

DreamGrafix 1.06

★★★1/2

IIGS, \$99.95 plus \$5 shipping. DreamWorld Software, P.O. Box 830, Iowa City, IA 52244-0830, (319) 338-6491 or (212) 853-6785. 3200-color drawing program. Version 1.02: Proof that it's possible to push the envelope hard enough to stretch the seams. You *can* create and edit 3200-color pictures on your Apple IIGS — but just barely. (8/92, p. 22)

HyperStudio 3.1

★★★★★

IIGS, \$179.95; version update from 2.1 or earlier, \$45 plus \$5 shipping; update from version 3.0 free with returned disks. Roger Wagner Publishing, 1050 Pioneer Way, Suite P, El Cajon, CA 92020, orders: (800) 421-6526; tech. support: (619) 442-0522. Hypermedia authoring system. Version 3.0: Substantial update to already robust authoring system. Includes new menu-driven scripting language. (5/92, p. 22)

LogoEnsemble

★★★

IIGS, \$299. Logo Computer Systems Inc., 3300 Cote Vertu Road, Suite 201, Montreal, Quebec H4R 2B7, Canada, (800) 321-LOGO. LogoWriter combination pack: database manager, word processor, graphics system, communications package. (5/92, p. 50)

ProLine

★★★★★

Apple IIe/IIGS, \$259.95. Morgan Davis Group, 10079 Nuerto Lane, Rancho San Diego, CA 91977-7132, (619) 670-0563; fax: (619) 670-9643; BBS: (619) 670-5379. Apple bulletin-board program. Outstanding for wanna-be sysops with advanced messaging, electronic mail forwarding, and file-library options. (12/92, p. 27)

ProTerm 3.0

★★★★★1/2

Apple IIe, \$129.95. InSync Software, 3035 East Topaz Circle, Phoenix, AZ 85028-4423, (602) 992-5515; BBS/fax: (602) 992-9789. State-of-the-art telecommunications software with scripting capabilities. You *can* get there from here. (6/92, p. 26)

Your Money Matters

★★★

IIGS; \$74 plus \$5 shipping. Software Solutions, 5516 Merritt Circle, Edina, MN 55435, (612) 929-8947. Home/small-business finance. Sophisticated financial package helps you prepare budgets, balance your checkbook, and track current versus last year's income and expenses. (1/93, p. 48)

EDUCATION

Elementary School Grade Builder

★★★

Apple II, \$29.95. Compton's New Media/Britannica Software, 2320 Camino Via Roble, Carlsbad, CA 92009, (619) 929-2500.

Designasaurus: dinosaur information; **Math Maze:** arithmetic skill builder; **Spellicopter:** arcade spelling game. (2/92, p. 60)

First Aid with Reddy

★★★

Apple II, \$29.95. Quality Computers, 20200 East Nine Mile Road, St. Clair Shores, MI 48080, orders: (800) 443-6697; (313) 774-7200. First-aid education. Good information as far as it goes, but very young children should be supervised — several graphics depicting dangerous situations could be misinterpreted. (6/92, p. 54)

Gold of the Americas: The Conquest of the New World 1.0

★★★★

IIGS, \$49.95. Strategic Studies Group, 8348 Monticello Drive, Pensacola, FL 32514, (904) 494-9373; fax: (904) 494-9374. Historical simulation of New World colonial expansion. Not particularly accurate, but plenty of fun nonetheless. (6/92, p. 30)

GSymbolix 1.7

★★★

IIGS, \$134. Bright Software, P.O. Box 18; 4153 Reinach 2, Switzerland, 061-711-23-83; fax: 061-711-52-63. In U.S.: Larry Schneider, P.O. Box 120, Exeter, ME 04435-0120, (207) 379-3181. Algebraic calculator/graphing software. Version 1.6: Remarkably powerful computing engine hampered by poor documentation and platform speed limitations. Not much use for teaching concepts — better at crunching numbers. (12/92, p. 29)

Jr. High School Grade Builder

★★★

Apple II, \$29.95. Britannica Software, 345 Fourth Street, San Francisco, CA 94107, (415) 597-5555. Anatomy, grammar, geography programs. (2/92, p. 61)

Storybook Weaver: World of Adventure

★★★★

IIGS, \$59. MECC, 6160 Summit Drive North, Minneapolis, MN 55430-4003, (800) 685-6322, (612) 569-1500. Creative-writing tool with words and pictures. MECC supplies the pictures, the kids write about them, and it seems to work. (2/92, p. 27)

The Treehouse

★★★1/2

Apple II, \$49.95. Broderbund Software Inc., 500 Redwood Blvd., P.O. Box 6121, Novato, CA 94948-6121, orders: (800) 521-6263; (415) 382-4400; fax: (425) 382-4582. Music, math, and science games. Entertaining and mildly educational. The premise is a treehouse filled with games and animal friends. (10/92, p. 52)

Toolbox Programming in Pascal

★★★★★

IIGS, \$75. The Byte Works, 4700 Irving Blvd. NW, Suite 207, Albuquerque, NM 87114, (505) 898-8183. Pascal desktop-programming tutorial. Clear, well-written instruction with loads of examples. (11/92, p. 56)

Where in America's Past Is Carmen Sandiego?

★★★★★

Apple II, \$49.95. Broderbund Software Inc., 500 Redwood Boulevard, P.O. Box 6121, Novato, CA 94948-6121, orders: (800) 521-6263; (415) 382-4400; fax: (425) 382-4582. Educational adventure game, featuring detective motif and the infamous inscrutable villainess. This latest in the Carmen series is just as good as the previous ones — maybe better. (10/92, p. 26)

Weekly Reader Fractions and Decimals Math Word Problems

★★★

Apple II, \$49.95. Optimum Resource Inc., 10 Station Place, Norfolk, CT 06058, (203) 542-5553. Drill-and-practice math program. Drill and kill from acknowledged leaders in the field. Weekly Reader manages to make an educational necessity bearable. (10/92, p. 30)

GAMES

Neurobics

★★★★

Apple II, \$46. Ocean Isle Software/DLM Inc., 1 DLM Park, Allen, TX 75002, (800) 527-5030, (214) 248-6300. Six brain-teasing puzzles for kids and adults. (2/92, p. 62)

Prince of Persia

★★★★★

Apple II, \$39.95. Broderbund Software, 500 Redwood Blvd., Novato, CA 94948-6121, orders: (800) 521-6263; (415) 382-4400; fax: (425) 382-4582. Animated action adventure. Smooth cinematic-style animation is the highlight of this charming swashbuckling epic. Can you save the princess? (8/92, p. 25)

Space Fox

★★★1/2

IIGs, \$30. Seven Hills Software, 2310 Oxford Road, Tallahassee, FL 32304-3930, orders & info.: (904) 575-0566; tech. support: (904) 576-9415; fax: (904) 575-2015. Arcade shoot-'em-up in space. Updated Defender — fun for veteran and novice space cadet alike. (1/93, p. 24)

The Secrets of Bharas

★★★1/2

IIGs, \$69.95. Victory Software, P.O. Box 821381, Houston, TX 77282-1381, (713) 493-3232. Ultima-style game. Straightforward adventure for the adventuresome. If you liked Ultima, you'll probably enjoy this one. (7/92, p. 28)

UTILITIES

DB Pix

★★★★

Apple II, \$25 plus \$3 shipping. JEM Software, 7578 Lamar Court, Arvada, CO 80003, (303) 422-4856. AppleWorks 3.0 add-on utility. Add pictures to your AppleWorks databases with this extension. You'll be wondering how they did it. (9/92, p. 50)

Desktop Enhancer 2.01

★★★1/2

IIGs, \$24.95, \$3 demo disk. Simplexity Software, 13045 Chapman Ave., Suite 302, Orange, CA 92668, (714) 283-3957. GS/OS and ProDOS 8 customization program. Version 2.0: Second-rate desktop jewelry might appeal to some. Take advantage of the demo-disk offer before you buy. (12/92, p. 28)

Express 1.1

★★★★

IIGs, \$39.95. Seven Hills Software, 2310 Oxford Road, Tallahassee, FL 32304-3930, orders & info.: (904) 575-0566; tech. support: (904) 576-9415; fax: (904) 575-2015. GS/OS print spooler. Version 1.0: Solid, quality utility for the Apple IIGs. Spooled documents actually take longer to print, but the flexibility to print when you want can be a lifesaver. (9/92, p. 20)

Pointless 2.0

★★★★1/2

IIGs, \$69.95. WestCode Software Inc., 15050 Avenue of Science, Suite 112, San Diego, CA 92128, (619) 487-9200; fax: (619) 487-9255. TrueType font utility. Version 1.0: Outline font capability on the Apple IIGs. Need we say more? (7/92, p. 24)

Signature GS

★★★

IIGs, \$29.95. Q Labs/Quality Computers, 20200 East Nine Mile Road, St. Clair Shores, MI 48080, (800) 443-6697; (313) 774-7200. GS/OS desktop-environment customization programs. Desktop jewelry for the Apple IIGs. Includes a screen saver and sounds to attach to Finder actions. (8/92, p. 54)

Total Control 2.1

★★★1/2

Apple IIe, \$60 plus \$3 shipping. JEM Software, 7578 Lamar Court, Arvada, CO 80003, (303) 422-4856; fax: (303) 422-4856. AppleWorks 3.0 add-on. Version 2.0: Enhanced control over your AppleWorks database fields and records. (4/92, p. 50)

COLLECTIONS

Hyperstuff Collection

★★★

IIGs, \$39.95 **ClipArt Plus**; \$39.95 **ClipTunes**; \$29.95 **Animated Icons**; \$49.95 **SoundConvert**. Triad Venture Inc., P.O. Box 12201,

Hauppauge, NY 11788, (516) 360-0797 or (516) 732-3771.

HyperStudio tools, clip art, sounds, icons. Nifty hypermedia extras for spicing up your stacks. (7/92, p. 55)

Shoebox 1.1

★★★1/2

IIGs, \$59.95; version 1.0 update \$8.50, \$13.50 with HyperCard upgrade. Seven Hills Software, 2310 Oxford Road, Tallahassee, FL 32304-3930, orders & info: (904) 575-0566; tech. support: (904) 576-9415; fax: (904) 575-2015. HyperCard IIGs stacks and extensions. Version 1.0: Solid financial software for advanced and novice book-keepers. Slowed by HyperCard, but still worthwhile. (8/92, p. 52)

PUBLICATIONS

A2-Central on Disk

★★★

Apple II, \$90/year (12 issues). Resource Central, P.O. Box 11250, Overland Park, KS 66207, (913) 469-6502. Monthly Apple II newsletter, shareware, and public-domain software included. Good software, good tips, spotty editorial quality. Great if you don't have a modem. (11/92, p. 24)

Script-Central

★★★★★

IIGs, \$48/year (6 issues). Resource Central, P.O. Box 11250, Overland Park, KS 66207, (913) 469-6502. Bimonthly HyperCard IIGs electronic publication. One of the best software products on any platform. Imaginative layout, useful content, tremendous entertainment. (11/92, p. 25)

Studio City

★★★1/2

Apple II, \$48/year (6 issues). Resource Central, P.O. Box 11250, Overland Park, KS 66207, (913) 469-6502. Bimonthly HyperStudio electronic publication. Promising young publication with a lot to offer. Early issues lacked maturity, but there's no getting by the quality content. (11/92, p. 27)

TimeOut-Central

★★1/2

Apple II, \$48/year (6 issues). Resource Central, P.O. Box 11250, Overland Park, KS 66207, (913) 469-6502. Bimonthly electronic publication on TimeOut products. Somewhat self-serving repository for good TimeOut macros. (11/92, p. 27)

HARDWARE

A-Hive Jr.

★★★★

IIGs; \$499 with Apple high-speed SCSI card; \$559 with RamFast SCSI; includes cables, two 21MB disks, one 1.44MB disk, one 720K disk. Tulin Technology, 2156H O'Toole Avenue, San Jose, CA 95131, (408) 432-9057. Floptical SCSI drive for Macintosh or Apple IIGs. Unlimited high-density storage for data-intensive applications. Not the fastest, but one of the least expensive. (9/92, p. 22)

InFocus 1600LC PC Viewer

★★★★

IIGs, \$2695 **1600LC** color; \$1695 **1600GS** monochrome. InFocus Systems, 7770 Southwest Mohawk Street, Tualatin, OR 97062, (800) 327-7231; (503) 692-4968. 16-color LCD projection panel. Sometimes you just gotta see the big picture. The color and the monochrome displays are reasonably priced solutions to classroom or business presentations. (9/92, p. 52)

Tulin Optical Drive

★★★

IIGs; \$1319 includes one cartridge, \$49 each additional cartridge. Tulin Technology, 2156H O'Toole Avenue, San Jose, CA 95131, (408) 432-9057. Rewritable, removable optical storage. Although much slower than a hard-disk drive, 120MB 3.5-inch optical cartridges provide unlimited, virtually indestructible data storage for power users. (1/93, p. 49)

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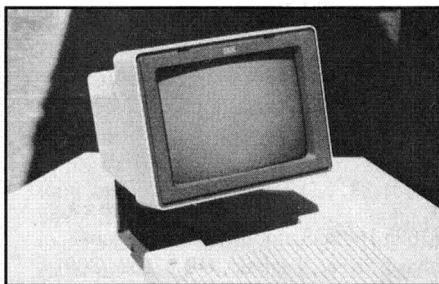
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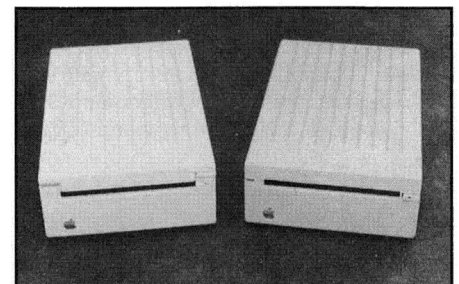
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A+ MAC

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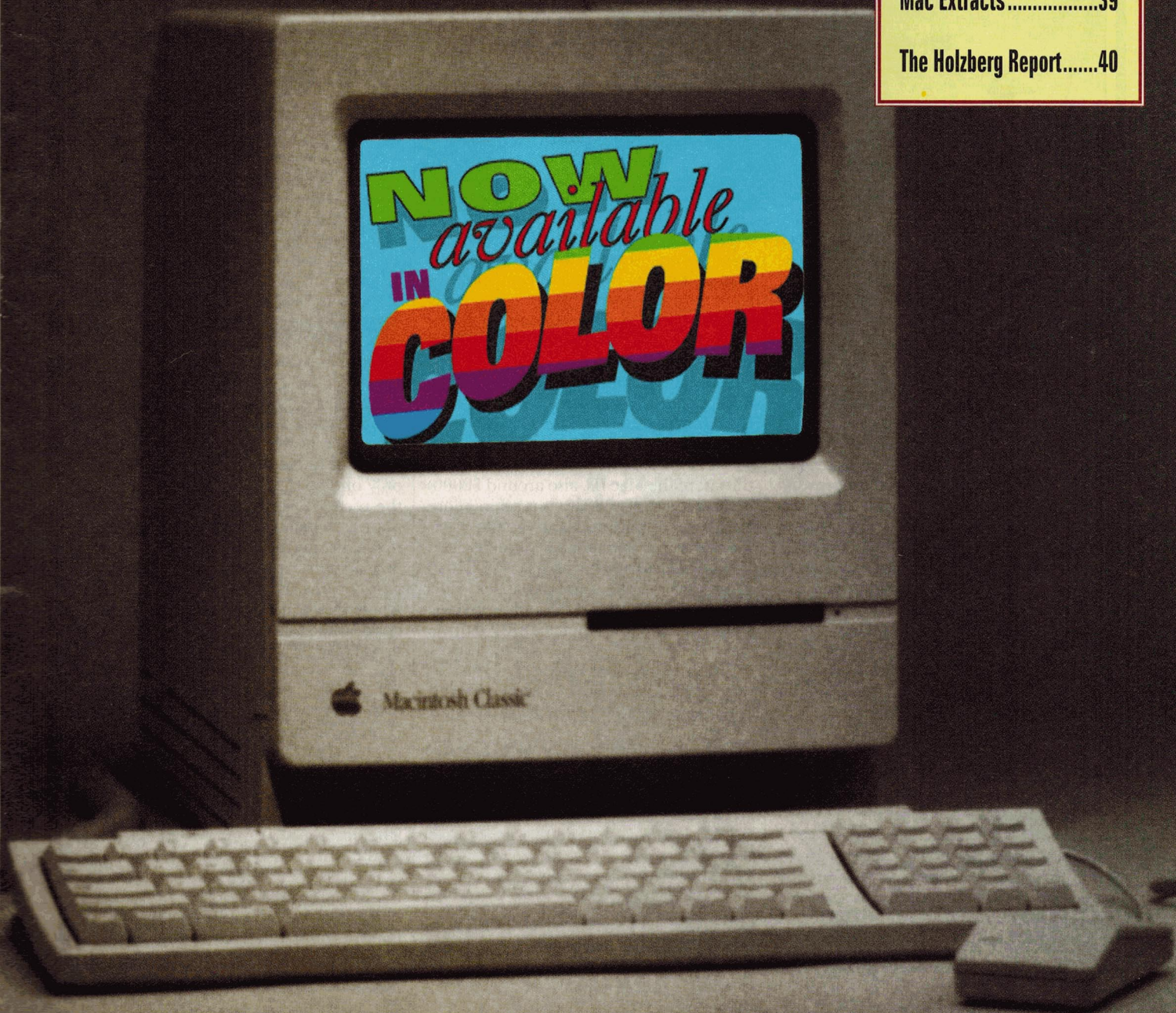
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This old Classic's getting a facelift:
Apple's new Mac Color Classic will sport a 10-inch,
256-color screen and an LC motherboard.



IN WITH THE NEW



■ Among Apple's new collection of color computers and peripherals is the Mac Color Classic, priced at \$1300. With added video RAM, it can display up to 32,000 hues.

The fashion buzz at Apple Computer this season is *rainbow hues* — black-and-white is out. Apple introduced a number of new products in January and February, and the general theme seems to be color. Here's a sampling.

■ The new **Macintosh Color Classic** sports a 10-inch screen with exactly the same number of color pixels (512 by 384) and color depth (256 at 8 bits) as the Mac LC's 12-inch screen. With added video RAM (VRAM), the new Classic can display as many as 32,000 colors. The similarity between the Color Classic and the Mac LC isn't surprising: The Classic's motherboard is an LC II. You can remove and expand it easily: Anything you can add to an LC you can now add to a Color Classic, including an Apple IIe Card or EtherNet Card. You can also increase the Color Classic's memory, like that of the LC II, to 10 megabytes. Suggested retail price is \$1300.

■ Running at 25 megahertz and with a 32-bit data bus, the **Macintosh LC III**, also expected to cost around \$1300, is faster than its predecessor, the LC II (16 megahertz, 16-bit data bus), and supports more and larger color monitors without modification. You can also expand the LC III easily with a math coprocessor and a new type of memory card that increases its RAM to as much as 36 megabytes.

■ The new **PowerBook 165c**, with 256-color screen, uses a back-lit passive-matrix display for low power consumption (at some cost to quality). Its 33-megahertz 68030 microprocessor runs as fast as the PowerBook 180. Reasonable for \$3200.

■ Apple also announced a new line of three mid-priced, mid-performance computers, the Centris series. The **Centris 610** (around \$2000) sports a fast 68040 processor. The **Macintosh IIvx** (thought to be the last of the Mac IIs, also around \$2000) is slower with its 68030, but offers more expansion opportunities. If you want performance *and* expandability, you'll need the new **Centris 650**, with its faster 68040 processor and the same expansion slots as the IIvx. All Centris computers include a built-in bay for an Apple CD-ROM drive.

■ The **Apple Color Printer** is priced at only \$2600, competitive with the Hewlett-Packard PaintJet. It prints using color ink

jets in "large format," or 11-by-17 (A3) color printing. It isn't a network printer, but it does support Apple's new **GrayShare** printer-sharing software, which lets more than one user on a network use a printer connected directly to a single computer. Apple's replacement for the StyleWriter ink-jet printer, the **StyleWriter II** (\$360), also now uses GrayShare. The StyleWriter II is twice as fast as the original, and is a single piece combining a versatile sheet feeder with the printer body.

■ The **Apple Color OneScanner**, priced at \$1500 to compete with Hewlett-Packard models in homes, schools, and small businesses, accurately reproduces color images on the Macintosh. It includes **Ofoto 2.0**, a color version of the original Apple OneScanner's software, which was noted for simplifying the process of creating digitized pictures.

■ Apple's new **ColorSync** software technology lets scanners, digitizers, computers, monitors, and printers reproduce the same colors accurately. It's a transparent software standard, not unlike QuickDraw or PostScript, that operates automatically in the background. You'll never need to worry about it — but you may notice the difference it makes. In brief, ColorSync assigns a "color-use profile" to any device that uses color, and applications that support ColorSync choose colors based that profile.

In other exciting — yet "colorless" — announcements, Apple spokespersons stressed that the new ergonomic **Apple Adjustable Keyboard**, which comes in only one hue (\$219), isn't a response to the recent furor over repetitive-motion injuries, which some lawyers claim overworked computer users suffer. The keyboard splits into two halves to keep the typist's arms and wrists straight. The new **Apple Desktop Mouse II** sports a round, comfortable shape and a large single button that lets you click with more than one finger. The ball is placed farther forward in the device for finer control.

Brodie Keast, Apple's director of CPU product marketing, told us that Apple hopes to "further differentiate its product offerings," noting that "there's a price war going on among [IBM PC] clones, and you see less and less differentiation." The difference at Apple is *differentiation*. Apple will soon drop the monochrome Mac Classic, as well as its equally colorless twin, the Performa 200. Apple's only black-and-white products will then be t-shirts and PowerBooks. — P.S.

■ It's easy to create **custom desktop icons**. Just use **Copy** from the **Edit** menu or **⌘-C** to copy the picture you want to the clipboard. Then select the file or folder to which you want to add the icon, choose **Get Info** from the **File** menu or press **⌘-I**, and click on the icon in the window. Then press **⌘-V** to paste the new icon in.

Inventory Reduction

System 6.0! **Vulcan** **80MB**



The Cadillac of Apple hard drives, given a "5-star" rating by *InCider*. Vulcan comes complete with a heavy-duty power supply, 16-bit ultra-fast controller (GS), built-in CDA, pseudo-slottting, and support for GS/OS, ProDOS, DOS 3.3, Pascal 1.3 & CP/M.

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Applied Engineering

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ADB Keyboard (PCT/GS).....	\$139
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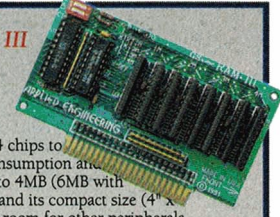
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Applied Engineering's GS-Ram III uses the new low cost, high performance 1MB x 4 chips to ensure low power consumption and less heat. It expands to 4MB (6MB with AE's 2MB expander) and its compact size (4" x 2.5") leaves plenty of room for other peripherals.

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NEW SOFTWARE

I KNOW MY RIGHTS

If you're a student wondering whether you have any legal rights at all — to privacy, freedom of speech, freedom of religion, or any other civil liberties — you can consult **Express Yourself**, a new interactive HyperCard stack from the American Civil Liberties Union of Northern California.

Express Yourself explains students' constitutional rights in matters such as censorship, religion, music, dress, association, and protest. It includes a history of civil liberties in the United States, as up to date as the rap of 2 Live Crew and Robert Mapplethorpe's photographs.

Students and teachers can get Express Yourself at no charge from the ACLU of Northern California; other interested Mac users can send \$10 to Howard A. Freeman, First Amendment Education Project, 16663 Mission Street, Suite 460, San Francisco, CA 94103. For more information, circle number 360 on the Reader Service card.

The National Council of Teachers of Mathematics recommended recently that all levels of instruction include geometric transformations. The Geometric Golfer does that, and offers ten golf courses and a course designer to keep students entertained. Other features include a practice hole for exploring transformations, instant replay of shots, and management options to save games, control sound, and edit the "leader board."

The Geometric Golfer, available for all Macintoshes, retails for \$69, and includes two disks and a teacher's manual. For more information, contact MECC, 6160 Summit Drive North, Minneapolis, MN 55430-4003, (612) 569-1500, or circle number 361 on the Reader Service card.

OFF TO THE SOLAR SYSTEM

Destination: Mars! is the name and the goal of a new educational game from Compu-Teach. Players join a space-ship's crew, and by using an extensive database, a mission

log, and a detailed map, plan their journey to the Red Planet.

Along the way, you participate in a variety of 21 missions, including launching the spacecraft, solving on-board emergencies, performing field experiments, docking with the space station or Mars Excursion Vehicle, and rescuing a satellite. A typical mission takes about half an hour to solve; Destination Mars! will provide hours of challenge for kids aged 11 and up.

This innovative entertainment was produced in collaboration with NASA by Compu-Teach, 16541 Redmond Way, Suite 137-C, Redmond, WA 98052, (206) 885-0517. It's priced at \$59.95. For more information, circle number 362 on the Reader Service card.

MESSAGE TO THE STARS

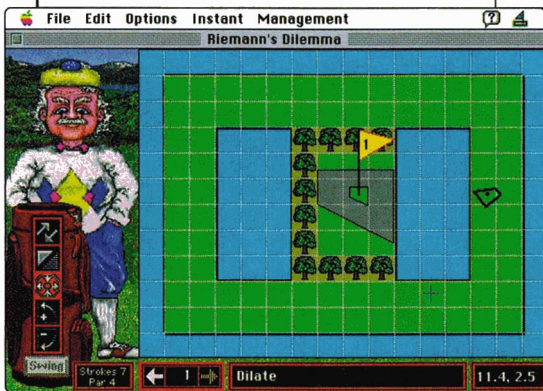
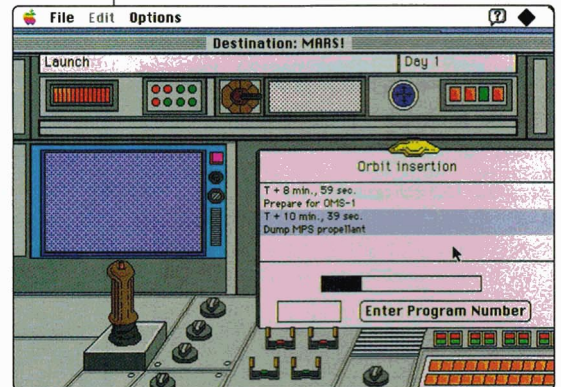
In 1977 a Voyager spacecraft was launched from Earth; on board was an early compact disc designed to offer inhabitants of other worlds a glimpse of ours — and of ourselves. **Murmurs of Earth** is a re-creation of that disc on Macintosh CD-ROM.

The Voyager disc was created by a team of scientists, musicians, and artists under the direction of astronomer and writer Carl Sagan. The disc they produced is a substantial reflection of our varied cultures. You can hear musicians from Senegal, Zaire, Peru, Azerbaijan, China,

and India, as well as Chuck Berry, Louis Armstrong, and Blind Willie Johnson. There's even a recording of whale songs, plus "Greetings from Earth" in 55 languages.

A number of beautiful color photographs of our small planet are digitally encoded on the disc, and can also be seen in the accompanying book, also titled *Murmurs of Earth*, published by Random House, with an introduction by Carl Sagan and Ann Druyan.

Murmurs of Earth is a moving testament to humanity. It's available for \$59.99



GEOMETRIC LINKS

Tee off in the classroom with MECC's **The Geometric Golfer**, an exciting game for one or two players, who use basic transformations — translation, reflection, rotation, and dilation — to change a ball so that it fits into the hole. In the computer game, as in the real thing, the goal is to put the ball into the hole in the fewest number of steps.

■ Before you give up when an application program "locks up," try the handy key combination **Option-⌘-Escape**. It may offer you the option to "Force [the application] to quit? Unsavd changes will be lost." (This may not work in a very bad crash.) If you force the application to quit, you'll return to the Finder.

from Warner New Media, 3500 Olive Avenue, Burbank, CA 91505, (800) 593-6334, and in computer and record stores nationwide. For more information, circle number 363 on the Reader Service card.

JAPAN THROUGH THE LOOKING GLASS

The newest CD-ROM from Cameo Interactive Japan is a sampling of the beautiful, puzzling, and sometimes erotic work of the renowned Japanese painter Kaneko. **Alice** is described as an "interactive museum": 12 virtual rooms, loosely based on Lewis Carroll's *Alice* stories, that you navigate with your Macintosh mouse.

Each room is based on a different theme; the first room, for instance, is modeled on the artist's own living room. But in every room, switches are hidden in the walls, in the furniture, and on the shelves. If you find all the buttons, doors open, paintings move, and other bizarre events transpire.

A deck of 53 playing cards, hidden throughout the rooms, provides clues that illuminate the whimsical universe of Kaneko and Carroll.

This prize-winning "coffee-table software" from Japan costs \$99 in the United States, from East/West Communications, 1631 Woods Drive, Los Angeles, CA 90069, (800) 833-8339. For more information, circle number 364 on the Reader Service card.



BACK IN THE SKIES

Take a seat in the cockpit of an F-16 Fighting Falcon, power up, and you're off into the wild blue yonder with **Falcon MC**, a brand-new flight simulation for the Mac. It's based on the classic Falcon game, but now includes 3-D color graphics, a new world to do battle in, more missions, extra weapons, and additional kinds of play.

Falcon MC offers strategic missions for the '90s: destroy nuclear power plants, disable air defenses, and take out armored ground units, to name only three. And to go up against adversaries in MiG-29s, the Falcon MC fighter jock will need all the most powerful new weapons, such as long-range, radar-guided, air-to-air AIM-120 missiles; unguided 2000-pound Mk84 and GBU-15 bombs; and short- and medium-range missiles.

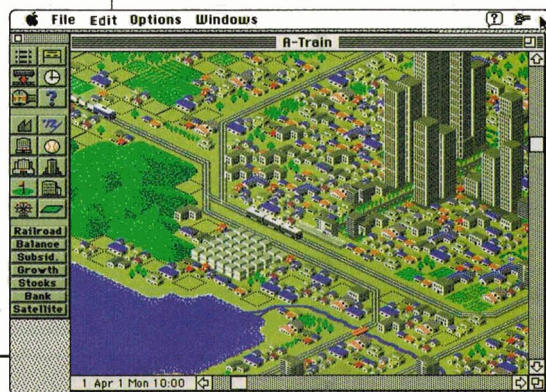
You can choose how hot the action gets with fully adjustable difficulty settings, but you'll have less control over your opponent if you do battle head to head via modem, network, or direct connection. Falcon MC offers a choice of views and tracks your progress for you, awarding ranks and medals to ace heroes.

Falcon MC is priced at \$69.95 from Spectrum HoloByte, 2490 Mariner Square Loop, Alameda, CA 94501, (510) 522-1164. Circle number 365 on the Reader Service card for more information.

ALL ABOARD

The latest "software toy" from Maxis, in the tradition of SimCity and SimLife, is **A-Train**, challenging players to erect the metropolis of your dreams from bare dirt, using a railroad as your city's link to the world and proving that clean, efficient public transit is possible and profitable.

You start with building materials and cash — then buy land, lay track, put any of 19 kinds of freight and passenger trains in place, and devise a schedule. The trains will transport people and supplies



to developing areas, laying the groundwork for the housing, industrial, and recreational areas your city needs.

Your simulated trains puff around a simulated landscape that includes farms, trees, hills, and even livestock. Day and night, summer and winter repeat their cycles as the game goes on. You can grow wealthy by speculating in stocks or real estate, developing your city as you choose.

Maxis calls A-Train "the capitalist's SimCity — the private-sector approach to urban development," combining city building with railroad management and sophisticated financial modeling. A-Train is priced at \$69.95, from Maxis Software, 2 Theatre Square, Suite 230, Orinda, CA 94563-3346, (510) 254-9700. Circle number 366 on the Reader Service card for more information.

TAX TIME

The ClarisWorks Users Group (C•WUG) has made its popular, professionally written spreadsheet templates for preparing your federal income taxes available in Claris Works format.

1040Works (also available for AppleWorks) helps you collect and enter data, do all the necessary computations, and print the required tax forms. 1040Works is easy to use, prepares the 23 most widely used federal schedules and forms, and includes complete documentation in a 64-page manual. 1040Works carries a suggested retail price of \$39.95, but is available from C•WUG for \$32.95 plus \$3.50 shipping and handling.

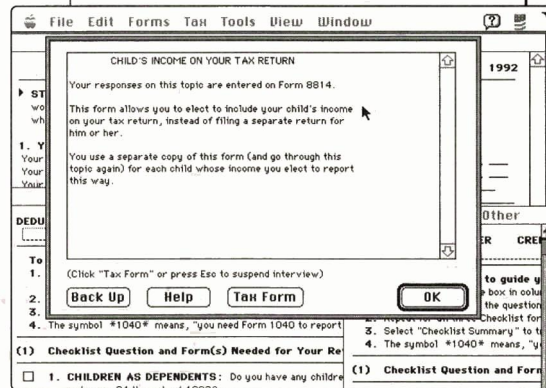
C•WUG is also distributing the 1993 **1040Works Tax Planner**, a comprehensive package that can estimate your federal income tax for 1993 to 1995, determine how the alternative minimum tax will affect you, calculate proper withholding and quarterly tax payments, and compare financial strategies to minimize your federal tax bill — legally.

If purchased with 1040Works, the 1993 1040Works Tax Planner costs \$19.95,

■ Shhh . . . At AT&T's Bell Laboratories in Murray Hill, New Jersey, researchers working with on-line journals now have the pleasure of browsing the old-fashioned way, thanks to a powerful database manager called **RightPages**. The RightPages project duplicates the look and feel of a traditional library by allowing for random peeks into a rich mix of images and text, says a report in *Science News* magazine (10/3/92).

including shipping. It's priced separately at \$29.95 plus a \$3.50 shipping and handling fee.

For more information, contact the ClarisWorks Users Group International, P.O. Box 701010, Plymouth, MI 48170, (313) 454-1969, or circle number 367 on the Reader Service card.



NO NEW TAXES

If you don't even know what to ask about saving money on federal taxes, consider **TaxCut**. Unlike other tax-preparation programs, TaxCut uses an "interview process," developed by leading tax attorney Daniel Caine. It asks a series of questions to determine relevant information about your personal tax situation.

TaxCut then tailors additional questions, and, based on your responses, selects and completes all required forms automatically. TaxCut even checks your figures against national norms and can alert you to the possibility of an IRS audit by looking for inconsistencies and math errors.

TaxCut lets you transfer information from any of a number of best-selling personal-finance programs, such as Managing Your Money (MECA) and Quicken (Intuit). It shows you more than 1000 ways to save money by preparing your return differently and includes more than 85 schedules, forms, and worksheets.

TaxCut is priced at \$49.95, from MECA, 55 Walls Drive, Fairfield, CT 06430, (800) 288-6322. For more information, circle number 368 on the Reader Service card.

KIDDESK vs. AT EASE



Two new access-control programs protect your files from inquisitive eyes.

We all want the best for our kids, right? If you've got a home computer, sure, you'd like your child to experience the wonders of technology — particularly the ever-increasing array of educational programs for kids of all ages. There's just one problem: You don't want your 3-year-old or your 6-year-old or even your 15-year-old working on your machine if there's any chance you'll come home to find that while Junior was experimenting he eliminated that 40-page proposal you worked on all weekend.

In response to this concern, two manufacturers have developed programs that let computer owners deny other users access to materials they deem off limits. From Edmark, a company specializing in educational software for children, comes

KidDesk. It's designed to give kids aged 3 to 10 something of their own to play with, leaving Mom's or Dad's work alone. Parents work in the program's "adult section" to customize the screen each child will see upon opening the "kids' section." At Ease, from Apple Computer, also limits an outsider's access to your computer, but it doesn't keep out just kids. This program can prevent any unauthorized person from accessing programs or documents you consider restricted.

FUN AND GAMES

The first thing kids see when they click on the *KidDesk Start-Up Folder* is a screen with an blue-ribbon icon labeled *Guest*, or, if the program has been personalized, a picture representing the child along with his or her name. By clicking on the picture, your child sees one of the six desktop themes KidDesk offers — Victorian, circus style, and four others. Each desk displays nine accessories — name plate, picture frame, lamp, phone, pen and pencils, clock, calculator, recorder, and calendar — each matching the desktop's general theme. For example, the "circus" desktop features a phone that looks like a clown and a lamp with a tent shade and an elephant base.

Many of the accessories allow for further personalization. If your computer is equipped with a microphone, for instance,

★ ★ ★

KIDDESK

Edmark Corporation
6727 185th Avenue NE
Redmond, WA 98073-3218
(800) 426-0856
(206) 556-8400

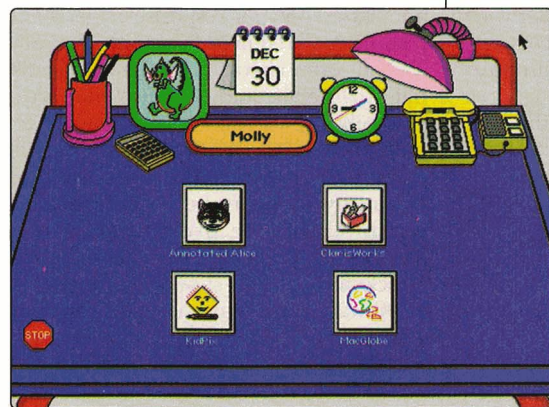
- desktop interface
- Macintosh Plus or later
- System 6.0.7 or later requires 1MB for monochrome, 2MB for color
- System 7 requires 2MB for monochrome, 4MB for color
- requires hard disk
- printer, microphone, Touch Window optional
- \$39.95 home version
- \$54.95 school version

★ ★ ★

AT EASE

Apple Computer
20525 Mariani Avenue
Cupertino, CA 95014
(408) 996-1010

- desktop interface
- 4MB Macintosh Plus or later
- requires System 7
- requires hard disk
- \$59



KidDesk's graphics grab kids' attention.

the software's "recorder" lets you leave messages such as "Happy Birthday" or "Pick up your socks!" that play when you click on the phone.

You can enter the child's name on the name plate and insert any of a variety of images into the picture frame. Edmark provides icons (a butterfly and a dragon, for example), or you can import computer graphics or scan in images, such as a photo of your youngster's dog. Once you've entered a picture and a name, they appear on the opening screen mentioned above.

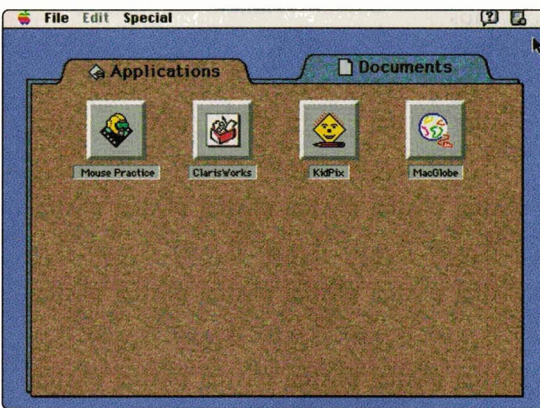
The KidDesk manual offers excellent suggestions for using these accessories to further your child's learning experience. You might use the calculator to teach "skip counting," for example — counting in increments of three, perhaps, by adding 3 + 3 + 3 + 3, and so on.

KidDesk doesn't restrict children to playing with the accessories on the desktop, but it does offer a way for parents to limit kids' access to files. Working in the adult section, you decide which applications — certain paint programs, games, math programs, and so on — you'll let your youngster access; you then put an icon for each of those programs on the

when I booted the machine, I (or my child) could have simply ignored the *KidDesk* folder and tried any other application on screen.

That's not the case with At Ease. Once installed, the At Ease screen appears automatically every time you turn on the computer. You can't access the main desktop unless you know the password or the rules for circumventing this protection. Instead, you see what looks like a card-file divider labeled *Applications*. One application, *Mouse Practice* (designed for those who need experience in handling a mouse), is already installed; the rest you choose just as you do with KidDesk. If you install MacWrite II, for instance, your kids or staff can access that application and create their own data files (which thereafter appear on another card labeled *Documents*), but can't get into MacWrite files you created previously.

At Ease is also easier and faster to install. The documentation is clear, while some of the instructions in the KidDesk manual are fuzzy and misleading. For example, the manual describes the purpose of each accessory and points out the different styles each item comes in, but doesn't explain until somewhat further



At Ease is all business. Password access hides the main desktop and protects your files, while special Applications and Documents folders are set up for other users.

desktop. The child clicks on an icon to enter a program directly; when it's time to quit, the child returns to his or her personalized desktop. The software also includes other options for limiting access to the main desktop, including password protection.

YOUR EYES ONLY

Because At Ease is designed for business as well as home use, there are no cute desktops or sound effects. From a child's point of view, KidDesk is more fun; if your primary concern is security, though, At Ease does a better job.

When I booted my machine with KidDesk, I found a new folder on the main desktop, along with all my old folders; I clicked on *KidDesk Start-Up* and called up the kids' desktop. But because all my other folders were open

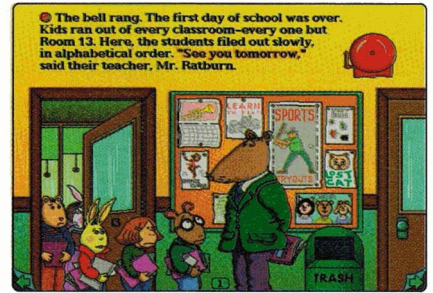
along that you can't mix accessory styles. It's a small point, but that lapse cost me a confusing 10 minutes or so of set-up time.

You'll also need some optional equipment, such as a scanner and a sound-input device (if your Mac doesn't have a built-in mike), if you want to take full advantage of all of KidDesk's capabilities. On the other hand, note that KidDesk works under either System 6.0.7 or System 7, while At Ease does require System 7. If security's your main concern, though, and you have System 7, At Ease may be the better bargain.

**Wendy Meyeroff
Brooklyn, NY**



ARTHUR'S TEACHER TROUBLE



★ ★ ★ ★

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(415) 382-4400

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- \$59.95 catalogue price

The snappy opening refrain from Broderbund's Living Books series may soon become as familiar as Mr. Rogers' *Beautiful Day in the Neighborhood*. Its bouncy, upbeat melody makes kids sit up and take notice of their Macs. And, unlike television, which entertains by turning youngsters into couch potatoes, Broderbund's Living Books invite children to take charge. There are colorful screens to explore, talking words, hidden surprises to discover, and new story characters to meet.

The latest CD-ROM title in this interactive series is Marc Brown's popular *Arthur's Teacher Trouble*. It's the story of Arthur Aardvark, a personable third-grader with a "rat" for a teacher. Mr. Ratburn is so mean, he gives homework even on the first day of school. Arthur's troubles don't end with homework, though. He has a pesky 4-year-old sister named D.W., plus a 100-word spelling test and little time for study.

But Arthur does well on the test — so well, in fact, that he gets to represent the third grade in the annual All-School Spellathon. He's under great pressure to succeed. You'll have to listen to the story on CD-ROM, or read the original print edition (included in the package), to find out whether he wins.

IT'S STORY TIME

Like Broderbund's first Living Book — Mercer Mayer's *Just Grandma and Me* —

Arthur's Teacher Trouble is an electronic version of a widely known children's story. The computer edition contains 24 colorful pages with screen illustrations that faithfully reproduce the drawings of the print version. In fact, the computerized pictures are better than their print counterparts: sharper, brighter, and more finely detailed.

But what distinguishes the electronic product most are its animated objects and characters, as well as sound and music. The program's high-quality graphics, animation, and sound effects, dramatized voice-over narration, and lively score are so well done, it's like watching a commercial-free cartoon special on TV.

At start-up a main selection screen appears, in which an animated Arthur introduces the program and explains "play" options. Youngsters decide whether they want the written and spoken story language to be English or Spanish.

They also choose the presentation mode. If they select *Read to Me*, they can sit back and relax while the story moves along page by page automatically. If they choose *Let Me Play*, they can explore each story page by pointing and clicking the mouse on interesting-looking objects or characters. Selecting an arrow at the bottom of a screen lets kids scroll forward or backward through the story. Clicking on the page-number icon returns readers to the main selection screen.

Each of the electronic pages contains printed text, highlighted as the computer reads it. Youngsters can point and click the mouse on a specific word and hear it again, or switch between English and Spanish versions with a single keystroke. Three storybook screens feature animated words (40 in all), which children can review to strengthen spelling skills.

Each story page is filled with a dozen hidden "hot spots" that respond with audiovisual rewards when you select them with the mouse in *Let Me Play* mode. On one page, for example, you can click on Mr. Ratburn's jacket to change its style and color. A doorknob might swing loose like a yo-yo. A student's book bag opens to reveal a surprise guest. A chocolate-chip cookie leads other cookies in a rousing song and dance. There's an explosion in the science lab, an enthusiastic food processor that bites off more than it can chew, an eager toaster, and much, much more. Kids won't let you pry them away from the computer until they're absolutely certain they've uncovered every possible surprise.

FUN AND LEARNING

Broderbund targets its Living Books mainly for the consumer market — parents with children aged 6 to 10. The program's graphical interface makes it

so easy for youngsters to "play," that children need only minimal (if any) adult supervision.

And Arthur's Teacher Trouble mostly entertains; it's not a curriculum-based product such as Davidson's Math Blaster or The Learning Company's Reader Rabbit. Yet it does have educational value. "If we make reading fun and interesting," says Marilyn Rosenbaum, Broderbund's director of educational marketing, "perhaps [kids] will read more on their own. Living Books allows kids to walk around inside the book. It gives [them] a sense of the power of their imagination."

As Broderbund worked on the program, its developers visited several schools for feedback from teachers and students. The result is a highly polished product that teaches children to value reading skills. And because the program is bilingual, it's especially attractive to educators who teach English as a second language.

HIGH MARKS FOR EFFORT

Arthur's Teacher Trouble shows amazing ingenuity. The voices of storybook characters are as individualized as their personalities, for example. Several animations are so hilarious, you'll find yourself laughing out loud (grown-ups included). Transitions from screen to screen are smooth: There's hardly any waiting time, even if you run the program from Apple's original CD SC drive (with a molasses-slow random-access time of 500 milliseconds).

Yet, while the electronic version of Arthur's Teacher Trouble can be a compelling reason to own a CD-ROM drive, it does have some limitations, all of which revolve around the program's reusability. Like the printed version, the story, once told, is done.

And there's only one surprise under each of those hot spots. There are no open-ended, game-like activities with outcomes that depend on problem solving, strategy, or logical thinking. You can't build anything or draw a picture.

How long can you expect a child to be entertained by a product that responds in exactly the same way every time? Children spend about two to four hours unattended with Arthur's Teacher Trouble. That's about five to ten minutes per screen for 24 story pages. Once they explore all the hidden buttons, there's really nothing else to do.

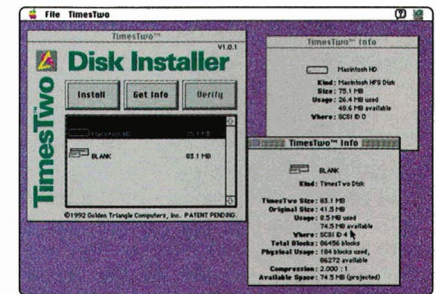
Because the electronic version of Arthur's Teacher Trouble can be a babysitter substitute for television, the lack of human interaction limits a child's attention span. Adults reread good children's books to their kids countless times not because the story is so compelling, but because of the "quality time" spent together. The Living Books designers might increase

the value of their storybooks dramatically by somehow encouraging family involvement with the products.

Should you buy this CD despite its limitations? You bet. The software features so much painstaking attention to creative detail, it's easy to overlook its closed architecture. If your 256-color Mac has a CD-ROM drive, Arthur's Teacher Trouble will make you appreciate the wonders of mass storage and the value of having young kids.

Carol S. Holzberg, Ph.D.
Shutesbury, MA

TIMESTWO 1.0.1



★ ★ ★

Golden Triangle Computers
4849 Ronson Court
San Diego, CA 92111-1803
(800) 326-1858
(619) 279-2100
(619) 279-1069 fax

- file-compression utility
- requires Mac Plus or higher
- requires System 6.0.4 or later
- requires SCSI hard disk, removable hard disk, or erasable optical disk
- \$149

Is a 40-megabyte hard drive with 20 megabytes of data half full or half empty? Trust me, it's definitely half full, because one of the immutable laws of computing is that your files always expand to fill the amount of disk space available.

To a novice user, a common 40-megabyte hard-disk drive seems like a cavernous filing cabinet. But before you can say "QuickTime, multimedia, sound effects, and color graphics" three times fast, you'll be itching for a lot more storage space.

And when you do, you can either ante up for a larger hard drive or eke out more space on your current one. Trashing or archiving old files and applications can help. But to stretch your drive's storage significantly, you need a file-compression utility.

Traditional "lossless" compression utilities squeeze files to roughly half their original size by expressing data redundancies compactly. Companion decompression utilities faithfully reconstruct the original file.

Manual file-compression utilities, such as Aladdin Systems' StuffIt, ask you to specify which files you want to compress; there are also automatic compression utilities, such as Fifth Generation's Auto-Doubler, which perform wholesale compression on your data files in the background when your Mac is idle.

One disadvantage of traditional compression utilities is that they alter compressed files' icons and creator types; another inconvenience is that you must decompress individual files before use. Both of these limitations can result in compatibility problems that may be too much for the novice or intermediate user.

Golden Triangle attacks the problem of limited disk space on another flank with its new product, TimesTwo. Instead of shrinking files, TimesTwo appears to double the size of any SCSI (*small-computer-systems interface*) disk smaller than 1 gigabyte, including SyQuest and Bernoulli removable cartridges, as well as erasable optical disks. True enough, it transformed my test 40-megabyte TMS Shadow hard disk into an 80-megabyte drive in under an hour. Is it magic?

THE MIRRORS

Not really. TimesTwo reformats your selected SCSI-based medium and creates a logical disk twice the size of the original. It also doubles the number of *Macintosh File Manager* storage blocks so that your applications "see" the apparently larger disk space.

To make it all work, TimesTwo places a special driver between your Mac's *File Manager* and the disk's *SCSI Manager* to compress all files automatically as they're written to disk and decompress files as they're read from disk. It all happens in the background automatically, so TimesTwo eliminates user interaction and greatly reduces compatibility problems.

And because the TimesTwo special driver, like other low-level disk software, is stored on disk and loaded and executed when the SCSI device is initialized, a one-time installation is all you need. You can also move your "expanded" medium to another Mac system.

Suppose you want to give a copy of a file to a friend: Just drag it to a floppy disk. There's no need to decompress the file or give your friend an expander utility. Likewise, service bureaus don't need any special instructions for handling "enlarged" SyQuest cartridges.

Once installed, you never know TimesTwo is there because all your files

work with your Mac's applications as though they're stored on a standard SCSI disk. The only obvious difference is that you have almost twice as much free space on that disk.

THE SMOKE

Less obvious, however, is that your disk's increase in capacity comes at the expense of drive performance. On my Mac IIci test system running System 7.1, opening a 286K document with Microsoft Word 4.0 took 20 seconds before I installed TimesTwo; with TimesTwo the same operation took 40 seconds. Duplicating 111 items in a 642K folder took 27 seconds without TimesTwo, and 54 seconds with it. Not only does TimesTwo double the size of your disk, it also doubles the time required to read from and write to the disk.

Golden Triangle also claims publicly that TimesTwo is compatible with all Mac applications, but then contradicts that statement in its documentation. For instance, you must remove any security programs that restrict access to an entire volume because they interact with the operating system at such a low level they may conflict with the TimesTwo driver.

Nor can you currently install TimesTwo on QuickMail or Microsoft Mail servers, though the company promises this feature in a future release, as well as support for partitioned disks.

You must also avoid installing new disk drivers or you'll destroy all your data. In addition, although you can use traditional compression and optimizer (defragmentation) utilities on a TimesTwo disk, you won't realize any space or performance benefits.

PRESTO

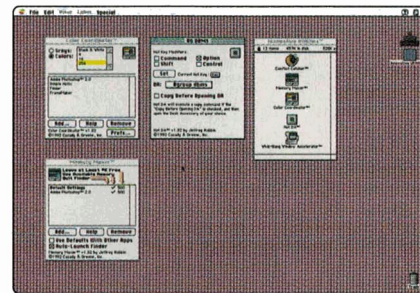
Is TimesTwo worth its weight? That depends on your situation. If drive performance is at the top of your list, buying a new drive to increase storage capacity is the way to go. You can get a new 40-megabyte hard disk, for instance, for about \$200 through mail-order sources. (Larger capacities are even more economical, ranging from \$4.50 down to \$2 per megabyte.)

If you're short of cash and can live with its current limitations, however, TimesTwo is an elegant solution to the problem of extending the usefulness of your existing storage devices.

TimesTwo makes the most sense with removable storage devices used for backup and archival purposes where speed really isn't an issue. For the cost of a couple of new SyQuest or Bernoulli cartridges, TimesTwo can double the capacity of all your existing ones.

Owen Linzmayer
San Francisco, CA

CONFLICT CATCHER AND OTHER INNOVATIVE UTILITIES



★ ★ ★

Casady & Greene
22734 Portola Drive
Salinas, CA 93908-1119
(800) 359-4920
(408) 484-9228

- utility set
- 1MB Macintosh Plus or higher
- requires System 6.0.5 or later
- Memory Maxer requires System 7
- \$79.95

Power users and other Mac aficionados who like to experiment with a variety of system accessories sometimes end up "short-circuiting" their machines' performance when some of those little extras clash. Now from Casady & Greene comes a new solution: Conflict Catcher, a control-panel program that can help you manage Mac system add-ons by testing various combinations and resolving conflicts that might arise. To enhance the value of the package, Casady & Greene has also included four additional utilities: **Color Coordinator**, **Memory Maxer**, **HotDA**, and **Whiz-Bang Window Accelerator**. The question is: How many accessories do you need to make your computing life easier, and do you want to pay the price?

LEAD ROLE

The crown jewel of the package, Conflict Catcher, is a startup-file manager, handling INITs in System 6 or System 7, extensions in System 7, applications in the *Startup* folder in System 7, and daemons (similar to INITs) in System 7. Through Conflict Catcher, you can turn startup files on or off as your machine boots, configure sets of startup files, and link files that require each other to work properly.

Conflict Catcher also lets you do trial-and-error checking to determine whether

Drives, Drives,

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and the **NEW GSOS ver 6.0**
add \$60 for RamFast SCSI card



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is 30% smaller than the floppy drive
1.4"x5.5"x7.5"

42MB(19ms) - \$389

85MB(17ms) - \$449

120MB(17ms) - \$509

170MB(17ms) - \$559

New & Exciting

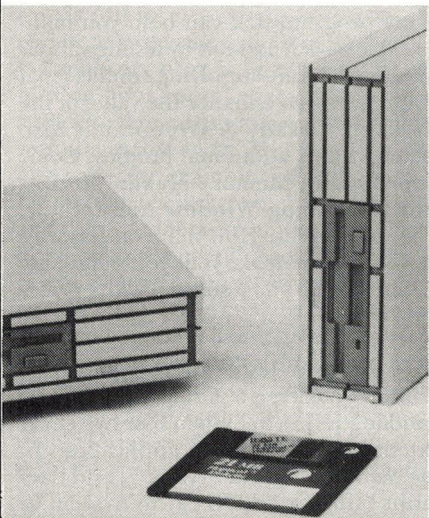
ADD to your Apple IIGs
with your Apple SCSI card
and share with your Mac:

.....
Floptical Drive 21MB \$399
.....

.....
Tape Drive 155MB \$519
.....

.....
Optical Drive 120MB \$1299
.....

.....
CD ROM Drive \$469
.....



Tulin Technology

2156H O'Toole Ave.
San Jose, CA 95131
Tel: 408-432-9057
Fax: 408-943-0782

two or more INIT's conflict in operation or memory. Conflicts may simply cause erratic behavior, or they may prevent a machine from booting. When the result of a conflict is obvious, such as a crash during booting, it's easy to identify the problem with Conflict Catcher. Less-predictable problems are more difficult to identify, but that's not the utility's fault.

Conflict Catcher does suffer from a couple of oddities, however. The program's Control Panel lets you view INIT's by type or by the order in which they load; you can switch back and forth by clicking on a labeled button. When the button reads *View by Type*, it means you're viewing by order; when you click the display changes to view by type, but the button now reads *View by Order*. This trivial design flaw is irritating at first (although it's a common convention among Mac applications).

Also, temporary files that load before Conflict Catcher during system start-up are displayed in italics — but when I viewed INIT's by the order in which they loaded, I found an italicized item in the middle of the list. Either the italicized item shouldn't have been italicized or Conflict Catcher displayed it in the wrong order. Casady & Greene's tech-support department didn't offer an explanation.

Despite these quibbles, Conflict Catcher is a valuable utility, especially if you use a variety of extensions, INIT's, or control-panel programs and like to add new ones often, or if your system crashes frequently.

SUPPORTING CAST

The usefulness of the product's "other innovative utilities" depends largely on whether your needs match their solutions. For instance, Color Coordinator lets you assign a specific color mode to applications, including the Finder. For example, you could run a word processor in black-and-white, a drawing program in 8-bit color, and an image-editing program in 24-bit color. The rationale is that running an application in the least sophisticated color mode possible improves its performance. My logic, though, says that if you bought a color system, you want to use it.

Memory Maxer lets applications grab all currently available RAM minus a user-definable reserve. For instance, if you reserve 500K and launch Adobe Photoshop while 6 megs of RAM are available, the application will be handed 5.5 megs, eliminating the need to adjust memory size manually from the *Get Info* box. You can assign "memory hunger" and RAM reserve individually to applications. Memory Maxer also lets you quit the Finder while running an application, freeing about 300K of additional memory.

Memory Maxer is convenient when additional RAM can significantly improve

the performance of an application, such as a drawing or image-editing tool. Assigning most or all of the available memory to an application, however, means you'll give up the ability to start another application. If you consistently run several applications simultaneously, this inherent trade-off may be a burdensome concession.

Of all the utilities in the package, I found HotDA most helpful. HotDA lets you assign a keystroke sequence to open a desk accessory or another *Apple* menu item. I have several printers, for example, and often need to access the Chooser to select a different output device. With HotDA I was able to open the Chooser by pressing the shift and escape keys.

Although HotDA can invoke only one accessory, you can duplicate the utility, rename it, define a different hot-key sequence, and assign the copy to another *Apple* menu item. For example, I've installed aliases in my *Apple* menu folder for frequently used applications. I assigned the HotDA copy to invoke the alias, which in turn starts up an application such as my database. The penalty for this convenience is 22K of system memory — an expensive way to create function keys.

Finally, the package's Whiz-Bang Window Accelerator utility speeds up the Finder's window-zoom rectangles. According to the documentation, it benefits faster Macs more than slower ones. The speed with which windows open and close has never bothered me, though, except on the slowest 68000-based Macs — Macs that Whiz-Bang probably won't help anyway. Even when running Whiz-Bang on my 68030-based Mac, it was hard to detect any improvement.

MIXED BAG

Installing Conflict Catcher and Other Innovative Utilities is smooth. The documentation is a straightforward 33 pages, and the utilities generally function as described. I found the tech-support personnel friendly when I finally reached them, but phone messages left at the beginning of the day weren't returned, even the next day.

Conflict Catcher is a great startup manager, and individually, the Innovative Utilities are potentially useful, but as a whole the package suffers from an identity crisis. Memory Maxer and Color Coordinator attempt to squeeze added performance from strained machines; HotDA provides convenience for those with memory to spare; and Whiz-Bang does less for slow Macs than for fast ones, which don't really need the assistance.

Is it worth 80 bucks? In the words of Damon Wayan's Homey the Clown, "I don't think so."

Barry D. Bowen
Streamwood, IL

Looking for the right Macintosh software or hardware? Here's a quick summary of some of the 22-plus Mac products we looked at in depth over the last year. Although the product version, price, and ordering information are up to date, we've indicated those cases in which we reviewed an earlier version of the product.

Applications

Bank Street Writer ★★★
\$162.45; school, \$129.95. Scholastic Software Inc., 2931 East McCarty Street, Jefferson City, MO 65102, orders: (800) 541-5513; (314) 636-5271. Combination word processor/desktop publisher. Good for teaching youngsters, but too limited to be a serious WP solution. (7/92, p. 54)

The Miracle Piano Teaching System ★★★★★
\$419.95. The Software Toolworks, 60 Leveroni Court, Novato, CA 94949, (415) 883-3000. Piano-instruction program with MIDI keyboard. Revolutionary, but the miracle happens only if you can stick with the practice schedule. (12/92, p. 24)

Education

Gold of the Americas ★★★★★
\$49.95. Strategic Studies Group, 8348 Monticello Drive, Pensacola, FL 32514, (904) 494-9373; fax: (904) 494-9374. Historical simulation of New World colonial expansion. Not particularly accurate, but plenty of fun nonetheless. (6/92, p. 30)

Headline Harry ★★★
\$59.95. Davidson & Associates Inc., P.O. Box 2961, Torrance, CA 90509, (800) 556-6141. U.S. history (1950 to 1990) and geography game. Good idea, but flawed execution. Features a few QuickTime movies — but too few. (11/92, p. 54)

Just Grandma and Me ★★★★★
\$49.95. Broderbund Software, 500 Redwood Boulevard, Novato, CA 94948-6121, (415) 382-4400. Interactive story on CD-ROM. Top-shelf electronic storybook for kids. Great graphics, great sound, engaging characters. (8/92, p. 53)

MacFrog 1.4 ★★★
\$35 b/w; \$39 color; site license \$129 b/w; \$159 color. Intellimation, P.O. Box 1530, Santa Barbara, CA 9316-1530, (800) 3-INTELL, (805) 685-2100. Dissection simulation. Won't replace the formaldehyde frog, but could be useful as introduction or post-operative refresher. (5/92, p. 52)

Spelunx and the Caves of Mr. Seudo ★★★★★
\$49.95. Broderbund Software, 500 Redwood Boulevard, Novato, CA, 94948-6121, (415) 382-4400. Non-competitive fantasy exploration for the young at heart. HyperCard based. (8/92, p. 26)

Stickybear's Reading Room ★★★★★
\$79.95. Optimum Resource Inc., 10 Station Place, Norfolk, CT 06058, (800) 327-1473. Bilingual reading-skills builder. Ever-lovable Stickybear helps children and adults find words, match words with pictures, and build sentences in English or Spanish. (1/93, p. 20)

Super Solvers Outnumbered ★★★★★
\$59.95 consumer; \$79.95 school (includes binder of classroom activities); lab \$169.95. The Learning Company, 6493 Kaiser Drive, Fremont, CA 94555, (800) 852-2255. Math and problem-solving skill builder. Colorful and fun instruction for grade-school mathematicians. (4/92, p. 54)

Time Treks ★★
\$59.95 consumer; \$89.95 school. Davidson & Associates Inc., P.O. Box 2961, Torrance, CA 90509, (800) 556-6141. History game. HyperCard-based attempt at open-ended, discovery-based learning. Falls short in several categories, including historical accuracy. (10/92, p. 28)

Wordtris ★★★
\$49.95. Spectrum HoloByte, 2490 Mariner Square Loop, Alameda, CA 94501, orders: (800) 695-GAME; (510) 522-3584. Arcade game: word spelling with falling letters. Not as addictive as the original. Success often depends more on luck than word acumen. (6/92, p. 54)

Games

oids ★★★
Mac, \$44.95. FTL Games, 6160 Lusk Blvd., Suite C-102, San Diego, CA 92121, (619) 453-5711. Space arcade game with editor. A combination of Asteroids, Defender, and a million other stand-up arcade games. OIDS has a large on-line following. (4/92, p. 26)

PGA Tour Golf ★★★★★
\$59.95. Electronic Arts, 1450 Fashion Island Blvd., San Mateo, CA 94404, (415) 571-7171. Golf simulation. Fun and playable, lets you feel like a pro. (4/92, p. 26)

Spectre ★★★★★
\$59.95 single-user edition, \$99.95 three-user LAN pack. Velocity Development Corporation, 2161 Union Street, San Francisco, CA 94123, (415) 776-8000. 3D arcade battle game. Fast-paced action in an electronic world. Blast your buddies into cyberspace. (5/92, p. 54)

Utilities

MacPalette II 2.2 ★★★★★
\$69; \$249 AppleTalk version. Microspot, 20421 Stevens Creek Boulevard, Cupertino, CA 95014, (800) 622-7568; (408) 253-2000. Color printer driver. Essential for color printing on ImageWriter II from your color Mac. (1/93, p. 22)

Stack Enhancers ★★★★★
\$69 U.S., \$79 Canada. Cheshire Grin Productions Ltd., 2145 Sherobee Road, Suite 43, Mississauga, ON L5A 3G8, Canada, (416) 896-8077. HyperCard 2.x-series add-on. Esoteric, but fun buttons, XCMDs, and scripts. (3/92, p. 54)

Collections

MacGlobe ★★★★★
\$49.95. Broderbund Software, 500 Redwood Blvd., Novato, CA 94948-6121, (415) 382-4400. Electronic atlas with maps and national data. You'll have the whole world in your hands with this product, even though the world keeps changing. (3/92, p. 24)

MacUSA ★★★★★
\$49.95. Broderbund Software, 500 Redwood Blvd., Novato, CA 94948-6121, (415) 382-4400. U.S. geography maps, charts, and information database. High information content and an easy interface make MacUSA both useful and just plain fun. (11/92, p. 58)

USA Geograph ★★★★★
\$69. MECC, 6160 Summit Drive North, Minneapolis, MN 55430-4003, (800) 685-6322; (612) 569-1549. U.S. geography maps, charts, and information database. Just a shade below its competition, this product isn't quite as flexible, but holds its own in terms of depth and breadth of information. (11/92, p. 58)

Hardware

DeskWriter 550C ★★★★★
\$1099. Hewlett-Packard, 19310 Pruneridge Avenue, Cupertino, CA 95014, (800) 752-0900. Color ink-jet printer for Macintosh. Affordable, quality color output from an established name in printer technology. (3/92, p. 25)

InFocus 1600LC PC Viewer ★★★★★
\$2695 1600LC color; \$1695 1600GS monochrome. InFocus Systems, 7770 Southwest Mohawk Street, Tualatin, OR 97062, (800) 327-7231; (503) 692-4968. 16-color LCD projection panel. Sometimes you just gotta see the big picture, right? These color and monochrome displays are reasonably priced solutions to either classroom or business presentations. (9/92, p. 52)

Tulin Optical Drive ★★★
\$1319 includes one cartridge, \$49 each additional cartridge. Tulin Technology, 2156H O'Toole Avenue, San Jose, CA 95131, (408) 432-9057. Rewritable, removable optical storage. Although much slower than a hard-disk drive, 120MB 3.5-inch optical cartridges provide unlimited, virtually indestructible data storage for power users. (1/93, p. 49)

- **MUST BUY**
- **FORGET IT!**
- **WORTH A SECOND LOOK**

A Field Trip to the Sea

**Wings for Learning/
Sunburst Communications**
P.O. Box 660002
1600 Green Hills Road
Scotts Valley, CA 95067-0002
(800) 321-7511

- new science simulation
- System 6.0.7 or later requires 1MB for monochrome, 2 MB for color
- System 7 requires 4MB for color
- hard disk recommended
- \$99

Kids don't have to journey 20,000 leagues under the sea to appreciate the ecologically rich marine environment of California's rocky coast. In this open-ended science simulation, youngsters in grades 2 through 10 use a Mac to explore 23 graphics screens of plants and animals specific to the region. Students click anywhere on screen for a close-up view. A *Link* button takes them to another location where these same marine creatures can be found. An on-line *Guide* contains detailed pictures and text on 55 plant and animal homes, food sources, enemies, and friends.

A *Data Table* classifies information on 76 plants and animals of the area; youngsters sort data by categories such as name, size, niche, phylum, and type. A *Field Trip to the Sea* even challenges underwater naturalists to complete 15 food chains. It's a great program for introducing kids to the diversity of life in the underwater kelp forest.

Ace Detective

**Mindplay/
Methods & Solutions**
3130 North Dodge Blvd.
Tucson, AZ 85716
(800) 221-7911, (602) 322-6365

- new reading program
- requires Mac Plus or higher

- System 6.0.5 or later requires 1MB for monochrome, 2MB for color
- System 7 requires 4MB for color
- hard disk installable
- \$69.99

Ace Detective sends enterprising gumshoes on fact-finding missions that build critical-reading and creative-writing skills. Challengers play the game as Ace himself or as Paula, Ace's quick-thinking partner. The object of the game is to track down a criminal while using the computer to store clues gathered during the course of your investigation. Players read police reports, follow leads, and pick up facts by visiting crime scenes, viewing mug shots, and interviewing witnesses. When you find the right suspect with motive, means, and opportunity to commit the crime, you can obtain an arrest warrant.

You can play Ace Detective with or without a timer at three levels of difficulty, each with 20 missions. In addition, a *Challenge Upgrade* feature lets you create your own stories. This engaging whodunnit makes reading exciting and fun.

Alphabet Blocks 2.0.1

Sierra On-Line, Inc.
P.O. Box 485
Coarsegold, CA 93614
(800) 326-6654, (209) 683-4468

- preschool reading-program upgrade
- 3MB Mac LC or higher
- requires System 6.0.7 or later
- System 7 requires 4MB
- requires 256-color monitor
- requires hard drive, 10MB free space
- \$49.95

Alphabet Blocks requires 10 megabytes of free space on your hard drive, but it's worth every bit if you have preschool-aged children. This interactive program features four game-style activities that teach children upper- and lowercase letters and simple vocabulary. A friendly animated monkey named Coach Bananas encourages children to identify letters by sound, or words that begin with particular letter sounds. Coach Jack, an animated jack-in-the-box, invites kids to select letters by name or letters that match a target character. Friendly digitized voices, fast-action animations, terrific sound

effects, and great music all provide positive reinforcement. Objects on screen respond when selected, rewarding children for being curious. *Grown-Up Choices* offers a variety of customization options. Alphabet Blocks is a solid educational program with a "wow" factor of 10.

Correct Grammar 3.01

WordStar International Inc.
201 Alameda Del Prado
P.O. Box 6113
Novato, CA 94948
(800) 523-3520

- grammar-checker upgrade
- 1MB Mac Plus or higher
- requires System 4.0.2 or later
- requires hard disk
- \$99

The latest version of WordStar's Correct Grammar helps Mac users mind their Ps and Qs and a whole lot more as they check word-processed documents for improper sentence structure and errors of grammar and spelling. As the software analyzes the text, it locates any suspect words, phrases, or sentences, explains the problem, then recommends changes according to standard grammatical conventions. You can also tailor the program to your own writing style. Correct Grammar supports a variety of word processors, including Microsoft Word, Microsoft Works, MacWrite, WriteNow, and WordPerfect.

Some people will find Correct Grammar helpful, but think before you follow its recommendations: The program frequently suggests changes that are out of context.

Expert Writer

Expert Software
800 Douglas Entrance
North Tower #355
Coral Gables, FL 33134-3128
(305) 567-9990
(800) 759-2562

- new word-processor DA
- 1MB Mac Plus or higher
- requires System 4.1 or later
- System 7 requires 2MB
- \$49.95

This simple word processor is actually a desk accessory you can use to create letters, memos, and faxes while you work in another application. You can open any Expert Writer document by double-clicking on its icon without launching the DA first.

The software includes a built-in spelling checker, address book, and envelope-printing capability and supports PICT files for use as letterhead graphics. You'll also find more than three dozen sample letters (credit letters, leases, and so on), which you can use as small-business stationery templates. Many are set up for mail merge with contacts you enter in the application's address book.

Expert Writer also includes 19 sample fax cover sheets, with original PICT-file artwork you can edit. If you need a basic, low-cost word processor, this inexpensive DA sports several frills with minimal memory overhead (50K).

New Grolier Multimedia Encyclopedia

Grolier Electronic Publishing
Sherman Turnpike
Danbury, CT 06816
(800) 356-5590, (203)797-3500

- updated electronic encyclopedia on CD-ROM
- 1MB Mac Plus or higher
- MultiFinder requires 2MB
- requires System 6.0.5 or later
- QuickTime movies require System 6.0.7 or later, 4MB, color display, 68020 or faster CPU
- requires hard disk, 1MB free space
- requires Mac-compatible CD-ROM drive
- \$395

Grolier's electronic reference on CD-ROM gets better with every release. The 1992 edition still includes the entire 21-volume *Academic American Encyclopedia* on a single disc, but adds 7000 new or updated articles, 1000 new color and black-and-white illustrations, QuickTime animations and videos, and more than 250 high-resolution color maps — plus new speeches, high-quality sounds, animal vocalizations, and music clips.

A *Timeline* lets researchers explore important historical events from prehistoric times to the present. A *Knowledge Tree* index, structured around six major topical "branches" (geography, history, science, and so on) provides access to

articles through a hierarchical list of topics and subtopics. For the price, this comprehensive desktop reference can't be beat.

Super Tetris

Spectrum HoloByte
2490 Mariner Square Loop
Alameda, CA 94501
(510) 522-1164 customer support
(800) 695-GAME orders

- new problem-solving game
- Mac Plus or higher
- requires System 6.0.5 or later
- requires 2MB Mac II for color
- color requires hard disk, 256-color video card
- \$49.95

Super Tetris blocks fall from new heights to amazing depths, as Russian melodies play faster and faster. The excitement is enough to drive you over the edge. Forget work; forget meals — when you take the Super Tetris challenge, you're always out to lunch.

This latest Tetris variation plays out in a pit partially filled with water. Below the surface lie other blocks and bonus treasures. You must clear the pit by manipulating falling blocks to form solid lines. You have only a limited number of falling blocks at your disposal.

Score points for each line you complete, then move on to more-difficult levels with every pit you empty. Tension mounts; your enthusiasm and blood pressure rise.

With Super Tetris, Spectrum HoloByte scores another addictive chip off the old Tetris block.

Swamp Gas Visits Europe

Inline Design
308 Main St.
Lakeville, CT 06039-1204
(800) 453-7671, (203) 435-4995

- new geography program
- 1MB Mac Plus or higher
- requires System 6.0.5 or later
- \$59.95

So you haven't saved enough francs for a trip to the Left Bank or sufficient lire for La Dolce Vita on the Via Veneto . . .

Why not try Swamp Gas Visits Europe instead? It's an entertaining geography

program that builds map-reading skills while strengthening your knowledge of Continental countries and capital cities.

The programs casts you as a friendly extraterrestrial visitor; you must pilot your flying saucer to at least five or as many as 50 locations within a set time limit. Up to four challengers can play in one round. Three levels of difficulty promise several hours of educational fun.

Complete a mission (even if you're not successful) and you can visit the *Alien Arcade*, where you test your trigger finger playing one of three entertaining fast-action games — *Fungus Patrol*, *Andromedroids*, or *Quasar Rain*. Arcade activities don't reinforce the geography concepts; nevertheless, this program will motivate children to learn their facts and figures.

The Tell-Tale Heart

Discis Knowledge Research Inc.
P.O. Box 45099
5150 Yonge St.
Toronto, ON M2N 6N2
Canada
(800) 567-4321, (416) 250-6537

- new electronic book on CD-ROM
- 1MB Mac Plus or higher
- requires 2MB for color
- System 7 requires 4MB for color
- requires hard disk
- requires Mac-compatible CD-ROM drive
- \$59.95
- \$89.95 with Teacher Handbook

Edgar Allen Poe's "The Tell-Tale Heart" is an amazing story of madness and murder. Written in the 1830s, this haunting first-person narrative takes readers on a chilling voyage into an insane mind.

In the Discis CD-ROM version of this horrifying tale, you can listen to two dramatic readings, each featuring spine-tingling sound effects, colorful illustrations, and music.

Words in the text are highlighted as the computer reads them. The disc also includes a series of follow-up questions and commentaries to help students understand the story and to stimulate classroom discussion.

Customization options offer English or Spanish word pronunciations, definitions, on-line help, and information on parts of speech. An optional *Teacher Handbook* provides the full text of the story, additional questions, and suggestions for supplemental activities.

If "The Tell-Tale Heart" is on your reading list, this electronic book is an absolute must.

COVER FEATURE

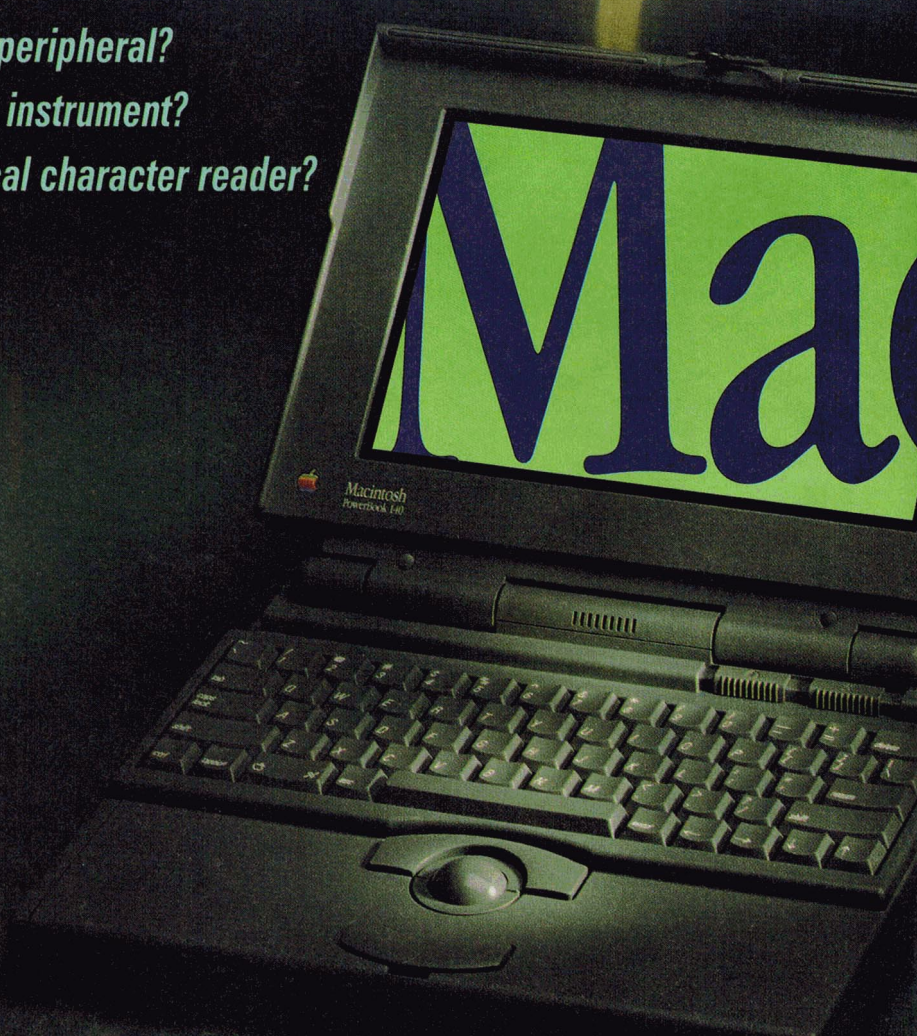
POWER PE

BY PHILIP CHIEN AND THE STAFF OF INCIDER/A+

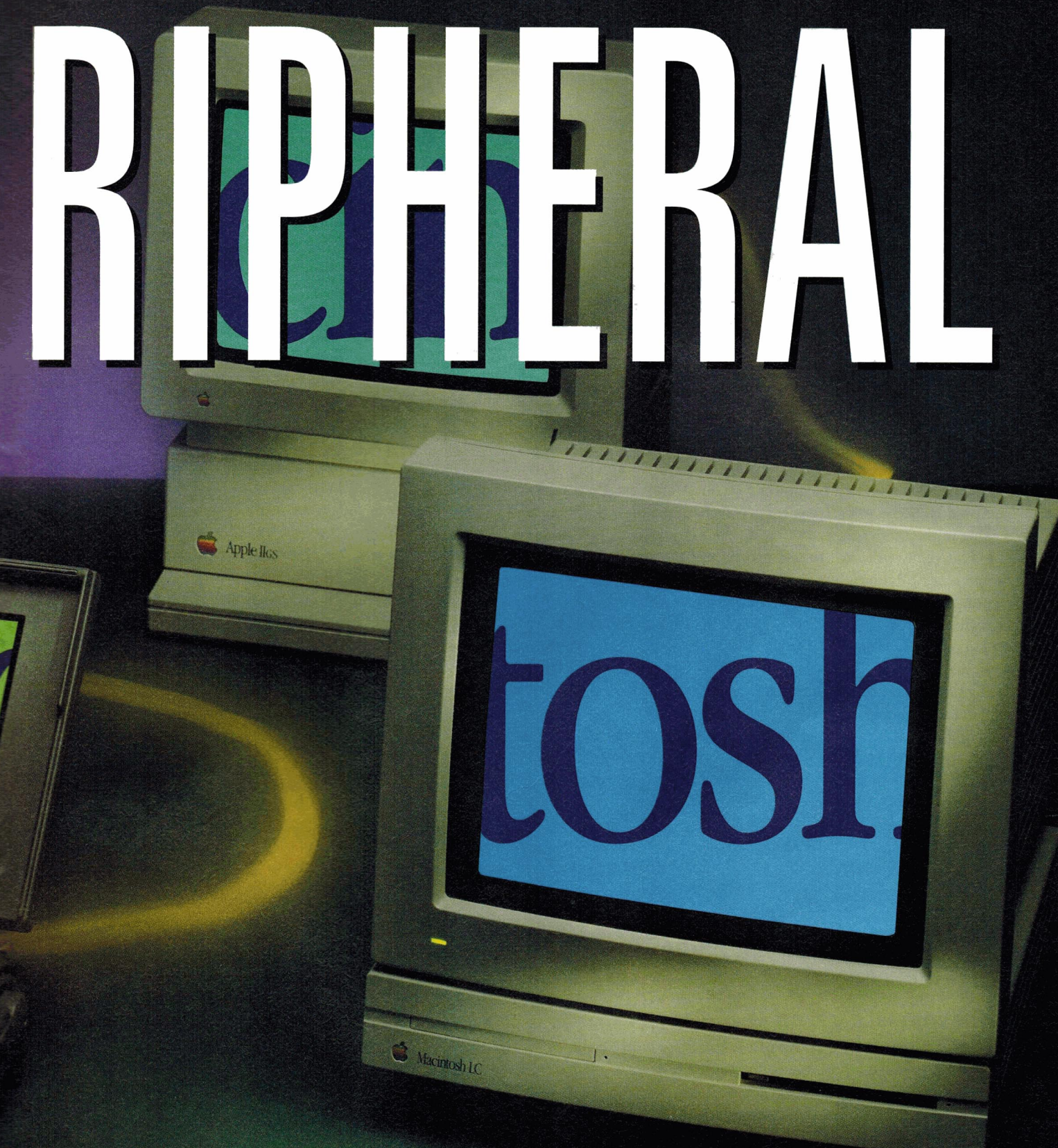
*What's the ultimate Apple II peripheral?
A color scanner? A scientific instrument?
A \$20,000 typesetter or optical character reader?
How about a Macintosh?*

That's right: Apple's "other" computer can be your Apple II's portable in the field, a telecommunications unit, a quality desktop-publishing center, a number cruncher, a file server. That's because Apple IIs and Macs are much more similar than most people realize — they can work quite effectively together, complementing each other's abilities.

Macintoshes make great helpers for Apple IIs. A lightweight Mac can go on the road



RIPHERAL



Apple IIs and Macs can work quite effectively together, complementing each other's abilities.
Shown left to right: Powerbook 140, Apple IIgs, Macintosh LC

POWER PERIPHERAL

when a heavier Apple II can't. And even if Apple won't encourage development of new kinds of peripherals for the Apple II, you can still use the latest hardware — on a Mac connected to a II. You can also use Apple II data with all kinds of software unique to the Macintosh, including the very best desktop-publishing applications.

A Macintosh can pick up the pace of intensive work with spreadsheets and graphics, too — but if you're just looking for the basics, remember that you don't need the biggest or newest system to take advantage of Mac power for your Apple II. Some great bargains are available in the used-Mac market, too.

Is it really practical to use two different types of computers with two different operating systems and completely different programs? Sure — why not? There's no reason you can't learn how to maneuver through two word-processing programs, or graphics packages, or database managers, and no reason you shouldn't use both — because each has its own advantages.

It's easy to find similar programs for both platforms, too. For example, if you use **AppleWorks** on the II, **ClarisWorks**, **BeagleWorks**, and **Microsoft Works** offer modules with similar functions. You can use the II whenever it's more efficient and the Mac whenever it's better adapted for a particular task. You can transfer files between the two computers without losing any information.

THE PORTABLE APPLE II

The Apple IIc was Apple's first attempt to make a portable computer — but the machine didn't succeed in that niche. While the IIc makes an excellent desktop computer, it's impractical as a portable. Its liquid-crystal screen is low-contrast and difficult to read, its power supply is heavy, its 12-volt power cords

are hard to find, and many of the IIc's important accessories (such as a modem) are external. That's way too much to lug around.



The Mac PowerBook 100, with built-in text processing, can write to ProDOS disks.

On the other hand, a Macintosh **PowerBook** is lightweight and includes a readable display, an internal battery, and the ability to use an internal modem. You'll find a number of low-cost MS-DOS laptops and notebooks on the market, but a portable Mac can read and write ProDOS disks directly.

Remember that you don't need the fastest PowerBook with the sharpest color and screen resolution if you simply want to take notes in the field: Apple's PowerBook 100 was considered a failure because it was slow and difficult to expand, with poor screen resolution. But PowerBook 100s are now a bargain on the used-computer market, often available for less than \$1000. You don't even need to pay extra for a Mac word processor — you can take notes and save text files with Apple's free **TeachText** application. It's far from full-powered, but you can type in text, as well as cut, copy, and paste it. (You won't need to wonder how styles, fonts, and sizes will make the transition to your Apple II, because TeachText doesn't offer any.)

DOUBLE YOUR HARDWARE

One of the biggest complaints for II owners is lack of new accessories. Many "Mac" devices, however — including many products from Apple Computer — can connect to a II directly without any problem (the **LaserWriter LS**, the **Apple OneScanner**, and various Hewlett-Packard printer models, to name just three examples), but can't work with a II out of the box because no driver software is available for the II. A few third-party companies have pro-

duced drivers — such as Vitesse's **Harmonie** and Seven Hills Software's **Independence** for the GS — that make SCSI and serial products from other companies compatible with Apple IIs. When no driver is available, though, one solution is to hook up the device to a Macintosh and use that Macintosh as a hardware interface.

For example, you can write letters on your II and then transfer them to the Mac to print on a LaserWriter or an HP **DeskWriter**, or send copy over a fax modem. Many Macintosh fax modems — such as the innovative **PowerPort** series, which uses the Apple Desktop Bus (ADB) to connect to the Mac — can receive faxes as well as send them. A Mac with a fax modem can wait all day and night for incoming material, without tying up your main computer.

You may prefer to scan pages of text into a Mac and choose from among the many optical character-recognition (OCR) software packages available for the machine. (WestCode's **InWords** brings OCR technology to the Apple IIGs, but Mac software such as Caere's **OmniPage** is faster and more accurate.) It's then a simple matter to use your Mac word processor to either save the text as an ASCII text file or use the Mac's built-in **Apple File Exchange** utility to save it as ProDOS text.

If you use a word processor such as **MacWrite II** that incorporates Claris' XTND (*Extend*) software technology, and an Apple IIGs with System 6's *HFS file-system translator*, which can read the Mac's hierarchical file structure, you can even save text files directly as AppleWorks documents. (See the accompanying sidebar, "Exchanging Disks and Files," for details.)

You can input photos with a Macintosh scanner, too, and save them in II-compatible graphics modes. *Graphics-interchange format* (GIF) is the easiest to use. After you save a Mac image as a GIF file, Seven Hills Software's **SuperConvert** can transform it into an Apple II format, as can Roger Wagner Publishing's **Graphics Exchange**.

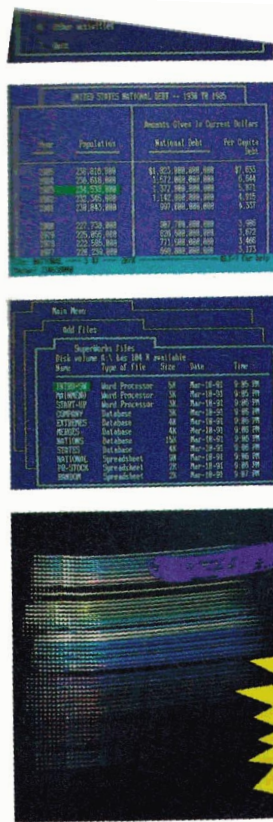
While drivers are available to connect CD-ROM (*compact-disc read-only memory*) units to Apple IIs and IIGs, few of the

MS-DOS APPLEWORKS*

*inCider A+ Magazine, August, 1991

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"MS-DOS APPLEWORKS" *inCider/A+ 8/91*"

What do you say to an "MS-DOS clone" of Appleworks 3.0? Remarkable Technologies' SUPERWORKS (\$199), has caused more than one double-take around here. SUPERWORKS functions like Appleworks on any IBM PC except that it's faster. If you use Appleworks and can train your fingers to find their way around an MS-DOS keyboard, you can use SUPERWORKS. It even incorporates some features for which Appleworks users pay extra.

★★★★ *inCider Magazine, November 1991*

Miami Herald/Craig Crossman 8/12/91

"Known as SUPERWORKS, this Appleworks clone does almost everything Appleworks does and more. If you know how to use Appleworks, you can use SUPERWORKS without picking up a manual. SUPERWORKS brings the functionality of Appleworks to the MS-DOS world while leaving behind many of its limitations."

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Exchanging Disks and Files

Apple IIs and Macs may speak in different tongues, but with the right translators, they can exchange disks and data files readily. Today you can plug ProDOS- (including GS/OS-) formatted disks into your Mac, or HFS (hierarchical file structure — Mac format) disks into your IIGs, and have no-fuss access to all your stored files. And Mac/Apple II-swapped files can retain text- and other specially formatted information that was often lost with earlier translator systems, such as common ASCII text files.

For disks, both System 6 for the IIGs and System 7 for the Mac contain special software extensions, known as FSTs (file-system translators), which recognize ProDOS and Mac disk formats automatically. With an FST installed in your System folder, you can put a 3.5-inch floppy created on your IIGs into your Mac, and vice versa, and read and write data files without running any special utilities. Because ProDOS doesn't have FSTs, though, you can't put Mac disks directly into any II except the GS.

To share files between your Mac and Apple II — particularly if you need to retain text formatting and other special, application-specific information — you need Claris' XTND technology. It's a "universal" file-translation system found bundled with many of Claris' Mac products, such as ClarisWorks. XTND is also licensed by other Mac application manufacturers.

XTND is installed in a special Claris folder within the Mac's System 7 Extensions directory, along with a variety of file-format translators. Mac applications then use XTND and the appropriate translator to load and save other applications' file formats, thereby preserving many of the original file's special characteristics.

Together with disk-sharing FSTs, for example, you might create an AppleWorks GS spreadsheet, save it on a ProDOS disk, then put that disk into your Mac and load the file directly into ClarisWorks. All of the disk and file-format translations occur transparently, so it's as if you had originally created that AppleWorks spreadsheet on a Mac with ClarisWorks.

Unfortunately, there isn't any XTND utility for the Apple II, including the IIGs, so you can't load a ClarisWorks document, for example, directly into AppleWorks. You must first load that document into ClarisWorks on a Mac and use XTND to save the document as an AppleWorks file on a ProDOS disk before you can load it into your Apple IIe.

You can save that same ClarisWorks document as an AppleWorks file on a Mac HFS disk if you'll load it later into your IIGs, because your GS' System 6 FST can recognize Mac disks.

Claris supplies XTND word-processing file translators for MacWrite, Microsoft Word, AppleWorks, AppleWorks GS, Write Now, Word Perfect, and WordStar, among other popular text formats.

Likewise, XTND drivers are available for several graphics formats, spreadsheets, and simple file-card databases (such as AppleWorks' database).

There are many different types of XTND translators from different sources — of differing quality. One publisher's XTND translator may translate only other file formats into its own, without the ability to reverse the process and write files back into other formats.

Or, while some XTND drivers transfer all of a document's special formatting commands, others may transfer only limited functions.

titles available on disc work with Apple IIs. For instance, many great works of literature, such as the plays of **Shakespeare**, are available on CD, but you need Macintosh software to search through the text for the data you want. If you use a Mac to retrieve the data, however, you can then transfer it to your Apple II.

Similarly, no CD-ROM encyclopedia is sold for the Apple II, but you can use Macintosh multimedia versions of either **Grolier** or **Compton's** to "download" the text or pictures you want, then convert them to Apple II formats as outlined above. You may also be able to convert many stock photographs available on Macintosh CDs in this way.

SOFTWARE CHOICES

The flip side of using the Mac as a hardware server is to use it in cases where a particular type of software is available for the Apple II, but better, or easier-to-use, versions are available for the Macintosh.

For example, the Mac edition of the popular commercial information service **America Online**, like many other menu-oriented programs, sports a better interface than the II version's. A Mac with a modem can download Apple II programs, which you can then transfer from Mac to ProDOS disks. (On the other hand, if you favor a text-based on-line service such as **Genie** or **CompuServe**, you'll find that your Apple II meets your needs.)

AppleLink, Apple's internal telecommunications service (now open to the public), cries even more loudly for a Macintosh. It's all but impossible to navigate through AppleLink's international messages and thousands of files of Apple information in any other manner than by "pointing and clicking."

It's also handy to be able to use a low-cost Macintosh as a "dedicated" telecommunications machine: a computer that's turned on and connected to your modem all day long.

If you've devoted a Macintosh to on-line duty, you can work at your Apple II while you download files to a shared hard drive, where you can pick them up later. You can set up a Mac with an all-

The Mac IIe

The **Apple IIe Card** is a simple, small, relatively inexpensive accessory that plugs into the expansion slot in a Mac LC or the new Color Classic. With its included **II.SYSTEM** software, the Apple IIe Card lets your Mac run Apple II programs, as well as share disks and data. What's not widely known is that the

Apple IIe Card's **II.SYSTEM** software sports several interesting (and virtually undocumented) "features."

Part of the **II.SYSTEM** software is a driver that permits your Mac to read and write ProDOS disks directly. ProDOS disks appear on the Mac desktop, from which you can drag, drop, and otherwise manage files, or use them with your Mac applications just as if they were on a Mac disk. What you may not know is that the **II.SYSTEM** ProDOS driver works with any Macintosh, not just the LC or the new Color Classic. And **II.SYSTEM** is available on AppleLink and other on-line services and from Apple user groups.



to your LC's hard drive and transfer files directly between the Mac and ProDOS partitions on the hard drive.

Unfortunately, it's difficult to reset a partition size; you have to reformat the drive and set up your partitions again.

Note that although a Mac LC with an Apple IIe Card can be useful for schools, it's not a replacement for a real IIe. The IIe Card is slow, particularly with graphics and animation. The IIe Card's ProDOS clock also contains the infamous year bug, which dates files incorrectly five years earlier. Its peripheral-card support is limited, and its keyboard layout is inconvenient — especially the location of Control and Escape.

Another important feature of the software that comes with the IIe Card is its hard-disk-drive setup utility. A SCSI-compatible Mac LC hard drive can contain both Mac and ProDOS partitions.

The only version of **HDSsetup** with the ability to add a ProDOS partition is the one supplied as a separate driver utility, which you must run separately, with the IIe Card. Once you've installed it, you can save ProDOS files

purpose telecommunications program, such as Freesoft's **White Knight**, to receive text files from any remote computer.

If you're interested in music, you'll find your Apple IIGs a high-quality synthesizer — but a lack of professional MIDI software for the GS may frustrate you. Make a Macintosh your MIDI connection instead. You can create MIDI files on your GS — that's called "sequencing" in the computer musician's jargon — and use software such as Paul James' freeware **Sound Studio** or Ian Schmidt's \$10 shareware program **AudioZap** to convert them to Macintosh format. Once your MIDI files are on the Mac, you can use scoring software to create sheet music, and all kinds of editing and composition software to manipulate your sounds into music.

Macintosh presentation software designed to show a series of slides to a large audience is also more sophisticated than similar Apple II software. You can convert your text and graphics to Mac

format and use standard presentation software such as **MacroMind Director** (Macromedia), **PowerPoint** (Microsoft) or **Persuasion** (Aldus) to create a slide show that will run on almost any Mac.

Another type of program that may be easier to use on a Macintosh is a spelling or grammar checker. For instance, the spellers built into **AppleWorks GS** and **ClarisWorks** are similar, but **ClarisWorks'** corrects your orthography much faster. Mac spell checkers and style or grammar checkers really benefit from the Mac's faster processing speed.

FANCY-DRESS MAC

You'll find a number of excellent page-layout utilities for the II, including **Publish It!** and **AppleWorks GS**. And if you have a PostScript printer you can create high-quality images directly from the Apple II.

When you want still higher-quality desktop-publishing results or fancy output beyond the capabilities of stan-

dard II-compatible programs, though, consider using a Mac layout program to design dressed-up output for presentations, proposals, and résumés.

Desktop-publishing programs that are available in both Apple II and Macintosh versions, such as **Publish It!** (Timeworks) and **The Writing Center/The Children's Writing and Publishing Center** (The Learning Company), include translators that make it a simple matter to create your newsletter on an Apple II and print it from the Mac.

Macintosh desktop publishing also has a distinct advantage when you don't own a laser printer. Many service bureaus and copy shops now offer laser-printing service: The shop simply takes your PostScript files and prints them for a small fee. But these shops usually have Macs and PCs and expect that your files will be in one of those formats.

MAKE THE MAC COUNT

For the most part, all computers share a similar architecture — they include a

POWER PERIPHERAL

microprocessor, memory, and a display. There's no doubt that the Mac's 32-bit 68000-family processor is much more powerful than the Apple II's 8-bit 6502. But you don't need a super-powerful computer for simple word processing or other character manipulation; in almost all cases, the system uses most of the Mac processor's power to draw fancy displays and make programs more "user friendly." Still, there are cases where the Mac's processor does make a difference.

It's obvious that spreadsheets, for example, do heavy number crunching, and it may be faster in some cases to convert an AppleWorks or AppleWorks GS spreadsheet, for example, to a Macintosh format before a major recalculation, so that you can use the Mac's powerful processor to do the dirty work. That's especially true if you have a Mac with a special mathematics processor called a *floating-point unit* (FPU). The Mac SE/30 has one, a Motorola 68882, as do most of the more-powerful Macs. The FPU is optional with the Mac LC and PowerBooks.

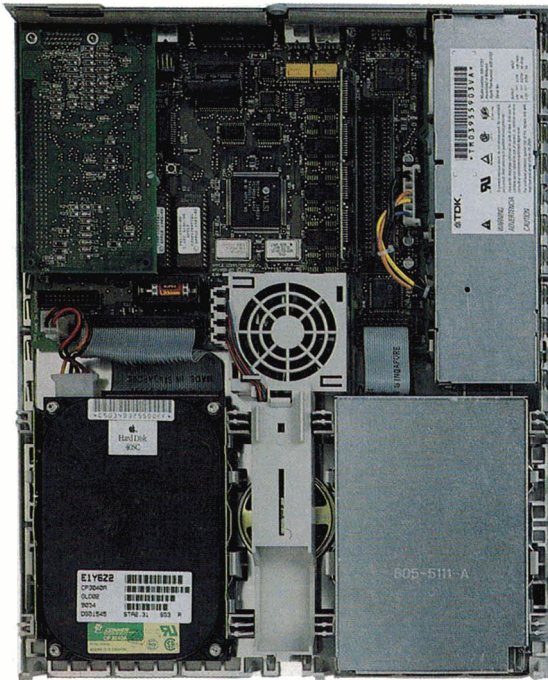
In some cases you may want to start with the Mac and transfer the results to your II. For example, I've used Mac orbital-dynamics programs to calculate the predicted locations of artificial satellites, and saved the results in a text file. Transferring the file to a ProDOS disk, I've then used the data as input for an Applesoft BASIC program that manipulates the results.

It's less obvious how much mathematics is involved in the creation and manipulation of computer graphics. If you often need to change the colors in a digitized photograph or otherwise "touch it up," for example, you might consider doing the job on a Macintosh, using a program such as Adobe's **PhotoShop**, even if the original art was created on an Apple II.

WISH LIST

While it's possible to use Macs and IIs together, it's not as simple as it could be.

The development of some simple drivers and hardware devices and — most importantly — a change in manufacturers' attitudes could make these computers much easier to use with each other. If a company releases a product that interfaces the Mac to some hardware device, why not offer II driver as well — or at least enough documentation to permit a third-party company to



Mac LC logic board; IIe Card installed, top left.

develop a driver? It's important to note that a number of universities, government agencies, and schools still purchase Apple IIs, IIs, and IIGs because they have established networks of IIs and extensive II product libraries. The ability to use existing computers with new products encourages users to continue purchasing Apple equipment instead of other brands of computers.

Here's my own wish list of hardware and software products to make Apple IIs more usable with Macintoshes in multi-platform environments:

- **The ability to read and write files directly to a Macintosh's hard drive from a GS or a IIe with AppleTalk card.** While AppleShare does make that possible, it requires a dedicated computer, and the II can access files only from a ProDOS partition. A number of utilities let Macs read to and write from

other Macintoshes' hard drives on an AppleTalk network — so why not add ProDOS?

- **A software driver to connect II SCSI cards directly to Macintosh hard drives.** Imagine disconnecting your Mac's hard drive and hooking it up to your II's SCSI card and reading and writing files. Unfortunately, no SCSI card comes with the right software to recognize Macintosh drive formatting. Better yet — can you imagine hooking up a II and a Mac to the same hard drive directly via the same SCSI bus? There's no reason why the hardware can't handle it — just lack of software.

- **The ability to hook up a PowerBook directly to a II's SCSI port.** This is the same problem from the opposite side. The PowerBook 100 can connect directly to another Mac's SCSI port; its hard drive looks like an external hard drive as far as the Mac is concerned. But this feature isn't available in the other PowerBook models, and it doesn't work with a II's SCSI card.

- **Drivers for QuickDraw and other Macintosh printers for all II modes.** You can access PostScript printers on AppleTalk networks easily from GS/OS, but not other Macintosh printers. ProDOS 8 users can't access most AppleTalk printers at all.

- **And the ultimate hardware item — something that would make Macs and IIs more members of the same family instead of distant cousins? The Mac GS.** A dream version of this rumored machine would be a 68030 or 68040 Macintosh with six NuBus slots and a processor-direct slot (like the Mac LC's). The GS board would be an inexpensive option, with its own slots capable of supporting standard Apple II cards. The system would support all GS functions — transparently, and as efficiently as if they were running on a standard Apple IIGs. Now wouldn't *that* be the ultimate power machine. □

PHILIP CHIEN IS A FREQUENT CONTRIBUTOR TO *INCIDER/A+*'S REVIEWS SECTION. WRITE TO HIM C/O *INCIDER/A+*, 80 ELM STREET, PETERBOROUGH, NH 03458. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

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AppleLink Consumer Edition,
cost unavailable at press time

Apple OneScanner, \$1178

Apple IIe Card, \$145

Personal LaserWriter LS,
\$1079

PowerBook 100, \$1599

PowerBook 145,

\$2149/\$2789/\$2499

PowerBook 160,

\$2429/\$3149

PowerBook 180,

\$3869/\$4229

PowerBook Duo 210, \$2249

PowerBook Duo 230,

\$2609/\$2969

Apple Computer Inc.

20525 Mariani Ave.

Cupertino, CA 95014

(408) 996-1010

(800) 776-2333

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AppleWorks Classic, \$249

AppleWorks GS, \$299

ClarisWorks, \$299

Claris Corporation

5201 Patrick Henry Drive

P.O. Box 58168

Santa Clara, CA 95052

(408) 727-8227

BeagleWorks

Quality Computers

20200 East Nine Mile Road

P.O. Box 665

St. Clair Shores, MI 48080

(313) 774-7200

(800) 777-3642

\$69.95

**The Childrens' Writing
and Publishing Center**, \$59.95

The Writing Center, \$89.95

The Learning Company

6493 Kaiser Drive

Fremont, CA 94555

(510) 792-2101

(800) 852-2255

Compton's Multimedia Encyclopedia

Compton's New Media

2320 Camino Vida Roble

Carlsbad, CA 92009

(619) 929-2500

\$795

CompuServe Information Service

5000 Arlington Centre Blvd.

P.O. Box 20212

Columbus, OH 43220

(614) 457-8600

(800) 848-8199

\$39.95 membership

\$6 to \$12.50/hour connect time

DeskWriter, \$599

DeskWriter C, \$1095

Hewlett-Packard Co.

19310 Pruneridge Ave.

Cupertino, CA 95014

(800) 752-0900

GENie

General Electric

Information Services

401 North Washington St.

Rockville, MD 20850

(800) 638-9636

\$29.95 membership

\$5 to \$18/hour connect time

Graphics Exchange

Roger Wagner Publishing

1050 Pioneer Way

Suite P

El Cajon, CA 92020

(619) 442-0522

\$49.95

Grolier Multimedia Encyclopedia 1992

Grolier Electronic Publishing

Sherman Turnpike

Danbury, CT 06816

(203) 797-3500

(800) 356-5590

\$395 plus \$4 shipping

Harmonie

Vitesse Inc.

13909 Amar Road

Suite 2

La Puente, CA 91746-1669

(818) 813-1270

(800) 777-7344

\$54.95

Independence, \$39.95

SuperConvert, \$39.95

Seven Hills Software

2310 Oxford Road

Tallahassee, FL 32304-3930

(904) 575-0566

(904) 576-9415 tech support

(800) 627-3836

InWords

WestCode Software

15050 Avenue of Science

Suite 112

San Diego, CA 92128

(619) 679-9200

\$129

MacroMind Director

Macromedia Inc.

600 Townsend St.

San Francisco, CA 94103

(415) 442-0200

\$1195

Microsoft Word, \$495

Microsoft Works, \$249

PowerPoint, \$495

Microsoft Corp.

1 Microsoft Way

Redmond, WA 98052-6399

(206) 882-8080

(800) 426-9400

OmniPage Direct, \$595

OmniPage Professional, \$995

Caere Corporation

100 Cooper Court

Los Gatos, CA 95030

(800) 535-SCAN

Persuasion

Aldus Corporation

411 First Ave. South

Seattle, WA 98104-2871

(206) 622-5500

(800) 333-2538

\$495

PhotoShop

Adobe Systems

1585 Charleston Road

P.O. Box 7900

Mountain View, CA 94039-7900

(415) 961-4400

(800) 833-6687

\$895

Publish It! 4, \$149.95

Publish It! Easy, \$249.95

Timeworks

625 Academy Drive

Northbrook, IL 60062

(708) 559-1300

(708) 559-1310

customer service

(800) 323-7744

Shakespeare

Creative Multimedia Corp.

514 NW 11th

Suite 203

Portland, OR 97209

(503) 241-4351

\$29.99

PowerPort Bronze, \$229

PowerPort Silver, \$429

PowerPort Gold, \$499

Global Village Communication

685B East Middlefield Road

Mountain View, CA 95043

(415) 390-8200

White Knight

FreeSoft Company

150 Hickory Drive

Beaver Falls, PA 15010

(412) 846-2700

\$139

FURTHER READING

"Meet the Mac LC"

December 1990, p. 40

"Connecting in the '90s"

December 1990, p. 66

"Family Ties"

February 1991, p. 52

"Swap 'til You Drop"

March 1991, p. 100

"Telephone Tag"

April 1991, p. 62

"Printer Polygamy"

May 1991, p. 68

"Side by Side, Head to Head"

June 1991, p. 22

"System 7.0: Is It for You?"

July 1991, p. 14

**"The Mac LC's
Split Personality"**

July 1991, p. 26

"Long Live 7.0"

August 1991, p. 24

"Share the Wealth"

September 1991, p. 26

"In the Network Groove"

September 1991, p. 40

"Graphics Decoder"

December 1991, p. 26

"Tricks of the Trade"

January 1992, p. 20

"SuperConvert 3.01"

January 1992, p. 26

"Portable Classroom"

February 1992, p. 22

**"Integrated Software:
Weighing Your Options"**

February 1992, p. 28

"Homeward Bound"

March 1992, p. 20

"DeskWriter C"

March 1992, p. 25

"Deals, Deals, Deals"

March 1992, p. 26

"Words into Print"

April 1992, p. 32

"Bargain Hunt"

May 1992, p. 16

"Working the Nets"

May 1992, p. 28

**"Mac LC II:
Ready for Prime Time"**

June 1992, p. 12

"Looking Ahead"

June 1992, p. 20

"Round 6"

July 1992, p. 24

"Low-Cost Power: Mac LC II"

July 1992, p. 26

"Smooth Operator"

July 1992, p. 34

"Teamwork"

August 1992, p. 18

"Works in Progress"

August 1992, p. 36

"Taming the Beast"

November 1992, p. 20

"Microsoft Works 3.0"

February 1993, p. 26

"Top Ten"

February 1993, p. 32

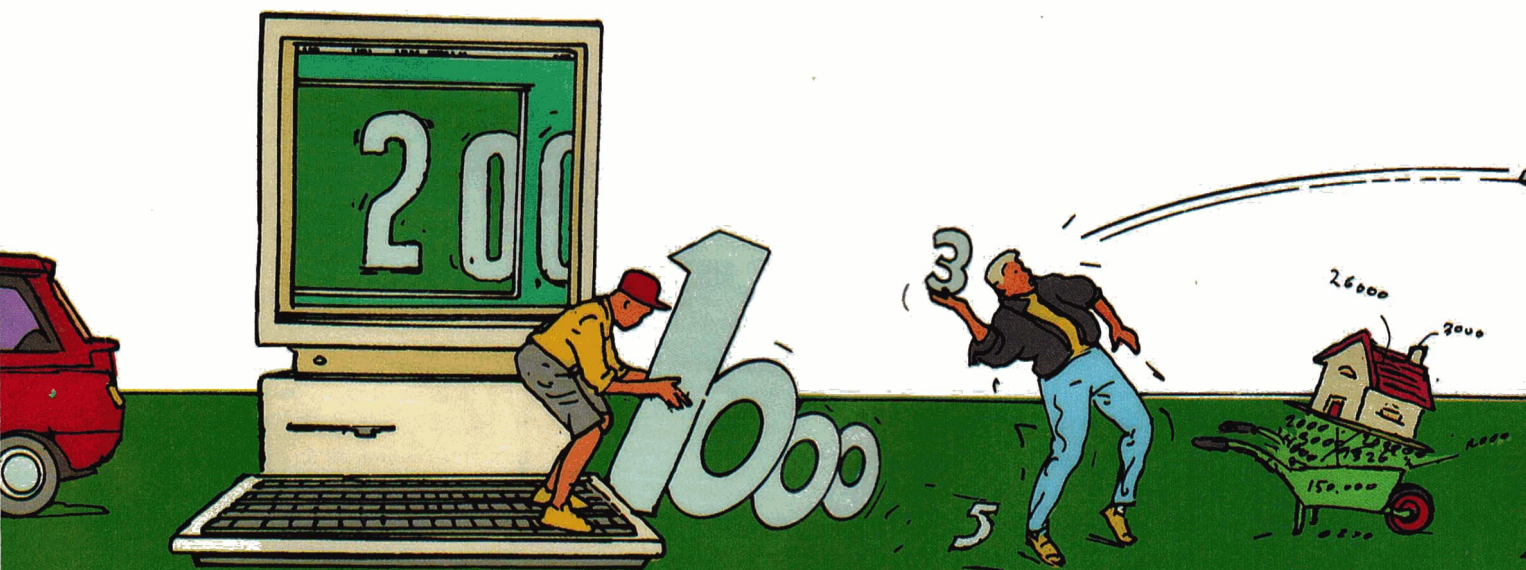
Tax Form REFORM

Part 2 Ah, spring! Your favorite ball team's warming up for another season, your family's dreaming of fun in the sun . . . and you get to play catch-up with your tax records. But look on the bright side: Organizing a preliminary return on your Mac or Apple II can help you score the biggest refund you're entitled to.

By THE STAFF OF INCIDER/A+

Grab your bat and ball — we're going for the sweep. This month we play game 2 of our double-header featuring do-it-yourself spreadsheets for estimating personal income taxes. In our first installment (February 1993, p. 38) we learned how to prepare a multipurpose template you can tailor to simulate IRS forms and schedules and other types of "math-smart" documents. We also designed a worksheet for Schedule A (*Itemized Deductions*) that functions as an itemized log to help you "track your stats" — medical outlays, charitable gifts, and other deductible expenses. This time around we'll translate the government's Form 1040, the *U.S. Individual Income Tax Return*, into an easy number cruncher created with **ClarisWorks** or **Microsoft Works** on the Mac, or **AppleWorks Classic** or **AWGS** on the II.

A word to the wise before we begin: We've designed these worksheets only for tax estimation and planning purposes. While they provide reasonably accurate evaluations — often to within just a few dollars of the actual tax you'd owe — check the tax laws that apply to your financial situation. For example, our worksheets are content to let you take deductions and credits to which you're not entitled; the IRS holds you to a higher standard.



Note also that although our worksheet simulates the paper Form 1040, the IRS won't accept this computerized version of the form. *Do not* submit any home-grown computer worksheets to the government. Instead, use only "official" forms — or IRS-authorized facsimiles generated by tax-preparation software designed specifically for tax filing. (Check with your local software dealership.) Now let's boot up and hit the ground running.

1. Launch your spreadsheet and open your blank tax-template file.

Take a moment to consider your filing status: *married filing jointly* (or *qualifying widow/widower*), *married filing separately*, *head of household*, or *single*. (If you're unsure, refer to the instructions accompanying your tax forms. For other sources, see the sidebar "The Fine Print.") Instead of wrestling with a one-size-fits-all spreadsheet containing formulas you don't need, you'll be customizing this one to your filing status with selected formulas.

- In **ClarisWorks**, double-click your mouse button to open the file *Blank SS Template*, which you prepared last month. Pull down the *File* menu and choose *Save as* to save the worksheet with the prefix *1040* followed by a description of your status — something like **1040 Married Jointly**, **1040 Married Separately**, **1040 Household Head**, or **1040 Single**.

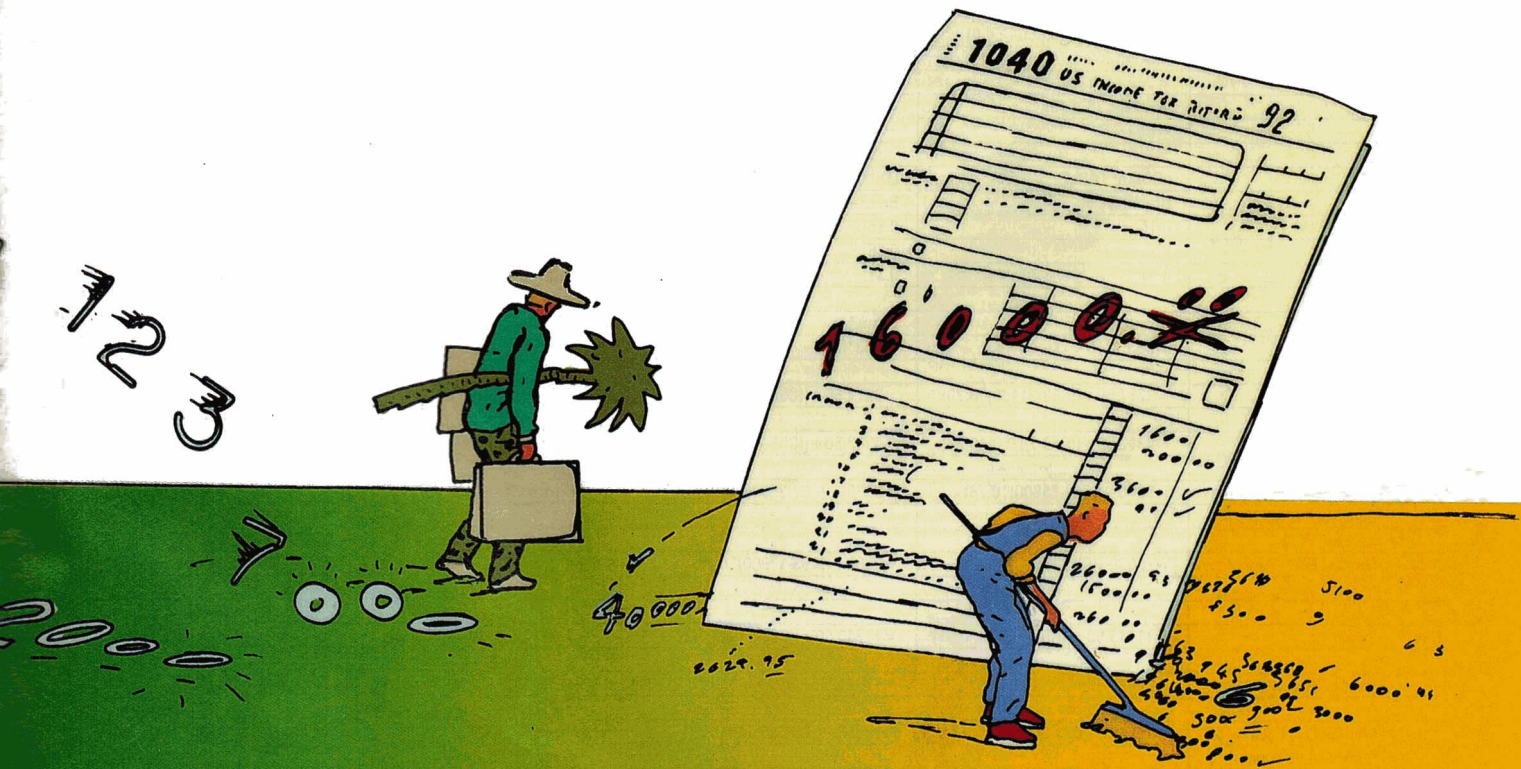
- If you're using **Microsoft Works**, double-click your mouse button to open last month's file, *Blank SS Template*. Pull down the *File* menu and choose *Save as* to save the worksheet with the prefix *1040* and your status — something like **1040 Married Jointly**, **1040 Married Separately**, **1040 Household Head**, or **1040 Single**.

- In **AppleWorks GS**, double-click your mouse button to open the file *blank.ss.tmplt*. Pull down the *File* menu and choose *Save as* to save the spreadsheet under a new working title: **A1040.MJ**, **A1040.MS**, **A1040.HH**, or **A1040.S**. (In AppleWorks GS and Classic, a filename may contain periods, but no spaces; it must begin with a letter; and it can't exceed 15 characters in length.)

- If you're using **AppleWorks Classic**, press Return to *Add files to the Desktop* from the main menu, then *Get files from your data disk*. Select the filename *blank.ss.tmplt*. Now press Open apple-N (OA-N), then OA-Y (to delete the old name), and type in the new filename **A1040.MJ**, **A1040.MS**, **A1040.HH**, or **A1040.S**. Press Return.

2. Type in the header information and format the worksheet's title.

With the original blank spreadsheet still safe on your hard drive or floppy disk, you can use the renamed file on screen to create your personal version of Form 1040. Follow along in **Figure 1** if you're using a Mac program, **Figure 2** if you're using AppleWorks GS or Classic.



CELL	STATUS	CLARISWORKS	MICROSOFT WORKS	APPLEWORKS GS	APPLEWORKS CLASSIC
C11		=C9+C10	=C9+C10	=C9+C10	+C9+C10
C31		=SUM(C13..C30)	=SUM(C13:C30)	=SUM(C13..C30)	@SUM(C13..C30)
C38		=SUM(C33..C37)	=SUM(C33:C37)	=SUM(C33..C37)	@SUM(C33..C37)
C40		=C31-C38	=C31-C38	=C31-C38	+C31-C38
C45	Single	=3600+(900*SUM(C43..C44))	=3600+(900*SUM(C43:C44))	=3600+(900*SUM(C43..C44))	+3600+(900*@SUM(C43..C44))
	Head of Household	=5250+(900*SUM(C43..C44))	=5250+(900*SUM(C43:C44))	=5250+(900*SUM(C43..C44))	+5250+(900*@SUM(C43..C44))
	Married Filing Jointly or Qualifying Widow(er)	=6000+(700*SUM(C43..C44))	=6000+(700*SUM(C43:C44))	=6000+(700*SUM(C43..C44))	+6000+(700*@SUM(C43..C44))
	Married Filing Separately	=3000+(700*SUM(C43..C44))	=3000+(700*SUM(C43:C44))	=3000+(700*SUM(C43..C44))	+3000+(700*@SUM(C43..C44))
C49		=MAX(C45,C47)	=MAX(C45,C47)	=MAX(C45,C47)	@MAX(C45,C47)
C51		=C11*2300	=C11*2300	=C11*2300	+C11*2300
C53		=IF((C40-(C49+C51))>=0,(C40-(C49+C51)),0)	=IF((C40-(C49+C51))>=0,(C40-(C49+C51)),0)	=IF((C40-(C49+C51))>=0,(C40-(C49+C51)),0)	@IF((C40-(C49+C51))>=0,(C40-(C49+C51)),0)
C55	Single	=IF(C53<=21450,0.15,IF(C53<=51900,0.28,IF(C53>=51901,0.31,G55)))	=IF(C53<=21450,0.15,IF(C53<=51900,0.28,IF(C53>=51901,0.31,G55)))	=IF(C53<=21450,0.15,IF(C53<=51900,0.28,IF(C53>=51901,0.31,G55)))	@IF(C53<=21450,0.15,IF(C53<=51900,0.28,IF(C53>=51901,0.31,G55)))
	Head of Household	=IF(C53<=28750,0.15,IF(C53<=74150,0.28,IF(C53>=74151,0.31,G55)))	=IF(C53<=28750,0.15,IF(C53<=74150,0.28,IF(C53>=74151,0.31,G55)))	=IF(C53<=28750,0.15,IF(C53<=74150,0.28,IF(C53>=74151,0.31,G55)))	@IF(C53<=28750,0.15,IF(C53<=74150,0.28,IF(C53>=74151,0.31,G55)))
	Married Filing Jointly or Qualifying Widow(er)	=IF(C53<=35800,0.15,IF(C53<=86500,0.28,IF(C53>=86501,0.31,G55)))	=IF(C53<=35800,0.15,IF(C53<=86500,0.28,IF(C53>=86501,0.31,G55)))	=IF(C53<=35800,0.15,IF(C53<=86500,0.28,IF(C53>=86501,0.31,G55)))	@IF(C53<=35800,0.15,IF(C53<=86500,0.28,IF(C53>=86501,0.31,G55)))
	Married Filing Separately	=IF(C53<=17900,0.15,IF(C53<=43250,0.28,IF(C53>=43251,0.31,G55)))	=IF(C53<=17900,0.15,IF(C53<=43250,0.28,IF(C53>=43251,0.31,G55)))	=IF(C53<=17900,0.15,IF(C53<=43250,0.28,IF(C53>=43251,0.31,G55)))	@IF(C53<=17900,0.15,IF(C53<=43250,0.28,IF(C53>=43251,0.31,G55)))
C57		=LOOKUP(C55,F52..F54,G52..G54)	=LOOKUP(C55,F52:F54,G52:G54)	=LOOKUP(C55,F52..F54)	@LOOKUP(C55,F52..F54)
C60		=C57+C59	=C57+C59	=C57+C59	+C57+C59
C66		=SUM(C62..C65)	=SUM(C62:C65)	=SUM(C62..C65)	@SUM(C62..C65)
C67		=IF(C66<=C60,C60-C66,0)	=IF(C66<=C60,C60-C66,0)	=IF(C66<=C60,C60-C66,0)	@IF(C66<=C60,C60-C66,0)
C75		=SUM(C69..C74)	=SUM(C69:C74)	=SUM(C69..C74)	@SUM(C69..C74)
C76		=C67+C75	=C67+C75	=C67+C75	+C67+C75
C84		=SUM(C78..C83)	=SUM(C78:C83)	=SUM(C78..C83)	@SUM(C78..C83)
C86		=C84-C76	=C84-C76	=C84-C76	=C84-C76
F50		LOOKUP TABLE	LOOKUP TABLE	LOOKUP TABLE	LOOKUP TABLE
F51		Brackets	Brackets	Brackets	Brackets
F52		0.15	0.15	0.15	0.15
F53		0.28	0.28	0.28	0.28
F54		0.31	0.31	0.31	0.31
G51		Formulas	Formulas	Formulas	Formulas
G52		=C53*0.15	=C53*0.15	=C53*0.15	+C53*0.15
G53	Single	=3217.50+((C53-21450)*0.28)	=3217.50+((C53-21450)*0.28)	=3217.50+((C53-21450)*0.28)	+3217.50+((C53-21450)*0.28)
	Head of Household	=4312.50+((C53-28750)*0.28)	=4312.50+((C53-28750)*0.28)	=4312.50+((C53-28750)*0.28)	+4312.50+((C53-28750)*0.28)
	Married Filing Jointly or Qualifying Widow(er)	=5370+((C53-35800)*0.28)	=5370+((C53-35800)*0.28)	=5370+((C53-35800)*0.28)	+5370+((C53-35800)*0.28)
	Married Filing Separately	=2685+((C53-17900)*0.28)	=2685+((C53-17900)*0.28)	=2685+((C53-17900)*0.28)	+2685+((C53-17900)*0.28)
G54	Single	=11743.50+((C53-51900)*0.31)	=11743.50+((C53-51900)*0.31)	=11743.50+((C53-51900)*0.31)	+11743.50+((C53-51900)*0.31)
	Head of Household	=17024.50+((C53-74150)*0.31)	=17024.50+((C53-74150)*0.31)	=17024.50+((C53-74150)*0.31)	+17024.50+((C53-74150)*0.31)
	Married Filing Jointly or Qualifying Widow(er)	=19566+((C53-86500)*0.31)	=19566+((C53-86500)*0.31)	=19566+((C53-86500)*0.31)	+19566+((C53-86500)*0.31)
	Married Filing Separately	=9783+((C53-43250)*0.31)	=9783+((C53-43250)*0.31)	=9783+((C53-43250)*0.31)	+9783+((C53-43250)*0.31)

Table 1. Form 1040 worksheet formulas for columns C, F, and G. Note differences among filing statuses for selected formulas.

- In **ClarisWorks**, click on A2 and begin typing the "disclaimer" at the top of the sample worksheet (**Figure 1**). When you get to the last word (*tax*) in the first line, press Return. Click on A3 and type the second line, and so on. Click on A7 and type the worksheet title; be sure to include your filing status. Now select the title by clicking within the row 7 header. Pull down the *Format* menu; choose *Style* and then *Bold* from the cascading menu. Be sure to save your worksheet (Command-S, or *Save* on the *File* menu) every 15 minutes or so to avoid losing your work to brownouts or system bombs.

- In **Microsoft Works**, click on A2 and type the "disclaimer" in **Figure 1**. When you get to the last word (*tax*) in the first line, press Return. Click on A3 and type the second line, and so on. Click on A7 and type the worksheet title; be sure to include your filing status. Now select the title by clicking within the row 7 header. Choose *Bold* from the *Style* menu in the toolbox. Be sure to save your worksheet (Command-S, or *Save* on the *File* menu) every 15 minutes or so to avoid losing your work to brownouts or system bombs.

- If you're using **AppleWorks GS**, click on A2 and begin typing the "disclaimer" at the top of the sample worksheet (**Figure 2**). When you get to the last word (*tax*) in the first line, press Return. Click on A3 and type the second line, and so on. Click on A7 and type the worksheet

title; be sure to include your filing status. Now click within the row 7 header to select the title. Pull down the *Format* menu and choose *Bold*. Be sure to save your worksheet (Command-S, or *Save* on the *File* menu) every 15 minutes or so to avoid losing your work to brownouts or system bombs.

- If you ran into problems experimenting with column widths in **AppleWorks Classic** for last month's template, here's how to duplicate the widths shown here in **Figure 2**. Start by placing the cursor on A1. Press OA-L (*Layout*); select *Columns* (or type C) and press Return. Select *Column width* (or type C). Press OA-Right Arrow 14 times to widen A to 23 spaces, and press Return. Repeat for B, pressing OA-Right Arrow 31 times to widen that column to 40 spaces. To condense the type a bit, press OA-O (*Printer Options*), type **CI** (*Characters per Inch*), and then type **12**. Press Escape to return to the spreadsheet. Now go to A2 and begin typing the "disclaimer" in **Figure 2**. When you get to the last word (*tax*) in the first line, press Return. Use the arrow keys to move to A3 and type the second line, and so on. Move to A7 and type the title; include your filing status. (Although boldface is an option on AW Classic's word-processor *Printer Options* menu, it's not available for the spreadsheet.) Save (OA-S) every 15 minutes or so to avoid losing your work to brownouts or system bombs.

	A	B	C	D
1				
2	This facsimile of Internal Revenue Service Form 1040 helps you project the amount of income tax			
3	you will owe on your 1992 earnings and income. This worksheet is for planning purposes only. Do not			
4	submit this worksheet to the IRS. Although the assumptions and formulas used were accurate at press			
5	time, they may be inaccurate now. Check the appropriate IRS publication for up-to-date information.			
6				
7	WORKSHEET FOR FORM 1040: MARRIED TAXPAYER FILING JOINTLY			
8				
9	Exemptions	Your Exemptions	2	<---
10		Exemption(s) for Dependent(s)	0	<---
11		Total Exemptions	2	
12				
13	Income	Wages: Job 1	0	<---
14		Wages: Job 2	0	<---
15		Other Wages, Salaries, Tips, etc.	0	<---
16		Taxable Interest Income (Sch. B)	0	<---
17		Dividend Income (Sch. B)	0	<---
18		State/Local Income Tax Refunds	0	<---
19		Alimony Received	0	<---
20		Business Income or (Loss)	0	<---
21		Capital Gain or (Loss)	0	<---
22		Capital Gain Distributions	0	<---
23		Other Gains or (Losses)	0	<---
24		Taxable IRA Distributions	0	<---
25		Taxable Pensions/Annuities	0	<---
26		Rents, Royalties, Etc.	0	<---
27		Farm Income (Loss)	0	<---
28		Unemployment Compensation	0	<---
29		Taxable Soc. Security Benefits	0	<---
30		Other Income	0	<---
31		Total Income	0	
32				
33	Adjustments to Income	IRA Deduction	0	<---
34		Self-Employment Deductions	0	<---
35		Keogh and SEP Deductions	0	<---
36		Penalty on Savings Withdrawal	0	<---
37		Alimony Paid	0	<---
38		Total Adjustments	0	
39				
40		• ADJUSTED GROSS INCOME •	0	
41				
42				

	A	B	C	D
43	Tax Computation	Enter 1 for each "age" deduction	0	<---
44		Enter 1 for each "blindness" deduction	0	<---
45		Your Standard Deduction	8000	
46				
47		Total Itemized Deductions from Sch. A	0	<---
48				
49		The Better Deduction to Claim	8000	
50				
51		Total Value of Your Exemptions	4600	
52				
53		• YOUR TAXABLE INCOME •	0	
54				
55		[Your Marginal Tax Bracket]	0.15	
56				
57		• YOUR ESTIMATED INCOME TAX •	0	
58				
59		Additional Taxes (Forms 4970,4972)	0	<---
60		Total Tax	0	
61				
62	Credits	Credit for Child/Dependent Care	0	<---
63		Credit for Elderly/Disabled	0	<---
64		Foreign Tax Credit	0	<---
65		Other Credits	0	<---
66		Total Credits	0	
67		Tax	0	
68				
69	Other Taxes	Self-employment Tax	0	<---
70		Alternative Minimum Tax	0	<---
71		Recapture Taxes	0	<---
72		Soc. Sec./Med. Tax on Unreported Tips	0	<---
73		Tax on IRA or Retirement Plan	0	<---
74		Advance Earned Income Cr. Pymnts.	0	<---
75		Total Other Taxes	0	
76		Tax	0	
77				
78	Payments	Federal Income Tax Withheld	0	<---
79		1992 Estimated Tax Payments	0	<---
80		Earned Income Credit	0	<---
81		Amount paid with Form 4869	0	<---
82		Excess Soc.Sec./Med. RRTA Tax Withhd.	0	<---
83		Other Payments	0	<---
84		Total Payments	0	
85				
86		• AMOUNT (OWED) or REFUNDED •	0	
87				
88				

Figure 1. Printout of Form 1040 worksheet (married filing jointly) in ClarisWorks. Microsoft Works template is similar in format.

PROJECT: FORM 1040

3. Type in cell labels.

We studied an actual 1992 Form 1040 to determine categories for our 1992 worksheet: *Exemptions, Income, Adjustments to Income, Tax Computation, Credits, Other Taxes, and Payments*. Using **Figure 1** or **2** as a guide, click on each appropriate cell in column A (use the arrow keys in **AW Classic**) and type in those labels. Type labels for line items such as **Wages: Job 1** into appropriate cells in column B. Skip formatting for now.

4. Add formulas to the worksheet.

Like the Schedule A template, our Form 1040 reserves column C for data and formulas. D sports data-entry pointers, which make filling in the form on screen easier.

- In **ClarisWorks**, create a data-entry pointer by clicking on D9 and typing the less-than sign (<) followed by three dashes (---). Copy the pointer (Command-C) and paste it (Command-V) into appropriate column D cells as shown in **Figure 1**. For now, enter a 0 (zero) into each data-entry cell in column C. Type the formulas shown in **Table 1** into the appropriate cells in columns C, F, and G. Be sure to type an equal sign (=) before each formula. To add the contents of a range of cells, use the expression **SUM** and two ellipsis points, or periods (like this: ..), between the first and last cells of the range. (See the accompanying sidebar "Go Figure" for tips on using the spreadsheet formulas referred to in this template.)

- In **Microsoft Works**, create a data-entry pointer by clicking on D9 and typing the less-than sign (<) followed by three dashes (---). Copy the pointer (Command-C) and paste it (Command-V) into appropriate

GO FIGURE

Learning about spreadsheet formulas as you create our tax templates will give you some confidence when it's time to design a worksheet to track investments or grades. Here are a few points to keep in mind:

- The equal sign (=) alerts ClarisWorks, Microsoft Works, or AWGS that you intend to type a formula into a selected cell. In AppleWorks Classic, though, you need a plus sign (+), unless you're using a built-in spreadsheet function requiring an @ sign.

- Formulas containing the **SUM** function (@SUM in AW Classic) add up the values in a given range of cells. ClarisWorks, AppleWorks Classic, and AWGS all require two periods (..) between the first and last cells of the range; Microsoft Works requires a colon (:). (AppleWorks Classic formulas may have three periods instead of two.)

- When you need to add up a discontinuous series of numbers, use a + formula to enumerate individual cell locations.

- Most of the formulas listed in **Table 1** apply to all taxpayers. You'll need to determine your filing status, however, before you can pick the correct formulas to use in C45, C55, G53, and G54.

The formula in **C45** calculates your standard deduction as well as the value of the special exemptions granted to taxpayers and their spouses who are 65 and older and/or blind. As you can see from **Table 2** — standard deductions for 1992 provided by the IRS — the value of your deduction depends on your filing status.

- The formulas constructed for **C55** incorporate values included in the 1992 tax-rate schedules. Provided by the IRS, Schedules X, Y-1, Y-2, and Z are shown in **Table 3**. Married taxpayers who file jointly would refer to Schedule Y-1, for instance, and use the formula **=IF(C53<=35800,0.15,IF(C53<=86500,0.28,IF(C53>=86501,0.31,G55)))**.

Translated into English the formula reads: If the amount

of taxable income (C53) is less than \$35,800, you're in the 15 percent marginal tax bracket. If your taxable income is as much as \$86,500, you're in the 28 percent marginal tax bracket. If taxable income is \$86,501 or more, welcome to the top — the 31 percent marginal tax bracket. In the rare event that your particular tax situation isn't covered here, a reference to **G55** appears at the end of the formula. If all else fails, the term IRS will appear in C55, alerting you to a problem with the formula in that cell.

- The formula in **C57** estimates your income tax by comparing the marginal tax bracket (C55) to calculations performed in a lookup table. The relationship between C57 and the lookup table is like that between a library card catalogue and book stacks. The catalogue (C57) tells the spreadsheet where to go (the table) to find the correct formula to use. This particular table spans the range from F50 to G55 and includes the

labels and formulas in the LOOKUP TABLE section of **Table 1**. The formulas in **G53** and **G54** vary depending on your filing status.

- If you're a married taxpayer and you file a joint return with your spouse, enter the following formula in **G53**: **=5370+((C53-35800)*0.28)**.

In English, this formula tells the spreadsheet software to subtract \$35,800 from your taxable income, multiply the result by 28 percent, and then add \$5370. These values come from Schedule Y-1 (**Table 3**).

- The 1040 worksheet contains two other noteworthy formulas — in C49 and C67. We used the **MAX** function in **C49** to compare the value of your standard deduction to the amount of itemized deductions you enter in C47. C49 chooses the larger amount automatically, which benefits you. The formula in **C67** prevents you from claiming a negative income tax. (Note that you can carry some tax losses forward to future years. A discussion of such fine points of tax law is beyond the scope of this project, but be sure to check with IRS publications or your accountant for details.)

	A	B	C	D
11	-----A-----B-----C-----D-----			
12	This facsimile of IRS Form 1040 helps you project the income tax			
13	you will owe on your 1992 income. Use for planning only; do not submit			
14	to the IRS. Although formulas used were accurate at press time, they			
15	may be inaccurate now. Check IRS publications for current information.			
16				
17	WORKSHEET FOR FORM 1040: MARRIED TAXPAYER FILING JOINTLY			
18				
19	Exemptions	Your Exemptions	2 <---	
20		Exemption(s) for Dependent(s)	0 <---	
21		Total Exemptions	2	
22				
23	Income	Wages: Job 1	0 <---	
24		Wages: Job 2	0 <---	
25		Other Wages, Salaries, Tips, etc.	0 <---	
26		Taxable Interest Income (Sch. B)	0 <---	
27		Dividend Income (Sch. B)	0 <---	
28		State/Local Income Tax Refunds	0 <---	
29		Alimony Received	0 <---	
30		Business Income or (Loss)	0 <---	
31		Capital Gain or (Loss)	0 <---	
32		Capital Gain Distributions	0 <---	
33		Other Gains or (Losses)	0 <---	
34		Taxable IRA Distributions	0 <---	
35		Taxable Pensions/Annuities	0 <---	
36		Rents, Royalties, etc.	0 <---	
37		Farm Income (Loss)	0 <---	
38		Unemployment Compensation	0 <---	
39		Taxable Soc. Security Benefits	0 <---	
40		Other Income	0 <---	
41		Total Income	0	
42				
43	Adjustments to Income	IRA Deduction	0 <---	
44		Self-employment Deductions	0 <---	
45		Keogh and SEP Deductions	0 <---	
46		Penalty on Savings Withdrawal	0 <---	
47		Alimony Paid	0 <---	
48		Total Adjustments	0	
49				
50		* ADJUSTED GROSS INCOME *	0	

	A	B	C	D
51	-----A-----B-----C-----D-----			
52	Tax Computation	Enter 1 for each "age" deduction	0 <---	
53		Enter 1 for each "blindness" deduction	0 <---	
54		Your Standard Deduction	6000	
55				
56		Total Itemized Deductions from Sch. A	0 <---	
57				
58		The Better Deduction to Claim	6000	
59				
60		Total Value of Your Exemptions	4600	
61				
62		* YOUR TAXABLE INCOME *	0	
63				
64		[Your Marginal Tax Bracket]	.15	
65				
66		* YOUR ESTIMATED INCOME TAX *	0	
67				
68		Additional Taxes (Forms 4970, 4972)	0 <---	
69		Total Tax	0	
70				
71	Credits	Credit for Child/Dependent Care	0 <---	
72		Credit for Elderly/Disabled	0 <---	
73		Foreign Tax Credit	0 <---	
74		Other Credits	0 <---	
75		Total Credits	0	
76		Tax	0	
77				
78	Other Taxes	Self-employment Tax	0 <---	
79		Alternative Minimum Tax	0 <---	
80		Recapture Taxes	0 <---	
81		Social Sec./Med. Tax on Unreported Tips	0 <---	
82		Tax on IRA or Retirement Plan	0 <---	
83		Advance Earned Income Credit Payments	0 <---	
84		Total Other Taxes	0	
85		Tax	0	
86				
87	Payments	Federal Income Tax Withheld	0 <---	
88		1992 Estimated Tax Payments	0 <---	
89		Earned Income Credit	0 <---	
90		Amount paid with Form 4868	0 <---	
91		Excess Soc. Sec./Med., RRTA Tax Withheld	0 <---	
92		Other Payments	0 <---	
93		Total Payments	0	
94				
95		* AMOUNT (OWED) or REFUNDED *	0	
96				
97				
98				

Figure 2. Printout of Form 1040 worksheet (married filing jointly) in AppleWorks Classic. AppleWorks GS template is similar in format to Figure 1, but uses Figure 2 "disclaimer" (top).

column D cells as shown in **Figure 1**. For now, enter a 0 (zero) into each data-entry cell in column C. Type the formulas shown in **Table 1** into the appropriate cells in columns C, F, and G. Use an equal sign (=) to signify a formula expression. To add up the values in a range of cells, use the expression **SUM** and a colon (:): between the boundary cells of the range. (See the accompanying sidebar "Go Figure" for tips on using the spreadsheet formulas referred to in this template.)

- In **AppleWorks GS**, create a data-entry pointer by clicking on D9 and typing the less-than sign (<) and three dashes (---). Copy the pointer (Command-C) and paste it (Command-V) into appropriate column D cells as shown in **Figure 2**. For now, enter a 0 (zero) into each data-entry cell in column C. Type the formulas shown in **Table 1** into the appropriate cells in columns C, F, and G. AppleWorks GS also uses an equal sign (=) to denote a formula. To add the contents of a range of cells, use **SUM** and two periods (..). (See the accompanying sidebar "Go Figure" for tips on using the spreadsheet formulas referred to in this template.)

- In **AppleWorks Classic**, go to D9 and create a data-entry pointer by typing quotation marks (to signify a label), followed by the less-than sign (<) and three dashes (---). Copy the pointer (press OA-C, choose *Within worksheet*, and press Return) and paste it (move to the new area and press Return) into appropriate column D cells as shown in **Figure 2**. For now, enter a 0 (zero) into

each data-entry cell in column C. Type the formulas shown in **Table 1** into the appropriate cells in columns C, F, and G. Put a plus sign (+) in front of each formula, except those that begin with a built-in spreadsheet function. For example, to add up the values in a range of cells, use the expression **@SUM** and either two or three periods (your choice) to denote the boundaries of the range. (Similarly, note that the logical function **IF** is expressed as **@IF** in AppleWorks Classic; **LOOKUP** and **MAX** become **@LOOKUP** and **@MAX**. See the accompanying sidebar "Go Figure" for tips on using the spreadsheet formulas referred to in this template.)

5. Format the cell labels.

As you can see from **Figures 1** and **2**, we've right justified selected labels in column B. We've centered other labels — *ADJUSTED GROSS INCOME*, *YOUR TAXABLE INCOME*, *YOUR ESTIMATED INCOME TAX*, and *AMOUNT (OWED) or REFUNDED* — and used uppercase letters to make them stand out.

- In **ClarisWorks**, go back to cell B11. To right-justify the label *Total Exemptions*, click on the cell, pull down the *Format* menu, and choose *Alignment* and then *Right*. Do the same for the labels in B31, B38, B60, B66, B67, B75, B76, and B84. Now make the major category labels

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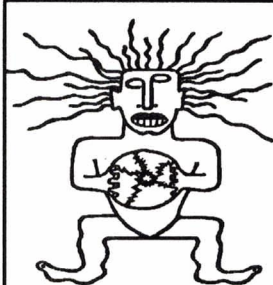
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in B40, B53, B57, and B86 boldface: Pull down the *Format* menu and choose *Style* and then *Bold* from the cascading menu. You can add bullets (dots) by pressing Option-8. (Bullets are among the dozens of “hidden” characters provided by fonts such as Geneva that boast an extended character set.) Now position the text within each of those four cells: Pull down the *Format* menu, and choose *Alignment* and then *Center*.

- In **Microsoft Works**, go to cell B11. To right-justify the label *Total Exemptions*, pull down the *Format* menu, choose *Format Cells*, and click on the *Right* radio button. Do the same for the labels in B31, B38, B60, B66, B67, B75, B76, and B84. Now make the major category labels in B40, B53, B57, and B86 boldface: Choose *Bold* from the the *Style* menu in the toolbox. You can add bullets (dots) by pressing Option-8. (Bullets are among the dozens of “hidden” characters provided by fonts such as Geneva with extended character sets.) Position the text within each of those four cells: Pull down the *Format* menu, choose *Format Cells*, and click on the *Center* radio button.

- If you're using **AppleWorks GS**, return to cell B11. To right-justify the label *Total Exemptions*, select the cell, pull down the *Format* menu, and choose *Align Right*. Do the same for the labels in B31, B38, B60, B66, B67, B75, B76, and B84. Now make the major category labels in B40, B53, B57, and B86 boldface: Pull down the *Format* menu and choose *Bold*. You can add bullets (dots) by pressing Option-8. (Bullets are among the dozens of “hidden” characters provided by fonts such as Geneva that boast an extended character set. These characters are available if *Translation* in the general Control Panel is set to *Standard*.) Now position the text within each of those four cells: Select it, pull down the *Format* menu, and choose the *Align Center* option.

- For **AppleWorks Classic**, go to cell B11. To right-justify the label *Total Exemptions*, press OA-L and select *Entry*. At the *Layout?* prompt, choose *Label format*, then *Right justify*. Do the same for the labels in B31, B38, B60, B66, B67, B75, B76, and B84. For the major category labels in B40, B53, B57, and B86, add asterisks to make them stand out. Now position the text within each of those four cells: Press OA-L (*Layout*) and select *Entry*; at the *Layout?* prompt, choose *Label format*, then *Center*.

6. Round off dollar amounts.

Because the IRS wants you to round off dollar figures on your actual return, do so on your planning worksheet for appropriate cells in columns C and G. (Rounding helps cut down on screen clutter, too.) For cells C55, F52, F53, and F54, we'll round off in percentage format.

- In **ClarisWorks**, click on each appropriate cell, pull down the *Format* menu and choose *Number*. Click on the *Fixed* radio button, and set *Precision* to 0 (zero). Click on *OK*. For cells C55, F52, F53, and F54, set *Precision* to 2.

- In **Microsoft Works**, click on each appropriate cell, pull down the *Format* menu, and choose *Format cells*. Select any monetary format and type 0 (zero) decimal places. For cells C55, F52, F53, and F54, type 2.

- In **AppleWorks GS**, click on each appropriate cell, pull down the *Format* menu, choose *Decimal places*, and type 0 (zero). Pull down the *Format* menu again, and select *Fixed*. For cells C55, F52, F53, and F54, use a value of 2 for *Decimal places*.

- In **AppleWorks Classic**, move to each appropriate cell, and press OA-L (*Layout*). Select *Entry*. Now choose *Value format*, then *Fixed*. At the *Set decimal places* prompt, type 0 (zero). For cells C55, F52, F53, and F54, type 2.

7. Troubleshoot your template.

Type sample values into each data-entry cell. For example, type 1 into every cell from C13 through 30. If C31 reads 18, you can be reasonably certain that the *SUM* formula in C31 is working properly. Test other sections of your worksheet by entering hypothetical

The Fine Print

If you're unsure of your filing status, refer to the instructions accompanying the tax forms you received in the mail when the government sent you its New Year's gift. Or contact the IRS toll-free at (800) 829-3676 (1-800-TAX-FORM) for the publications and forms you need. Many public libraries, banks, and post offices also stock selected IRS forms and instructions.

Here's another resource: Your local bookseller probably carries handbooks touting “taxes made easy.” Sounds like an oxymoron, but the professional tax advisers who write these books do seem to enjoy sharing money-saving tips that can help you pay the smallest amount of tax you legally owe. Best of all, most tax gurus write in a narrative, plain-English style that's easy to understand. Give the folks at the IRS credit for trying to make their publications more user-friendly, but the circuitous sentences and double negatives that pepper some of their official documents can be confusing.

Before preparing the tax template outlined here, we cozier up with **The Price Waterhouse Personal Tax Adviser: 1992–1993 Edition** (Pocket Books, ISBN 0-671-79327-6, \$5.99). At press time we checked with an IRS spokesman to be sure the tax tables we used were accurate. If you're going to use this template to get a head start on next year's taxes, though, remember that Congress and the IRS can change the rules in '93 right up until the lighted ball drops in Times Square. Always check current IRS publications for changes that may affect the validity of your spreadsheet results.

PROJECT: FORM 1040

FILING STATUS	STANDARD DEDUCTION	ADDITIONAL AMOUNT 65 OR OLDER OR BLIND	ADDITIONAL AMOUNT 65 OR OLDER AND BLIND
Married Filing Jointly or Qualifying Widow/Widower	\$6000	\$700/\$1400 both spouses	\$1400/\$2800 both spouses
Head of Household	\$5250	\$900	\$1800
Single	\$3600	\$900	\$1800
Married Filing Separately	\$3000	\$700/\$1400 both spouses	\$1400/\$2800 both spouses

Table 2. If you don't itemize your deductions, you may take the 1992 standard deduction listed here. Note that if you can be claimed as a dependent on another person's 1992 return, your standard deduction is the greater of either \$600 or your earned income, up to the standard deduction amount. Source: IRS.

numbers. Use a handheld calculator and the IRS values provided in **Tables 2** and **3** to check the results of the worksheet's more-complex operations.

- In **ClarisWorks**, you can read (and edit) any individual formula in the data-entry box at the top of the screen. To display all formulas in their respective cells, pull down the *Options* menu and choose *Display*. Click on the *Formulas* check box in the dialog that appears.
- In **Microsoft Works**, check the data-entry box at the top of the screen to see an individual formula. To see them all, choose *Show Formulas* from the *Options* menu.
- **AppleWorks GS** also displays a data-entry box at the top of the screen for viewing individual formulas. To display all formulas in their respective cells, pull down the *Options* menu and choose *View Formulas*.
- In **AppleWorks Classic**, you can check an individual formula by moving the pointer to a formula-containing cell and reading the display line at the bottom of the screen. To display all formulas in the worksheet, press OA-Z; press OA-Z again to display values.

8. An ounce of prevention can protect your formulas from alteration.

When the spreadsheet meets your standards for both function and design, protect the cells containing formulas so that you won't inadvertently mess them up later on.

- In **ClarisWorks**, select the cell and press Command-H. Don't forget to save your spreadsheet: Pull down the *File* menu and choose *Save*, or just press Command-S.
- If you're using **Microsoft Works**, select the cell, pull down the *Format* menu, and choose *Protect Cell*. Remember to save (*File* menu), or press Command-S.
- In **AppleWorks GS**, select the cell and press Command-*, or select *Protect* from the *Data* menu. Now pull down the *File* menu and choose *Save*, or press Command-S.
- For **AppleWorks Classic**, move the pointer to the cell you want to protect. Press OA-L (*Layout*), then choose *Entry* and *Protection*. At the *Allow?* prompt, press Return to choose *Nothing*. Then press OA-S to save.

9. Print your worksheet and check it over.

Whatever Works you prefer, printing the Form 1040 worksheet is easy. Just follow the steps outlined here.

- In **ClarisWorks**, pull down the *Options* menu, choose *Print Range*, and enter the range: **A1..D88**. Pull down the *File* menu and select *Print* (or press Command-P).
- In **Microsoft Works**, pull down the *File* menu and choose *Print Preview*. If the worksheet looks okay, click on the *Print* button.
- For **AppleWorks GS**, drag the mouse to select the block of cells A1 to D88, then press OA-P to print.
- If you're using **AppleWorks Classic**, press OA-P and select *Block*. Highlight the block of cells A1 through D88 and press Return.

10. Customize and update your worksheet.

Barring any drastic revamping of the tax laws, you can edit this template's formulas easily to accommodate changes in tax-rate schedules (**Table 3**) from one year to the next. (For 1993, for instance, marginal brackets could change if the schedules are adjusted again for inflation — or if Congress reads President Clinton's lips. During last fall's campaign, for example, Clinton alluded to raising the top marginal tax bracket to 36 percent.) After incorporating any such changes in the tax code, be sure to save each revised worksheet with a new name so that you don't overwrite the original 1992 template. Feel free to erase the original after you troubleshoot the new version.

- In **ClarisWorks**, to edit the formula in G53 — or any worksheet cell, for that matter — click on the formula-containing cell. In the data-entry area at the top of the worksheet, drag the mouse to select the part of the formula you need to change. Type the new value provided by the IRS, and save your edited worksheet with a new filename (*Save as* under the *File* menu).
- In **Microsoft Works**, click on the formula-containing cell you need to edit. In the data-entry box at the top of

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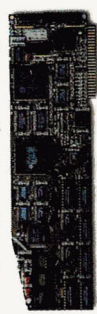
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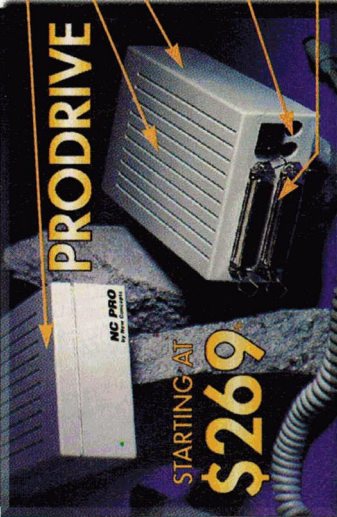
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PROJECT: FORM 1040

Continued from page 58

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Table 3. Tax-rate schedules for 1992 income. Source: IRS.

the screen, drag the mouse to select the portion of the formula you want to change. Type the new value provided by the IRS; choose *Save as* from the *File* menu and type in a new filename.

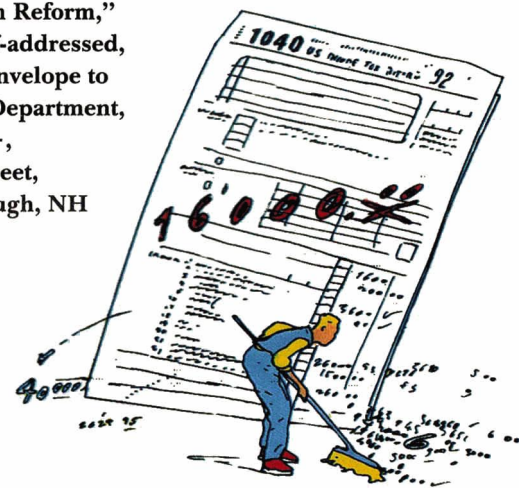
- If you're using **AppleWorks GS**, click on the formula-containing cell you want to edit. In the data-entry area at the top of your worksheet, drag the mouse to select the portion of the formula you need to alter. Type the new value provided by the IRS. Pull down the *File* menu and choose *Save as*; type in a new filename.
- To edit a formula in **AppleWorks Classic**, go to the formula-containing cell you want to edit and press OA-U; you'll see the formula and a blinking cursor at the bottom of the screen. Delete the portion of the formula that's changed; type in the new value provided by the IRS. Now press OA-N; press OA-Y to erase the old filename, and enter a new one to save your revisions.

Creating Schedule A and Form 1040 tax-planning worksheets takes no more than a few hours, but these projects can save you lots of time when you prepare your actual income-tax return. You can use the Apple versions merely to double-check the math on your pen-and-paper tax return, or to test hypothetical tax scenarios. If you're eligible to deduct an IRA contribution, for example, the Apple worksheet can calculate your tax savings quickly.

Updating your worksheets from year to year with new values provided in IRS tables breathes new life into these templates — it's worth the small amount of time involved. Not only will it be easier to prepare your tax return in 1994 and beyond, but you can use your revised worksheets throughout a given tax year to forecast the impact of accelerating (or delaying) income, beefing up deductible expenses, and taking advantage of available tax credits.

Maybe preparing a tax return on your computer is a lot like playing baseball after all — you can reduce errors, of the mathematical kind at least. (Of course, you might strike out and owe the IRS more money than you thought.) But one thing's for sure: As each new tax season begins, you can almost hear Yogi Berra say, "It's *déjà vu* all over again." □

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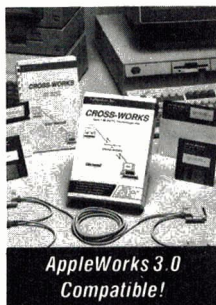
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By PAUL STATT • SENIOR EDITOR

The heaviest part of your computer hardware looks a lot like a TV screen — because it *is* a television tube. I once watched *To Have and Have Not* on a green monochrome Apple IIc monitor. It looked great. If that screen could talk, it would fondly remember Bacall and Bogart as the most-interesting pixels it ever played.

Trouble is, watching TV is almost always a waste of time; working at a Mac almost never is. But now there's a utility that admits honestly it's a waste of time. **VideoBeeep**, from SoundSource, is a unique “personal multimedia” program that plays QuickTime movies in response to system events: whenever you insert or eject a disk; at startup, restart, or shutdown; and so on.

SoundSource, the people who brought the official, legal *Star Trek* sounds to your system beeps, have also canned some clips from the film *Star Wars* in QuickTime. Combine VideoBeeep with **Star Wars VisualClips**, as they're known, and — you get the picture. (The combo product, **Star Wars QuickTime Movies**, is priced at \$89.95.)

Let me get my three complaints about VideoBeeep/VisualClips out of the way:

- It's *Star Wars*. I didn't like the movie well enough to see the sequel. I don't want that ridiculous little robot bothering me every time I start up my Mac.
- It's more than my Mac LC can handle. The minimum requirements are a 68020

Mac with a hard disk, System 6.0.7 or later, QuickTime, a 256-color monitor, 4 megabytes of RAM, and 5 or 10 free megs on my hard drive. By that logic, I could argue that the minimum requirements for draining the Pacific Ocean are a tea cup and saucer. A more-realistic requirement for VideoBeeep is a Macintosh Quadra. Period.

- It doesn't work perfectly. I assigned a dancing-skeleton clip (which I stole from KidPix Companion) to the *Empty Trash* command, because I like the idea of dancing on a dead file's grave. The movie played, but the *Trash* icon still bulged full.

The folks at SoundSource promise clips from *The Wizard of Oz*, *Lawnmower Man*, *Total Recall*, and *Terminator II*. Their offices (2985 East Hillcrest Drive, Suite A, Westlake Village, CA 91362, 800-877-4778, 805-494-9996) aren't far from Hollywood, and they say they're negotiating with all the studios. I'm still not happy, so I decked out my system messages with jokes from Warner New Media's QuickTime movie *Funny*. That's the beauty of it: QuickTime isn't one movie, it's a distribution system. It's great because you can use any movie clip you have with VideoBeeep.

Don't dismiss the idea that something so trivial might become something serious. Talking Moose's animated cartoon characters (see “Totally Rad Mac,” June 1992, p. 34) never got the credit they deserved for inspiring Apple to include *Balloon Help* in System 7. But *Balloon Help* has gone over like a lead balloon. Perhaps that's because there's got to be a better way to show how to use a Mac than with words. But imagine adding VideoBeeep: You could *see* the whole process of using menus and selecting applications.

Macs will be presenting TV faces to us for some time to come. Even the “Knowledge Navigator” sported a TV screen. Let's get the test pattern off the screen and face reality: People expect something sharp on TV. SoundSource is on to something. Right now it's just something to do with all the QuickTime movies you've been collecting. But someday you'll be able to connect video clips intelligently with whatever else you're doing on screen. □



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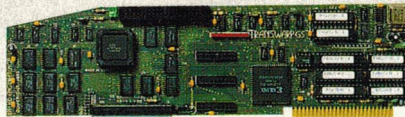
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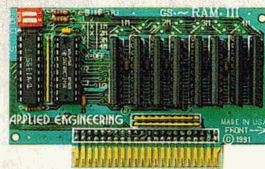
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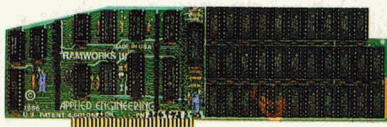
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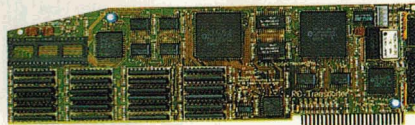
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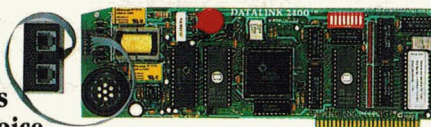
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