

CELEBRATING THE APPLE II



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VOL. 2 NO. 4 - SEPTEMBER/OCTOBER 94
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II ALIVE

CELEBRATING THE APPLE II

A TALE OF ONE CITY

REPORT FROM KANSASFEST 94



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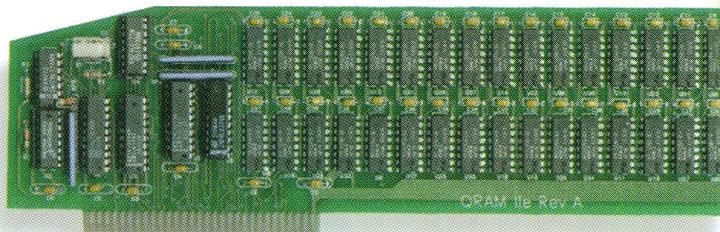
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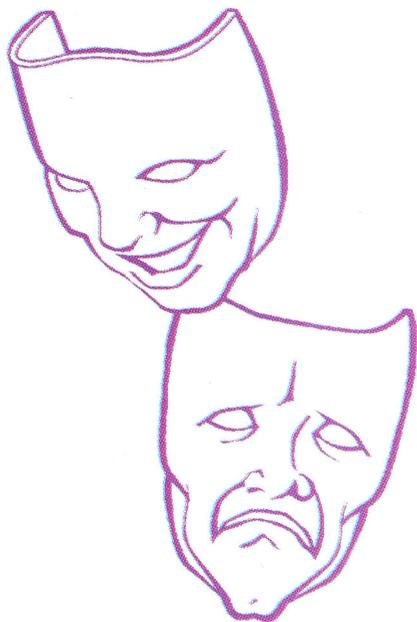
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II Alive is published every other month, for \$19.95 per year by Quality Computers Inc., 20200 Nine Mile Rd., St. Clair Shores, MI 48080-1791. Application to mail at second class postage rates is at St. Clair Shores, MI and additional mailing offices. POSTMASTER: send address changes to II Alive Circulation, P.O. Box 349, St. Clair Shores, MI 48080-0349.

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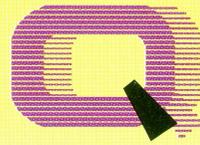
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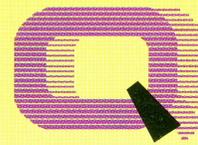
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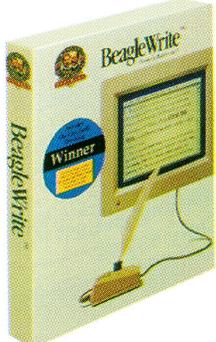
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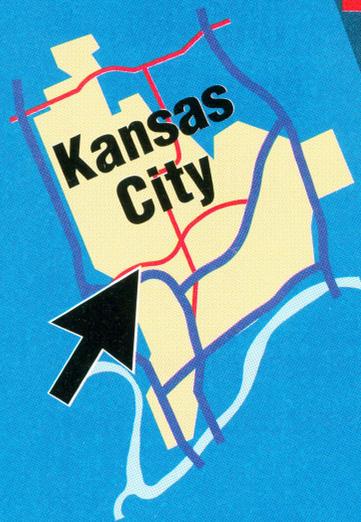
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SCHOOL P.O.s



A Tale of One City



By Jerry Kindall

Many of you are already familiar with the annual conference, held during the third week of July in Kansas City, known popularly as KansasFest. Last year, the company that sponsored the conference was Tom Weishaar's Resource Central. This year, Resource Central is dissolving and making way for ICON, the International Computer Owner's Network, a non-profit corporation founded by Weishaar and dedicated to helping users of all computer platforms (yes, even Macintoshes and PCs) get more out of their machines. Accordingly, the official name of the conference has been changed to ICONference—the fourth name change in the conference's six-year history—but, of course, that hasn't stopped everyone from calling it KansasFest, despite the fact that the name alludes to a trade show that no longer even exists (AppleFest) which KansasFest never really resembled. Furthermore, the conference is held in Kansas City, Missouri, not Kansas City, Kansas.

Computer owners, unlike their machines, simply are not strictly logical. If I didn't know this already, I know it now, after trying to explain to non-Apple people (among them my non-computer friends and relatives) why it's called "KansasFest." It just is, OK?

During the past few years, the conference was held at the National Office Machines Dealers Association (NOMDA) conference center, with attendees having the option of inexpensive accommodations at nearby Avila College (a small Catholic school). This year, the conference was held entirely on Avila's campus once again, just as it was in its early days. The attendees were mainly Apple II users, although many had augmented their Apple IIs with Macintoshes or PCs. Laptops, such as PowerBooks, were particularly popular—I even spotted Apple II historian Steve Weyhrich pounding away on a Tandy 100, a close spiritual cousin of the Apple II. (Like the Apple II, the T100 is an orphaned computer with a loyal and enthusiastic user base.)

What's the attraction of KansasFest? Well, there are hour-long seminars on various topics, but mainly, it's an opportunity for nerds to socialize with others of their own kind. (And I'm using the term "nerd" here in the most complimentary way possible to describe someone who's into computers as a lifestyle—it's a badge I wear with pride.) At KansasFest, Apple II celebrities like Roger Wagner, Mike Westerfield, and, of course, Tom Weishaar himself mingle with ordinary folks.

The seminar topics ranged from a demonstration of Windows 4 (an event which marks Microsoft's first participation in the conference) to a demonstration of a full-fledged 3D modeling and animation program for the Apple IIGS (Michael Lutynski's *Animasia 3-D*). More on the sessions later, but first, I feel the urge to wax nostalgic for a paragraph or four.

Flashback

Six years ago, at the first KansasFest, I was just one of the nerd herd. I'd written a program

called *MicroDot* for Kitchen Sink Software, and Ross Lambert, then publisher of three fine Apple II programming newsletters, gave me a five-minute piece of his session on 8-bit development environments to demonstrate my program. I found myself sitting next to Alan Bird (the author of the Beagle Compiler, TimeOut, Program Writer, and later InWords and Pointless), Mike Westerfield (owner of the Byte Works), and Roger Wagner (who needs no introduction) at the front of the room.

All these guys were idols of mine, and there I was sitting next to them. Alan Bird even looked at my nametag and said something like, "Oh, you wrote that *MicroDot* thing." Taken completely by surprise, I nevertheless managed to stammer something incoherent but affirmative. (If he remembers me at all, he probably remembers me as an idiot who couldn't put together a simple sentence.) I was seriously over-prepared for my five-minute session—I'd made a set of computer slides and written out all my remarks. I managed to get through it without too much stress, then fell back into my seat and managed to avoid staring at Bird, Westerfield, and Wagner too much.

Other gosh-wow highlights of that first conference include the moment when Roger Wagner told me he'd liked my presentation; sitting next to Mike Westerfield on the van ride from the airport and thinking, "What a coincidence, this guy sure looks a lot like Mike Westerfield"—I'd seen his picture in *Nibble*—and last but not least, accidentally stealing Randy Brandt's seat at the TimeOut programming session. (I was mortified when I realized what I'd done. Randy and I have, of course, met many times since then, and I now consider him a friend.)

Of course, I quickly learned that most of these guys were a lot like me—completely addicted to the Apple II, and willing to talk about them all day and all night, stopping occasionally to consume junk food and to recharge their batteries with a few hours of sleep. While some were very different from me in many other ways, the Apple II gave us a frame of reference, a set of common experiences that had shaped our lives in one way or another, and something to fall back on when conversation failed. I met all kinds of people—including some people I might have run away from in panic if I'd encountered them on the street—and discovered that the Apple II was a powerful and liberating social force in addition to being a really neat computer.

KansasFest 1994

Snapping back to 1994... At the sixth KansasFest, as with previous 'Fests, most attendees arrived Wednesday evening and promptly spent the night getting no sleep. (Although the registration form for the conference has a checkbox to indicate whether you plan on sleeping during the conference—so that the organizers can put you in a dorm room next to others with similar preferences—you really should not stay in the Avila dorms if you want to leave KansasFest a refreshed and alert person.)

What's the attraction of KansasFest? Well, there are hour-long seminars on various topics, but mainly, it's an opportunity for nerds to socialize with others of their own kind. (And I'm using the term "nerd" here in the most complimentary way possible to describe someone who's into computers as a lifestyle—it's a badge I wear with pride.) At KansasFest, Apple II celebrities like Roger Wagner, Mike Westerfield, and, of course, Tom Weishaar himself mingle with ordinary folks.

Being, as it was, the night before the conference actually started, it was mainly an evening of cruising the dorms to see who was there and greeting people you hadn't seen for a year (or had only met electronically). Ellen Rosenberg, former managing editor of this very publication, stopped by my lair to say hello, as did contributing editor Doug Cuff, who I'd never met in person.

The next morning, the conference got under way with a brief "welcome" speech from Tom Weishaar, in which he read jokes from his subscriber comment cards and generally got us into a festive mood. Then the sessions began. The sessions were held in two tracks—that is, two sessions were held at the same time in different rooms. For the most part they were organized so that the intended audiences for competing sessions overlapped as little as possible, but there were still times when I was torn between two equally interesting topics. An integral part of KansasFest, it seems, is standing in the hallway trying to decide which session you want to attend, and doing so in the minutes before the sessions are due to start.

I chose to attend Jim Maricondo's Internet presentation, which served as a decent introduction to the Internet, and touched briefly on the basic facilities of the Internet—mail, news, ftp, gopher, telnet, and their ilk. (You'll be reading about those in the next issue of *II Alive*.) Dave Ciotti's soldering session, I heard, was also informative for budding hardware-heads.

The Mensch Computer

After the first hour, the two tracks of conferences merged for Dr. William Mensch's introduction of his new machine. Mensch, as you may know, is the designer of the 65C02 and 65816 microprocessors used in the Apple II line. (He also had a hand in the design of the original 6502, but the 65C02 was the first processor that Mensch was solely responsible for.) A few years ago at KansasFest, Mensch created quite a stir by saying that Apple was the main reason there weren't faster 65816 microprocessors—if there were a demand, Mensch said, he'd make the chips. He also mentioned he was working on a 32-bit version of the 65816 architecture. "Am I coming on too strong?" he asked the room full of enthusiastic Apple II developers.

This year saw a toned-down Mensch rolling out a product of his own. His new computer, based on a chip called the 65265S (which is basically a 65816 with built-in RAM, ROM, and serial ports on one chip), is called the Mensch Computer. The Mensch Computer features an extremely small CPU box with a compact yet full-size keyboard, a Flash RAM cartridge port (which will accept the PCMIA memory cards used by the Newton

and many laptops), and a stand-alone 40-column by 16-line LCD screen. (Hide the CPU box under the table and the computer looks like it's just the keyboard and the very thin display screen.) It can run on batteries. The main circuit board is about the size of a half-sheet of notebook paper, and could easily be further condensed (there was a lot of empty space on the board). Since the microprocessor is at heart a 65816, Mensch figured that a crowd of Apple II programmers might be a good source of software—much the way some IIGs programmers have crossed over to Super Nintendo programming, since the game machine also uses a 65816 processor.

Unfortunately, most of the crowd seemed to miss the point. "Can it run Apple II software?" No. "Why not?" Apple didn't make the technology available. "Well, Laser has been licensing its ROMs, have you talked to them?" Real-

So what's the Mensch Computer for? Mensch envisions it as a platform for all sorts of home applications. With appropriate software, it would make a pretty nice Internet front end (the machine has four serial ports).

ly, Mensch said, the purpose of his new computer is not to live its life as an Apple II compatible. "We want to go forward, not back to the past," said Jihad Jaafar, the Nigerian programmer of most of the Mensch Computer's firmware. (That comment seemed to anger a few people, but I don't think it was meant to imply anything negative about the Apple II—Mensch and his team merely wanted to start with a clean slate, and design the best computer for the applications they had in mind without being constrained by the Apple II architecture.)

So what's the Mensch Computer for? Mensch envisions it as a platform for all sorts of home applications. With appropriate software, it would make a pretty nice Internet front end (the machine has four serial ports). It might also make a good phone book or recipe database. (If you've ever seen Seven Hills' *Shoobox* for the Apple IIGs, it's easy to imagine the Mensch Computer as a sort of "shoobox machine," an electronic household organizer for everything your typical family keeps in a shoobox in the closet.) It's small enough to

move from room to room, or even to take on the road as an electronic atlas. Each member of the family might have their own Flash RAM card containing the programs they use most and their own personal files.

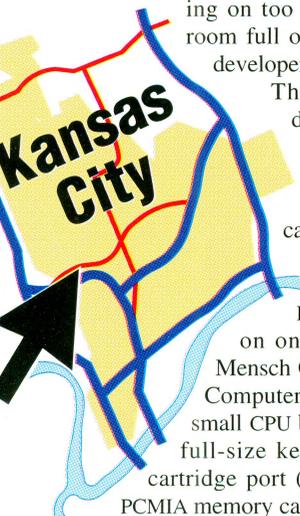
Will people buy it? Mensch's big thing is licensing. (The 65C02 processor, for example, is used in everything from personal organizers to pacemakers. While Mensch doesn't actually make these 65C02s, he does get a royalty for every unit sold, since the chip is his design.) Sanyo has already agreed to build Mensch Computers, and other companies are reportedly interested in licensing the technology to use in various home, portable, and consumer electronics applications. So while I think it's unlikely you'll ever go to the local Circuit City and pick up a Mensch Computer, you might well someday buy a television, or a telephone, or a car that has a Mensch Computer in it (although it might not actually bear the Mensch name). Since all of these devices will use the same architecture, you'll be able to exchange data—to pull a travel guide from your interactive TV, for example, store it on a Flash RAM card, and then use it in your car while you travel.

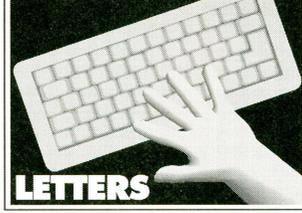
It's easy to envision the advantages of a standard platform for such applications. Programmers could do all their development on one machine, regardless of the eventual target audience. Peripherals and data would be interchangeable. It's particularly savvy of the coming communications boom—one of the computer's four serial ports is dedicated to connecting to other computers, with another dedicated to a modem.

Mensch didn't mention any specific applications in his session, but in talking with Jaafar briefly at the Mini-Expo on Saturday, I could tell that the Mensch Computer team is excited about the potential of the machine. Can it be successful? You've all seen the ads from AT&T promising that "You Will" someday be able to do all sorts of amazing things with technology, but they've been purposely vague about what kind of hardware will be doing the work—mainly because they have no idea what the actual technology will be. A lot of other companies are also dreaming big dreams about an interconnected world where everything is digitally controlled. When it comes time to turn the marketing into reality, these companies will look for solutions that are already available and just waiting to be tapped—like the Mensch Computer.

While Mensch's Western Design Center isn't exactly a household name, that hasn't stopped the 65C02 from becoming one of the most popular embedded controllers in the world. After all, the people who need to know who WDC is *do* know. The rest of us don't matter. Maybe, just maybe, we lucky few at KansasFest witnessed the birth of a new platform which will help make the "future visions" of AT&T and others a reality—and make them all compatible. Or maybe not. Time, as always, will be the judge. Developers should be able to buy Mensch Computers by the time you read this.

(Continued on page 37)





Dear *II Alive*,

Since Applied Engineering has gone out of business, what happened to their stock of data acquisition cards? I would like to get my hands on some of these to experiment with some process control applications and experiments. Do you have any leads on where to find these cards?

David McClay
Lucasville, OH

David: According to our sources, Applied Engineering had little or no stock of its Apple II products remaining when they went out of business. Evidently the company had not actually been manufacturing Apple II products for quite some time. I'm afraid we don't have any leads for you on the card you want.—Editor

Dear *II Alive*,

I'm having trouble getting Mike Westerfield's Awari simulation (March/April 1994) to run under Apple Pascal 1.2. One problem was at first perplexing, but I eventually figured out that Apple Pascal only recognizes the first eight letters of identifiers—which causes problem with the variables that begin with "computer" in Awari. Now that I've got it to compile, it just won't run. If I pick any number but 4 for my first move I get a "value range error." If I do pick 4, no matter what I pick for my second move I always get a "value range error." Can anyone suggest a fix? Thanks for the challenge and for an interesting program!

Ron Gagnon
Barton, VT

Ron: I guess we never actually came out and said that Mike's articles were written to run under the Byte Works' languages (ORCA/Pascal in this case) for the IIGs—but we should have. ORCA/Pascal adheres to ANSI Pascal language standards; Apple Pascal adheres to UCSD standards. This means that there may, in fact, be very minor differences in the way the two compilers handle parts of the languages. These may be causing your problems. At this point we can only guarantee that Weekend Hacker programs will run when used with Byte Works products—sorry. Perhaps a reader has succeeded in getting Awari to work under Apple Pascal. If so, we'd be interested in seeing your version.—Editor

Dear *II Alive*,

I hope you can help me find out some information about a couple of peripheral cards I

have. One is a complete mystery to me—the only identifying mark is the word FOIL on the card itself and also on a small printed circuit board, attached to the main card by a ribbon cable, which attaches to the back panel of the computer. On the circuit board are an RS-232 serial port, two RCA jacks, and what looks like a keyboard or telephone jack. I'd like to find out what this board can do and whether it requires any special software.

The other board is an SSM serial/parallel board called the AIO-II. I'm hoping to find documentation for this card. I tried tracking down SSM but ran into a dead end. Any help you can offer with either of these cards would be greatly appreciated!

Terry Canfield
20 E. Chattaroy Rd.
Colbert, WA 99005

Terry: Maybe printing your address here will help.—Editor

Dear *II Alive*,

I thought that with all the schools who have both Apple IIs and IBM compatibles, my request would be a simple one, but I haven't had any luck so far. Can you help me locate a Windows printer driver for the Imagewriter II? Both Apple and Microsoft apparently thought I was speaking a foreign language—both companies seemed to be trying to pretend that the other didn't exist.

These two computers happily share an HP LaserJet 4L using Vitesse's *Harmonie HP* on the IIGs. Isn't there some way to give my poor PC-compatible the ability to print in color on the Imagewriter?

Marjorie Smelt
701 46th St. North
St. Petersburg, FL 33713

Marjorie: Good question! I remember Orange Micro used to make an add-on card for the Imagewriter II which made it think it was an IBM dot-matrix printer, and I've also heard that the DOS version of WordPerfect supports the Imagewriter. I don't know whether that's true of the Windows version as well, or whether there are other driver packages available that enable Windows to speak Imagewriterian. Maybe one of our readers knows. Gee, this Letters column certainly seems to be developing a theme...—Editor

Dear *II Alive*,

What's this I hear about AppleWorks GS 2.0 being canceled? I was really looking forward

to the upgrade! Doesn't Quality Computers support the IIGs anymore?

Lawrence Palmer
Ann Arbor, MI

Lawrence: This is a bit awkward, because, editorially, I usually try to run II Alive as if it were completely separate from Quality Computers. But I think this issue is of interest to enough people in the Apple II community that I should answer it here.

A few months ago Quality Computers sent out letters to customers who had pre-ordered AppleWorks GS 2.0, informing them that their orders had been canceled and that the upgrade was no longer under development. The technical problems cited in this letter were real. It took Jim Merritt, a former Apple programmer, several weeks just to get the source code for version 1.1 (the current version) to compile. Celebrated IIGs programmer Bill Heineman also had a look at it (see his interview in this issue for his perspective) along with programmers from EGO Systems, publishers of GS+ Magazine. Everyone who has seen the code agreed that it would be simpler to rewrite AppleWorks GS from scratch than to attempt to upgrade version 1.1 into version 2.0.

At this point, unfortunately, financial considerations came into play. Quality Computers estimated the potential number of sales for AppleWorks GS 2.0 (based on pre-release orders and on the sales history of products like AppleWorks 4), weighed it against the costs of rewriting the program from scratch (requiring several programmers and probably at least six months), and found that it would be difficult to ever make money on the project. Projects that don't make money make no sense for any business, no matter how dedicated the company may be to the Apple II.

Quality has recently been approached by additional developers who want to give the project a shot and is continuing to look for a way to produce some type of upgrade for AppleWorks GS. If anything marketable comes of these efforts, II Alive readers will be the first to know. In the meantime, Quality did not wish to hold orders for a product it wasn't certain would ever ship. Quality will continue to sell and support AppleWorks GS 1.1 until an upgrade is ready, if ever.

But there's good news on the AppleWorks front, as well. Quality recently began shipping updates for AppleWorks 4.3, and be sure to check out the ad for AppleWorks 5 in this issue.—Editor

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II Alive is published six times a year and is mailed to at least 40,000 each issue. Contact Tammy Lynn or Matthew Spatafora at 1-800-777-3642 for more information.

II ALIVE

September/October
Volume 2 Number 4

A Quality Computers Publication

Publisher	Joseph Gleason
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Publication Schedule: *II Alive* is published on a bi-monthly schedule, with issues appearing in January, March, May, July, September, and November. Please allow until the 15th of the cover month for delivery (international subscribers allow slightly longer).

Subscription Information: U.S. subscriptions cost \$19.95 (for a six-issue, one-year subscription). In Canada and Mexico, the annual rate is US \$29.95. Outside North America, subscriptions are US \$39.95 (for surface delivery) and US \$49.95 (for airmail delivery). To subscribe, send check, money order, or credit card number (Visa, MasterCard, Discover, or American Express) to *II Alive*—Subscriptions at the address above. You may also subscribe by credit card by calling our Sales Department at the phone number above.

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QUESTION: I'm an Applesoft BASIC programmer, and I have a little problem with my Imagewriter II printer. Whenever I turn on printing with the PR#1 command, for some reason, the TRACE statement gets turned on. Why?

Matthew Bentz
South Huntington, NY

ANSWER: Your simple-sounding question actually goes rather deeply into the roots of the way Applesoft, which is in your computer's ROM, and ProDOS, which is loaded from disk, interact.

When the Apple II was first introduced, it didn't support disk drives, because there weren't any such things. The programming built into your Apple II (its firmware) was, to be honest, never designed to support a disk operating system. When the first disk operating system was released, it "hooked on" to the firmware by pretending it was a remote printer and keyboard. Whenever you typed a key, DOS saw it first. Whenever a program printed something on the screen, DOS saw it first. This allowed it to "intercept" commands before the firmware saw them. (For example, the LOAD command was originally used to read a program from cassette tape. DOS intercepted this command and made it load a program from disk, which required an entirely different set of instructions.)

Since BASIC programs have no built-in way to send commands to DOS, the PRINT command was pressed into service. Printing a Control-D character, also known as CHR\$(4), was a signal to DOS that a command was about to be printed. DOS grabbed the following command and, instead of printing it on the screen, executed it.

When ProDOS came out, things remained pretty much the same, except that when working with BASIC programs, the part of the operating system that actually handles disk access is separate from the part of the operating system that talks to BASIC. The latter is called BASIC.System. BASIC.System has some other duties besides talking to BASIC. To perform a task called garbage collection (a topic which could have its own "Ask Mr. Tech" response) on a regular basis, BASIC.System makes sure that Applesoft's TRACE mode, which prints the line number of each BASIC statement as it's executed, is always turned on. This allows BASIC.System to get control every time a new statement is executed to see if the garbage needs taken out. Normally, however, BASIC.System "hides" the trace information (so that even though Applesoft is actually printing it, it doesn't get through to your screen).

Now we come down to the real answer—the rest of the stuff was just background material. The BASIC command PR#1 doesn't understand a thing about BASIC.System. Since BASIC.System is attached to the computer's firmware as if it were a printer, using the PR#1 command

actually disconnects BASIC.System from the output loop. Then BASIC.System doesn't have a chance to grab the TRACE information before it's displayed—with the end result being a bunch of line numbers on your printout.

The solution is simple. Don't use PR#1 in programs. Instead, use PRINT CHR\$(4);"PR#1". This is a command to BASIC.System, and BASIC.System is smart enough not to "disconnect" itself. When turning the printer off, use PRINT CHR\$(4);"PR#0". Similarly, to activate the 80-column display, use PRINT CHR\$(4);"PR#3".

QUESTION: I'm an amateur computer programmer, and I'm trying to get my first full-fledged game finished, but I'm having problems with speed. Before I can translate my sluggish Applesoft into assembly with the IIGS mini-assembler, I need to know the addresses to call and parameters used for all the hi-res graphics and math routines. The most important routine addresses would be the ones for the shape table commands, such as DRAW, ROT, and SCALE. Nobody wants an arcade game that runs at 1/3 frames per second! Please help!

Albert Hammel
Flint, MI

ANSWER: If your program uses simple graphics and is spending most of its time doing non-graphics housekeeping things (such as calculating where enemy spaceships are, and that sort of stuff), a better solution than assembly is the Beagle Compiler. In less than a minute the Compiler will translate your BASIC program into a super-fast psuedo-assembly code that really flies. Sure beats converting your whole program to assembly!

If your program uses complex graphics and the slowdown seems to be in the actual drawing of shapes, then converting the program to assembly may not help. Drawing a complex shape in assembly language (via the Applesoft DRAW routine) is not any faster than drawing the same shape using the Applesoft DRAW command because the routine being called is the same in both cases, and it's simply not very fast. There are a number of things in the Applesoft routines that are, well, less than optimal. A better solution in this case is a technique known as bitmapped shapes or block shapes.

You also asked about Applesoft math routines. Those are slow, too. You may think you need floating-point math, but I advise you to think again—floating-point math is one thing sure to slow even assembly code to a crawl. The Beagle Compiler achieves much of its speed increase by automatically using fast integer math when appropriate. You should do the same when writing your own assembly code. (You should get a real assembler, such as Merlin 8/16, instead of relying on the mini-assembler. Trust me on this one.)

Covering the whole range of high-speed Apple graphics techniques is a bit beyond the scope of Mr. Tech's usual ruminations. I can, however, suggest a couple of classic books on the subject. One is "Apple Graphics and Arcade Game Design," by Jeffrey Stanton. Another is "Graphically Speaking: Portrait of the Artist as a Young Apple" by Mark Pelczarski. Unfortunately, both are long out of print—but they're both worth hunting down, and both contain all the information you need to use Applesoft's built-in shape routines from assembly, as well as a wealth of more advanced techniques.

QUESTION: Either there's a bug in ProDOS, or I'm doing somethign wrong. I've written an Applesoft program that uses a small machine-language program to make use of the ProDOS MLI call. It works fine except when there are two or more disks with the same name present. According to *Beneath Apple ProDOS*, this should return an error code (byte \$00 of the disk name entry should be \$00, and byte \$01 should be \$57). But this doesn't happen! If I have empty drives or non-ProDOS disks present, the error is returned properly. I'm working around this problem by checking the volumes for duplication afterward, but I sure wish I didn't have to do that. Any suggestions?

Also, is there a good source for a list of Applesoft entry points that can be called from assembly language? I'd like to write some little Applesoft utilities but am not sure how to go about it.

George A. Clark
Reynoldsburg, OH

ANSWER: Evidently ProDOS was originally intended to be rather more strict about duplicate volume names than it is. To make things worse, it appears that *Beneath Apple ProDOS* was, at least in spots, compiled from pre-release information from Apple, or possibly documentation for Apple III SOS. I've never seen an error \$57 when working with ProDOS—even when renaming a volume to a name already in use by another available disk, which should theoretically generate the same error. ProDOS seems rather tolerant of the situation, although GS/OS is not. I wouldn't call it a bug; more like a documentation error.

My favorite source of Applesoft trivia is probably the disassembly of Applesoft that comes with the Merlin 8/16 assembler. (A program included with the assembler actually disassembles the version of Applesoft in your computer's ROMs and inserts comments and meaningful labels all over the place.) The books *What's Where In The Apple*, by William Luebbert, and *All About Applesoft* from CALL-A.P.P.L.E. are also good, but hard to find these days. ■

QUALITY COMPUTERS READY TO RELEASE APPLEWORKS 5.0

Quality Computers, publishers of AppleWorks 4.0, has announced a release date of October 1 for the latest incarnation of the most popular Apple II program in history. With over 40 new and improved features, the 5.0 upgrade is a huge step in the evolution of AppleWorks.

A true upgrade, AppleWorks 5.0 requires version 4.0, a 3.5" disk drive, 256K of RAM (Ile's must be enhanced). People who order the AppleWorks 5.0 upgrade will receive a set of update disks and an AppleWorks 5.0 manual addendum.

Following is the new features list as of August 15, 1994. The final version may vary.

Miscellaneous

- Requires minimum 3.5" disk drive, 256K enhanced Ile (65C02 and Mouse Text)
- Files are compatible with AppleWorks 4
- Includes AfterWork screen saver engine with sample modules
- Includes free customizer program

Macros

- Includes a full version of UltraMacros allowing you to create macros as well as play them. UltraMacros manual not included.
- New dot commands include "random" and "justify"
- Compiler now has "conditional" option

Desktop

- Built-in printer buffer allows you to work while a document prints in the background
- Automatically switches desktops when current one is full
- Set pop-up alarms for any date and time, or for daily repetition
- New "Reverse" option added to -A option to let you invert the current order
- "Default sort" order can be selected for file lists
- TimeOut loads utilities only when both Apple keys are pressed for maximum speed
- Text files are loaded with margins set to "0" for maximum width
- File types can be changed
- Screen blanker delay is now reset when mouse is moved

Word Processor

- New full-featured outliner
- Improved split screen capability with resizeable windows
- Lets you print odd or even pages
- "Print to screen" option lets you easily preview (great for mail merge)
- MouseText can be printed from WP documents
- Find/replace allows wild card pattern matching
- -F text is preserved when switching to another document
- New option for more suggested spellings in spell checker
- Add non-printing comments to your documents

Data Base

- Supports background text in SRL (single record layout)
- Displays PrintShop, hi-res, and double hi-res graphics in SRL
- New combined mode shows MRL list with SRL data updated live as you move through the list
- Categories can be hidden in SRL
- Add new records at the end of a file instead of inserting at the cursor (optional)
- Enter numbers of list item to grab it directly
- Spell out months if you want to
- Use Tab after text is entered
- New Find & Replace text feature

Spreadsheet

- Enhanced "find" function
- Dynamic @Alert function updates each recalculation
- New @Today function updates each recalculation
- @Find is now case-sensitive
- Automatically recalculates before saving (optional)



DiskQuest, Family Tree, Numberball & Pondering Problems

II ALIVE RATINGS

- ★★★★ Excellent
- ★★★★ Very Good
- ★★★ Good
- ★ Fair
- ☆ Poor

DISCQUEST

★★★

Sequential Systems

\$99.95

Requires Apple IIGs, 2 MB RAM, System 6.0 or later; hard drive and System 6.01 recommended

Reviewed by Jeff Hurlburt

When a '90s software vendor talks about offering comprehensive baseball stats back to 1871 (plus team pictures and "great moments" sound clips) or answers to 2,000 commonly asked health questions, or some similarly prodigious collection of data, it's a cinch the medium is CD-ROM. The *why* of CD-ROM is easy to understand. Each disc can hold more text, picture, and sound data than 800 3.5" diskettes. While access to the material isn't as fast as it would be if the information were stored on a hard drive, and the medium is read-only, it's clear that for reference software, CD-ROM is the way to go.

Indeed, there is a burgeoning library of CD-ROM releases that may never appear in any other form. *History of the World* from Library Reference is a case in point. Operating this software with diskettes holding the text plus 600 pictures and 25 "you are there" sound clips (including the Hindenberg crash, FDR's Pearl Harbor speech, and many more) would be impossibly cumbersome. In short, a IIGs without a CD-ROM drive is shut out from a large—and growing—software resource.

History of the World, Family Doctor, Total Baseball, and many more CD-ROM offerings are stored in a standardized format called DiscPassage. The DiscPassage software provides a user interface for the data on the disc, which lets a user access text, pictures, and sound tracks on CD-ROM. Typically these products carry the

Digital Data Disc symbol and are often labeled "for Mac or Multimedia PC." Mac and PC versions of the DiscPassage Software are usually included on-disc; however, any computer that can read ISO 9660 CD-ROMs can use the database if it's running suitable interface software.

But if your IIGs has a CD-ROM drive, SCSI interface card, and all the standard System 6.01 drivers, it still can't do much with those CD-ROMs. The basic IIGs setup can only access data and programs on CD-ROMs designed specifically for the Apple II. (With the HFS and High Sierra File System Translators installed, you can also access text, GIF graphics, TrueType fonts, and certain other types of data from some Mac and PC CD-ROMs.) At present, though, Apple II specific CD's are very rare, and most Mac and PC CDs require special software to access them—software that, like DiscPassage, is typically only provided for the Mac and the PC. (DiscPassage CDs sometimes have text files your unaided IIGs can read, but this is hardly satisfactory for a multimedia database!)

While your IIGs naturally cannot run PC or

update is in the works to fix this problem.)

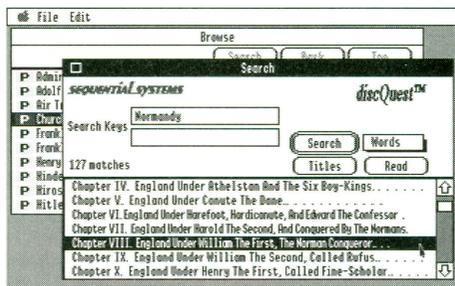
As might be expected, the PC version displays graphics faster. DiscQuest must process each image before it's displayed to reduce the number of colors to a level the IIGs can handle. The larger the graphic and greater the number of colors, the bigger the PC's speed advantage. Based upon samplings of several CD-ROMs, DiscQuest often needs about fifteen seconds to load and display a picture that the PC displays three seconds. Fortunately, you can reduce the delay by setting the Color mode to Gray-scale—less colorful, but much faster.

Since 320 x 200 is a commonly-employed PC graphics resolution, many images will fit the IIGs screen perfectly. For larger pictures, DiscQuest provides smooth mouse-controlled scrolling. Another Preferences option, Half-size, is handy for printing, and often supplies satisfactory single-screen viewing of very large images.

Both setups handled sound files well, consistently starting playback in under four seconds. The big surprise of the face-off came when comparing the time required to open folders and display item choices—for example, to open *Ancient Civilizations* and list article titles. The PC routinely took 10-20 seconds, whereas DiscQuest seldom took even two seconds! Skipping around in folders is a routine part of navigating CD-ROM databases and should be as quick as possible. Add the convenience of DiscQuest's mouse interface—the DOS version of DiscPassage accepts only keyboard input—and there's no contest: IIGs DiscQuest users enjoy a considerably more friendly CD-ROM environment!

A few seconds after double-clicking the DiscQuest icon the name and main menu of the current DiscPassage-compatible CD appear in a scrollable Browse window. From here you can open folders, do searches (by word, author, subject, or title), and read articles in scrollable windows. Of course, you can also listen to soundtracks, view pictures, and obtain printouts of text and pictures.

A major benefit of having reams of text on the computer is that you can clip and save selections for use in articles, term papers, and other projects. DiscQuest scores a "pretty good" here, since you are free to edit text and can use Cut & Paste within whatever article you are viewing. The result may then be saved



Mac versions of DiscPassage, it *can* run DiscQuest! DiscQuest is a DiscPassage compatible "browser" for the Apple IIGs. In other words, since the creators of these discs didn't make an Apple IIGs version of their software, Sequential Systems did it instead. One software package, DiscQuest, lets you use dozens of DiscPassage-format CD-ROMs on your IIGs.

I tested several DiscPassage CD-ROMs on a 486 PC and compared them to DiscQuest running on a IIGs with a 10Mhz 64K Zip GS accelerator. The main differences are minor: on the PC each disc displays a title screen (which DiscQuest skips). In one case, a sound file which played fine on the PC did not play under DiscQuest. (Sequential Systems says an

to disk (but not, naturally, back to the CD-ROM). At present, however, DiscQuest does not maintain more than one text window, nor does it support loading existing text files from disk or opening a new (blank) text window. A Desk Accessory text editor such as ShadowWrite or EGOed comes in handy here.

The standard DiscQuest package includes your choice of one sample CD (such as *Family Doctor* or *Total Baseball*), fifteen pages of information and instructions, and two diskettes. One diskette lets non-hard disk users start DiscQuest after a bare-bones System 6.0 boot. The other will install DiscQuest and a monospace font (CoPilot.8) on a hard drive along with, optionally, several support files. The latter include HS.FST (the High Sierra File System Translator, required to read DiscPassage-format CDs) and drivers for popular CD-ROM readers, along with the Media NDA and Control Panel to support playing music CDs.

If you already have a CD-ROM drive on your IIGS, then hard drive installation of DiscQuest involves nothing more than creating a new folder, copying the program into it, and copying the CoPilot.8 font into your System folder. The other files are present in case you've purchased Sequential's Complete System Package. The review package I received included DiscQuest software, info sheets, and manuals; a NEC MultiSpin (double-speed) CD-ROM drive; a RamFAST SCSI interface card and SCSI cable; a pair of Labtec CS-150 amplified speakers; and four additional sample CD-ROMs. A Sequential representative noted that the components and pricing of the Complete System Package change occasionally, so be sure to check with Sequential if you're interested in a complete setup. (You don't need to buy the hardware or the CDs themselves from Sequential; in fact, I advise you to shop around.)

Once upon a time there were virtually no CD-ROM products for the IIGS and, as a consequence, IIGS users saw no reason to invest in CD-ROM capability. As a result, vendors didn't develop for the IIGS. So nobody bought CD-ROM drives, so no developers made titles for the IIGS, and so on. DiscQuest breaks this cycle and, suddenly, there are stacks and stacks of IIGS-compatible CD-ROM goodies! (Of course, the publishers of these CD-ROMs still think they're only for the Mac and the PC.) What will happen next? If enough users buy DiscQuest, eventually vendors may start to release major utility, productivity, and game CDs just for IIGS!

Fantasy? For now, call it a modestly upbeat prediction. Not too many years ago, *everyone* knew IIGS users would never buy 4MB of RAM, or accelerator cards, or hard drives. With DiscQuest providing access to the wide world of DiscPassage-format CDs, CD-ROM on the IIGS finally makes sense. Now's a good time to shop around, compare features, and get the hardware you need. Then get DiscQuest; it can, literally, open the door to new worlds of IIGS computing!

FAMILY TREE

★★★

Robert M. Merrill

\$49.95

Requires Apple IIe (enhanced), IIc, IIGS,
128K RAM

Reviewed by Bruce R. Baker

A few months back, my wife was in Minneapolis visiting relatives when one distant relative stated flatly that she was not a relation. Well, when you're descended from Samuel Adams—as my wife is—you don't stand for such nonsense. With Family Tree, we were able to print out a Descendant Chart from a common ancestor documenting the relation!

Such are the benefits of owning and using well thought-out genealogy software. Runnable from floppy disk or hard drive, Family Tree can print Pedigree Charts and Descendant Charts, which show relationship links, as well as Family Group Charts, which include dates. The program allows previewing each chart on-screen, so it's not difficult to spot mistakes like duplicate entries or omissions. My wife and I have impressed several people with our printouts.

When we took up the challenge of my wife's confused relative, it was with the backing of a sizable database. Naturally, the program doesn't gather the data for you, it just organizes the information in an easy-to-reference format. I have done a lot of research in many areas of our families—and some of our ancestors had quite large families, with the result that our database has over entries on over 400 relatives. A big database, but still way below Family Tree's limit of 700 (and when you hit that limit, you can split the database in two and continue working with both halves of your family tree separately). Happily, with the program's efficient encoding, even a large database takes up an amazingly small amount of memory and disk space.

Once you've collected a pile of personal data, you're sure to appreciate the way Family Tree's prompts and built-in "smarts" speed the process of building the database. For each named entry, you have the opportunity to enter birth, marriage, and death dates and places, along with the person's father, mother, and spouse. After you enter the father, the program searches for that name and automatically inserts his wife's name, if one is recorded, as as the mother. (You can, of course, change this assumption if it is incorrect.) You can also enter partial names and allow the program to prompt you with a list of possible matches.

Naturally, you don't *have* to enter all personal information, anecdotal notes, and so on when a name is first added. By starting with one person, entering his or her spouse's and

parents' names in the proper places, and repeating the process for the new names, you can quickly build a linked group of relatives, then fill in the details later, as your research brings more information to light. Each new name is assigned a number, and you can recall that person quickly by entering his or her number in the First Name field.

Maybe the easiest way to describe Family Tree's capabilities is to note that if there's something you want to do with genealogical data, you can almost certainly do it with this program. For example, brothers and sisters can be patched in using a special Add feature. They can then be linked (using the name or ID number of parents) and their spouses can be added. There is also a way to show second and subsequent spouses and to distinguish children from each marriage.

So far I've worked with just one database, but you can have as many as you want, including ones created from scratch or split off from other databases. You can even grab files from non-Apple genealogical systems by converting databases (or parts of databases) to a standard genealogical format called GEDcom. Theoretically, any GEDcom file created with any program can be imported into any other program that can read a GEDcom database. The same goes for moving data to and from AppleWorks and importing data in the popular Personal Ancestry File format (like GEDcom, developed by the Church of Jesus Christ of Latter-Day Saints).

One fun feature is that you can enter two names and ask the program to tell you how they're related. Family Tree understands "double cousins," "second cousin once removed," and more—which is good, because I sure don't! (This kind of search is limited to eight generations.)

Building a large genealogical database takes a while, so the fact that I'm still using Family Tree is good evidence that I like it. Still, there's room for improvement. One problem is speed. Each time you enter the name of a father, mother, or spouse, the program scans the entire database for a match or near-match. As a database grows to a few hundred entries, the delay on a 'stock' IIe may rise to ten seconds or more.

A second potential problem is that incorrect links may suddenly crop up in large databases. You can fix program-induced errors by selecting Verify after doing a Save, but it's still annoying to encounter such glitches. For one thing, you may not always be sure that a messed-up linkage is not a user error; for another, doing a Save and Verify of a large database is fairly time-consuming. It also seems odd that the designer of the program chose to include the verification feature to repair files rather than finding out what was causing the problem in the first place and fixing it. While the bug did not have any major impact in my work with the program, it does, obviously, need to be squashed.

Documentation is on-disk, which means it's up to you to print out the 42 pages. Complete with glossary and index, the manual is well done and nice to have, though, to the programmer's credit, menu choices are so explicit that little explanation is necessary. Keys for special functions (moving the cursor and so on) are largely the same as those commonly employed in other databases and word processors. For instance, on a name screen, one can skip to the bottom field using OA-Down Arrow. In fact, you can expect to use the program with just occasional glances at the manual.

Supplied on two 5.25" diskettes, Family Tree is a quality system for organizing and presenting genealogical data. Robert Merrill has a section in the Apple II Roundtable on GENie where he answers questions promptly and takes suggestions for updates—the program certainly is actively supported. Whether you've been chosen to chart the family heritage, or just want to straighten out a confused relative, be sure to take a look at Family Tree.

NUMBERBALL

★★★

Micrograms

\$39.95

Requires Apple IIe, IIc, IIGS, 128K RAM

Reviewed by Cathy Byrd Toole
Dean Learning Center

It's not often that an educational software product, developed to provide practice in solving math equations, pushes your students' logical processing skills to the limit. Numberball does. It challenges students to decide for themselves the best method of completing an equation, and, then, to manipulate missing elements through the Numberball Machine in order to satisfy that equation.

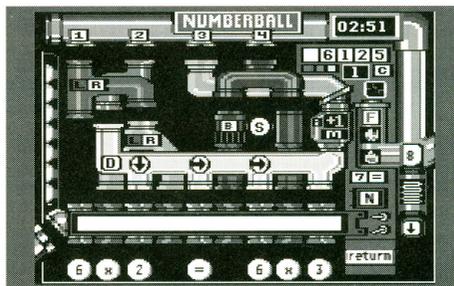
At the bottom of the Numberball Machine, a math equation is presented with at least one missing number or math symbol. The student can solve the problem by adding missing elements or change the problem to accommodate one or more different elements. Motivation? Just try manipulating the balls bearing numbers and symbols through the chutes and into appropriate positions in the equation—at any level of play, it's an exciting challenge!

Each element within the equation can be changed to fit the user's preferences—as long as the answer is correct when he or she decides the

equation is completed. Two Fireballs are available to eliminate unnecessary elements and allow for modifications when mistakes are made.

Other options include a Time Limit and Level of Difficulty setting. For example, Beginner problems will tend to avoid multiplication and division, use smaller numbers, and have fewer elements. Although the User's Guide says differently, the program's on-screen calculator was available for use with each equation.

Points are scored for correct equations and are taken away when answers are wrong. Higher scores are earned for completing longer and more difficult equations and for success



within shorter time limits. The single highest score achieved on this game is retained on a "Top Score" screen, and the five highest scores of the day are shown on this screen until the disk is rebooted.

Offering colorful double high-resolution displays and decent sound effects, the program does, as claimed, provide entertaining practice in setting up and completing equations. Learning to operate the Numberball Machine will take a bit of practice, but, given a chance, the program is a delightful challenge for students ages 8 and up.

PONDERING PROBLEMS

★★★

Micrograms

\$24.95

Requires Apple IIe, IIc, IIGS, 128K RAM

Reviewed by Cathy Byrd Toole
Dean Learning Center

If you're looking for practice in solving math word problems, why not take a trip to the Pond and get some help from Ferdinand Frog and his friends? In *Pondering Problems* (*Pondering, get it?*) the student is walked through three steps to solve each word problem: sorting the necessary data from extraneous information, choosing the correct operation, and finding the answer. As in *Numberball* the student can activate an on-screen calculator.

Pondering Problems questions are posed as multiple-choice, except for the final answer to each problem, which must be typed in. The student is given credit for an answer only if the question is answered correctly on the first try.



If the student's second attempt at solving the word problem is unsuccessful, he or she is provided assistance in finding the answer.

After each set of three word problems, the program displays a graph that indicates levels of mastery in each problem-solving area. Via a Print option, you can also obtain printouts of individual and, sometimes, total class scores. (I found that the program does not always come up with the correct class score total.)

Options to define specific types of problems and difficulty levels can be set up when the disk is booted and these are maintained until the system is rebooted or options are modified. Student scores are not saved (too bad); still, this does make it easier to use a single diskette to start up the program on several computers.



Presented in double high-resolution graphics, the pond provides a colorful backdrop for the randomly-generated problems. However, each game screen always looks the same with repetitive feedback (animals shake their heads 'yes' or 'no' with generic feedback at the bottom of the screen).

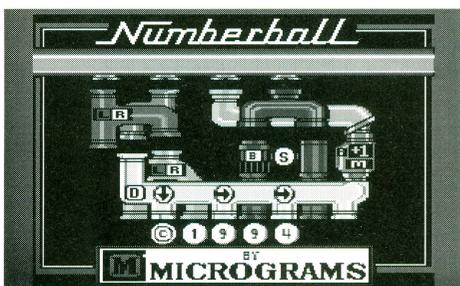
Warts and all, *Pondering Problems* is a cute idea. As promised, the program does challenge students and assist them in implementing the proper steps to solve math word problems. The series presently includes releases for grade levels 2-5 (each sold separately). ■

VENDOR INFORMATION

ROBERT M. MERRILL: 6180 Via Real,
Carpenteria, CA 93013-2863

MICROGRAMS: 1404 N. Main Street,
Rockford, IL 61103 800/338-4726

SEQUENTIAL SYSTEMS: 1200 Diamond
Circle, Lafayette, CO 80026 800/759-4549



CHRONOS:

THE LIFE AND TIMES OF APPLE II OPERATING SYSTEMS PART II: RUNNING WITH 16 BITS BY NATE TROST

Welcome back to the history of Apple II Operating Systems! We wrapped up the first part of our journey at the introduction of the Apple IIgs in September, 1986. In this second half, we'll explore how this new and powerful addition to the Apple II line affected the development of operating systems for the II.

Beyond DOS and ProDOS

When Apple released the IIgs, the role of the operating system was expanded. Unlike DOS 3.3 and ProDOS, the scope of the IIgs operating system is not limited to handling files and access to disk drives. The IIgs operating system provides a standard visual user interface, modeled on the Macintosh. Apple devised a comprehensive set of programs known as the Apple IIgs Toolbox. The primary role of the IIgs Toolbox is to give software developers a standard, programmer-friendly way to create IIgs applications with Mac-like interfaces—windows, menus, icons—while taking advantage of advanced IIgs hardware features, such as the Ensoniq sound chip, without having to learn the intricacies of the hardware.

The initial release of the IIgs operating system seems crude compared to System Software 6.0.1, but in those days it was a revelation. System Software 1.0, the version initially shipped with the GS, lacked many things that software developers and users take for granted today: comprehensive networking support, programming tools like TextEdit and MidiSynth, GS/OS, even the Finder! (If you aren't familiar with some of the preceding elements, don't worry; we'll look at each one of them as we retrace the evolution of the IIgs operating system.)

Much of the IIgs Toolbox is in ROM and is neither loaded from disk nor particularly concerned with disk drives, so the term "disk operating system" is a misnomer when talking about the IIgs operating system. The Toolbox and the various disk operating systems released for the IIgs through the years work

hand-in-hand to provide a complete, modern operating system for the IIgs. Apple uses the term "System Software" to refer to all the operating system components, along with included utilities like Teach, the Advanced Disk Utilities, and Finder. The term "operating system" refers to the central part of the System Software—for example, ProDOS 16 or GS/OS, along with the Toolbox routines built into the computer.

IIgs System Software 1.0 (September 1986)

While 3.5" disk drives have never been known as speed demons—except, perhaps, to users just upgrading from 5.25" drives—the

process of booting System Software 1.0 brings new meaning to the word "glacial." After the seemingly interminable loading process was complete, a simple "launcher" program, in reality nothing more than a simple Open dialog allowing you to select an application, appeared. An Apple IIgs Finder wouldn't be released until System Software 3.1. Apple *did* include a Finder-like program with System Software 1.0, but the program, MouseDesk, ran under ProDOS 8 in black and white double hi-res graphics!

Although IIgs System Software 1.0 ran only on the IIgs, at its heart was ProDOS—the



same ProDOS code used on the 8-bit Apple IIe and IIc. Due to time constraints in the initial release of the IIGS, Apple engineers didn't have the time to write an all-new operating system for the machine. A 16-bit "shell" was wrapped around the old 8-bit code, providing the entry points IIGS programs would expect while passing off actual disk access requests to the 8-bit routines. (This is the main reason System Software 1.0 was so slow.) This IIGS specific version of ProDOS was called ProDOS 16, and the original ProDOS was re-christened ProDOS 8.

Although much about the IIGS System Software has changed since release 1.0, this version did establish several underlying assumptions which have remained unchanged ever since—such as the related ideas of dynamic memory allocation and relocatable programs.

Run it Anytime Anywhere

One of the major differences between the IIGS and its predecessors was the machine's ability to directly address 16 megabytes of memory (compared to a paltry 64K of directly-addressable memory for previous models). Early IIGS computers included 256K of built-in RAM, and this was later increased to 1.125 megabytes. Total RAM expansion was limited to 8 megabytes, with the remaining 8 megabytes of address space reserved for the Toolbox and other built-in software. Naturally, this dramatic increase in available memory meant that larger and more complicated programs could be run (maybe even multiple programs at once!)—and that these programs could use bigger and more complex documents and data files.

Besides the inevitable memory requirements of bigger and better application programs, the IIGS Toolbox and other parts of the operating system required memory of their own. For this reason, one of the most important programs in the Toolbox is the Memory Manager. Instead of reserving a specific area of memory for the operating system, as was done with DOS 3.3 and ProDOS, the IIGS was designed to allocate memory on an as-needed basis for operating system needs, application programs, and documents. Each program is allocated a Memory Manager ID number, which it can use to identify and request blocks of memory as required. The Memory Manager keeps track of free memory, as well as memory which contains data but which can be reused if memory runs low (called "purgeable" blocks), allowing programs and data structures to coexist peacefully.

This dynamic memory allocation method brought up a serious problem, though. The 6502 series of microprocessors (which the IIGS's 65816 processor belongs to) generally expects programs to be written to run at a specific memory location. If the program is moved from one memory location to another, it stops working. (It is possible to write small programs which run successfully when moved to another location, but this becomes impractical when the program becomes larger than a few hundred

bytes.) Since the memory manager allocates memory on an as-needed basis, though, there's no telling where an application program will end up when it's loaded into memory.

The solution devised by Apple is to include information with programs that tells the operating system how to modify the program to run at an arbitrary memory location. Every single ProDOS 16 and GS/OS program—whether an application, desk accessory, driver, control panel, or init—has this information, which is generated by the development tools used to write the program (assemblers, compilers, and linkers). Programs stored in this format are said to be in OMF (Object Module Format). The System Loader, a component of the IIGS operating system, requests blocks of memory from the Memory Manager, loads the program into that memory space, and uses the relocation information included in the OMF file to modify the program to run happily in its new home. While there have been changes to the OMF to make it more efficient, the concept has not changed, and current versions of GS/OS can load even the very first OMF files without difficulty.

The initial release of the IIGS operating system seems crude compared to System Software 6.0.1, but in those days it was a revelation.

IIGS System Software 3.1 (September 1987)

While Apple released several new versions of the IIGS operating system in 1986 and 1987, including 2.0 in May of 1987, System Software 3.1 was the first upgrade with significant new features. The most obvious addition was the initial release of the Apple IIGS Finder, which replaced the old Launcher and MouseDesk. Although the IIGS Finder looks now, for the most part, much like it did back then, the first incarnation was slower, lacked features like Finder extensions and keyboard navigation—and it even had uglier icons! It was, however, a enormous step forward from the MouseDesk program.

System Software 3.1 also included a new toolset that had been intended for the initial release of the system software, but hadn't been finished on time—the Note Synthesizer. Ironically, the developer documentation for the Note Synthesizer wouldn't be released until System Software 3.2!

IIGS System Software 3.2 (May 1988)

Although System Software 3.2 wasn't a major upgrade, it did include several new features. Apple enhanced the sound support in the IIGS Toolbox by releasing the MIDI Toolset, the Note Sequencer (a companion toolset for the Note Synthesizer), and ACE (audio compression and expansion).

ImageWriter owners had another reason to cheer: System Software 3.2 included a completely new printer driver for the ImageWriter. With additional features and speed (under older System Software versions, printing times were just as notorious as disk loading times for their incredible length), the new driver made printing on the ImageWriter a much more pleasant experience.

Support for AppleTalk networks was also enhanced; for the first time, the System Software could be loaded over an AppleTalk network at startup time. Other miscellaneous tweaks in System Software 3.2 included speeding up menu drawing, easy disabling and enabling of Desk Accessories and INIT files via the Icon Info menu option, and a better way for third party extensions to patch into the IIGS Toolbox and enhance it.

Apple IIGS System Software 4.0 (September 1988)

Apple used the September 1988 AppleFest to unleash one of the largest operating system upgrades in Apple II history—IIGS System Software 4.0. For the first time, ProDOS 16 was replaced with the new GS/OS. Rewritten from the ground up, GS/OS was a fully IIGS-native I/O and file handler. Unlike ProDOS 16, GS/OS was modular, with comprehensive support for third-party additions—device driver programs to allow use of new and different devices (disks, scanners, modems, printers, etc.), File System Translators (FSTs) to let users use disks formatted for different computers, and more. While the first release of GS/OS had a limited number of drivers and FSTs, later releases built on the foundation provided in System Software 4.0.

The remarkable thing about GS/OS is that it had no default device or file system setup. In other words, it only supported disk devices for which there were drivers, and disk formats for which there were FSTs. ProDOS disks were supported through a ProDOS FST, not as an integrated part of the operating system. (Apple also provided a FST for reading High Sierra format CD-ROM discs). Without the right driver, GS/OS couldn't even use a simple 3.5" or 5.25" disk! While this modularity added additional complexity, it made upgrades and addition of third-party enhancements much easier.

Aside from GS/OS, there was little new in System Software 4.0—but what else do you want? The IIGS Toolbox went through another set of revisions to fix minor bugs, but few new features were added. One addition to the System Software that did prove popular were drivers for Epson printers and parallel interface cards.

IIGS System Software 5.0 (July 1989)

Although the introduction of GS/OS in System Software 4.0 took the IIGS to a new level, it remained to be seen if Apple would fulfill the potential of the system's modular architecture. Apple answered this question decisively when it released System Software 5.0. Although 5.0 lacked any new innovations on the order of the GS/OS introduction, it was a massive upgrade in terms of enhancing existing parts of the OS.

One limitation of the first release of GS/OS in System Software 4.0 was the lack of real networking support. System Software 5.0 solved this in several ways: providing an AppleShare FST (File System Translator) that provided direct access to file server volumes, new GS/OS AppleTalk drivers, and Control Panels for controlling access to network features.

Apple also improved the device drivers supplied with GS/OS. The driver for the Apple 3.5 drive gained a new "scatter read" feature for a great speed boost. A new SCSI driver system was also written, giving better performance and providing makers of SCSI peripherals an easier way to develop drivers to let their peripherals talk to the IIGS. ExpressLoad was another performance-improving addition to System Software 5.0. Using a newly optimized variant of OMF, ExpressLoad could load new applications *much* faster. The speed improvements in System 5 were so great that they prompted *A2-Central* to title their front-page story on the upgrade, "Apple Announces Faster IIGS."

The Apple IIGS Toolbox also saw a wide variety of enhancements. Apple released two all-new tools with System Software 5.0: TextEdit and the Resource Manager. TextEdit is a powerful tool that gives application programmers an easy way to implement text editing and word processing features in their applications.

The Resource Manager was created to help programmers manage program data in a more organized and convenient way. Most programs, in addition to their actual assembly code, include a large number of pieces of data, such as menu and menu item titles, window coordinates, color palettes, icons, and so forth. These pieces of data were given the collective name of "resources," and the Resource Manager allowed programmers to store these elements of their program in a separate fork of their application. This sped development (since the resources did not need to be recompiled each time the program's code was changed) and made it easy for users to change these resources to make programs better suit their needs.

Other enhancements to existing elements of the IIGS Toolbox included pop-up menus; better support for simple "info" or "error" dialog boxes; a more robust way of tracking controls (such as buttons and scroll bars) in windows; new controls such as icon buttons; keystroke equivalents for controls (like the Menu Manager has for menu items); and many optimizations in program code that made the IIGS Tool-

box run more quickly. The end result to the user was that existing programs ran more quickly and new programs could have some really neat features!

The Finder was upgraded to run faster and to support AppleShare file servers. In addition, Finder was also changed to support files called File Type Descriptors—files that described what different types of files were. This allowed the Finder to be "taught" about new types of files, so that when you added a new application to your system, the Finder could identify its documents by name instead of merely calling them "documents."

Finally, Apple included a brand new desk accessory, the Control Panels NDA. The Control Panels NDA is a shell for selecting a Control Panel—a sort of mini-application. Apple included a variety of Control Panels that controlled networking features, printer options, mouse speed, sound volume, and other config-

uration options. Apple also published the details of creating new Control Panels for the Control Panels NDA, and third-party Control Panels soon began to appear.

And the Rest is History

Recent history, that is! Apple released Apple IIGS System Software 6.0 in April of 1992 and followed up with IIGS System Software 6.0.1 in May of 1993. Due to the current nature of these versions of the system software, we will not touch on them as part of our history tour. *II Alive* and other magazines have published many articles touching on the new features available in these upgrades.

I hope you have enjoyed your tour of Apple II Operating Systems. From humble beginnings with a mere cassette tape to vast hard drives, CD-ROMs, laser printers, and networks, the Apple II has come a long way! ■

GNO/ME—Unix on the IIGS

While there has never been a complete third-party replacement for the IIGS Operating System, there has been one significant tie-in: GNO/ME, the Unix clone from Procyon, Inc. Unix was originally developed at AT&T in the 1970s and has since become one of the most popular operating systems in the world. Used heavily in scientific and educational computing, Unix is, from a user standpoint, a rather complex and cryptic beast. Many of its then-revolutionary concepts are incorporated in one fashion or another in the operating systems of today.

GNO/ME provides a multitasking kernel for GS/OS. Using the included text-based shell (command line), Apple IIGS users have full access to the multitasking features of Unix and can use many popular Unix utilities which have been converted to run under GNO/ME. Unfortunately, the multitasking capabilities of GNO/ME are limited when working with Desktop programs. While GNO/ME can run many programs from its shell, only one desktop program can be running at once (although the text programs can be running in the background as the desktop program runs).

TIMELINE

June 1978	Disk II and DOS 3
July 1979	DOS 3.1
February 1979	DOS 3.2
July 1979	DOS 3.2.1
August 1979	Apple Pascal
August 1980	DOS 3.3
January 1983	DOS 3.3 (Ile version)
January 1984	ProDOS
September 1986	ProDOS 8 v1.2 and ProDOS 16 1.0 (Apple IIGS System Software 1.0)
May 1987	Apple IIGS System Software 2.0
September 1987	Apple IIGS System Software 3.1 (First IIGS Finder)
May 1988	Apple IIGS System Software 3.2
September 1988	Apple IIGS System Software 4.0 (First version of GS/OS)
July 1989	Apple IIGS System Software 5.0
December 1989	Apple IIGS System Software 5.0.2
December 1990	Apple IIGS System Software 5.0.3
February 1991	Apple IIGS System Software 5.0.4
April 1992	Apple IIGS System Software 6.0
December 1992	Apple II System Software 4.0.1 (ProDOS 8 2.0.2)
May 1993	Apple IIGS System Software 6.0.1

Disk: Ext. Disk 3.5 #1 SPELLING CHECKER Escape: Standard Settings

```

Main Menu
├── Other Activities
│   ├── Standard Settings
│   └── Spelling Checker
│       ├── 1. Standard custom dictionary      CUST.DICTIONARY
│       ├── 2. Standard spelling method      From a list
│       ├── 3. Standard summary setting      Screen
│       ├── 4. Copy dictionaries at startup    Yes
│       └── 5. Location of dictionaries      /AppleWorks/
└──
Type number, or use arrows, then press Return      118K Avail.
    
```

Some users have complained that AppleWorks 4 allows the entry of only 22 characters in the dictionary location pathname. There are two good reasons for this. The first is cosmetic—there's only room for 22 characters on the menu. More importantly, however, locating the dictionaries in the main directory of a disk greatly increases spell-checking efficiency. For the fastest checking of all, locate the dictionaries on your RAM Disk.

If you really need to use a longer pathname for the dictionaries, AppleWorks has space available for up to 48 characters in the Environmental Record (SEG.ER), where your preferences and settings are stored. You'll have to patch SEG.ER using a block editor such as ProSel's Block Warden. Follow SEG.ER, locate the existing dictionary path, and edit it to your satisfaction, up to 48 characters. Enter the new pathname length in the byte just before the name, and make sure the pathname includes an ending slash, like this:

```
/RAM/AppleWorks/Dictionaries/
```

The next time you start AppleWorks, it will look for the spelling dictionaries in the specified directory.

Since AppleWorks 4 shows text files in the "Add files to the Desktop" list, the text file CUST.DICTIONARY can show up whenever you add files. While it is important for spell-checking accuracy to occasionally edit the custom dictionary for duplicate and misspelled words, you don't need to see CUST.DICTIONARY on the Add Files list every time you add a file. Use a file type changer utility (such as FAZ II) to change the type of this file from TXT (text) to BIN (binary). Changing the file type of CUST.DICTIONARY has no effect on spell-checking, since AppleWorks never checks the type of this file—and words can still be added to the custom dictionary as spelling is analyzed. When you need to edit it directly, CUST.DICTIONARY may be added to the Desktop by way of creating a new word processor from a text (ASCII) file, which will load any type of file.

Even though AppleWorks has had built in spell-checking since 1989, some users still prefer to use the older Beagle Bros add-on, TimeOut QuickSpell, for its more lenient suggested spellings. QuickSpell has options to skip the question about checking a word or a screen and can be set to ignore words containing numbers, such as 128k. It can set the dictionary location to a device instead of a path (so that you can easily use different dictionaries without worrying about the names of the disks), and store the main dictionary on one disk and the custom on another. On the other hand, QuickSpell has no spelling summary and doesn't allow multiple custom dictionaries.

The main and custom dictionaries for TimeOut QuickSpell and AppleWorks 4 are interchangeable; the main dictionary on the 5.25" disk is smaller and contains fewer words than that on the 3.5" disk. At this time an official update to TimeOut QuickSpell is not available, but TEXAS II can provide a simple patch for those who want to use QuickSpell with AppleWorks 4.

PRINTER AND MARKER OPTIONS

AppleWorks 4 lets you give the six word processor special codes (SC) unique names for each installed printer, instead of using the same names regardless of the selected printer. New MouseText symbols for embedded printer options (instead of carets) make it easy to identify these commands at a glance. (The Apple command, previously undefined, is used in the printer driver for the Hewlett-Packard DeskJet 500 to enable the high ASCII characters included in some of the DeskJet character sets for foreign accents, trademark and copyright symbols, and box edges used for forms.)

```

Boldface/ text fl Print page no.>
Underline... text ... Enter Keyboardf
Print Date v Print Timev
Mail Merge <<Category> Special Codes 1-6 ^ ^ ^ ^ ^ ^
Sticky Space <Tab, Apple ^
    
```

Word processor markers (numbered markers from 1 to 254, set with OA-M) were originally intended to allow users to mark their places in a document. Today, many numbers have special meanings to certain AppleWorks add-ons. In these cases, AppleWorks may automatically include a brief description next to the marker as a reminder to users not to use these markers for their own purposes. (Examples of programs which use markers in this way include Outliner, TimeOut Table of Contents, Ultimate Fonts, and TimeOut MultiPrint. AppleWorks 4 also uses a specific marker number for its Word Processor Window feature in the Data Base.)

It's a good idea to get used to using only markers which will be never be assigned to an AppleWorks add-on product. If you are an AppleWorks developer and need one or more marker numbers assigned to your application, please ask to have them officially assigned to you by contacting Quality Computers or Randy Brandt. Users should use numbers as low as possible, preferably under 64. The list below represents current marker number assignments:

```

---- Set a Marker: 1 through 139      Available
---- Set a Marker: 140              Used by Beagle Bros Tech Notes
---- Set a Marker: 141              TimeOut MultiPrint
---- Set a Marker: 142              Ultimate Fonts
---- Set a Marker: 143-149          Reserved for Randy Brandt
---- Set a Marker: 150              Data Base Windowing (OA-W)
---- Set a Marker: 151 through 157    TimeOut Table of Contents
---- Set a Marker: 158 through 191    Available
---- Set a Marker: 192 through 254    Outliner
    
```

TYPING AUTOMATONS

The new word processor OA-G (Glossary) command allows easy entry of data directly from a data base file, or pre-written literal text (using only the "Prefix Text" field and not any of the other entries), at the touch of a key. Glossaries are defined in the Word Processor with the OA-A command (Add Glossary/Mail Merge). Once they are defined, a menu of all glossaries can be displayed in the word processor by pressing OA-G. The glossary automatically types the data contained in the corresponding data base entry, along with literal text and carriage returns if you defined any. (You are allowed eight Glossaries, and all eight are available in any word processor file.)

If you decide to use glossaries, you may want to establish a special glossary data base to keep on the desktop at all times. The AppleWorks disk contains a sample glossary data base which you may modify to suit your needs. To delete the glossaries that come with AppleWorks 4, press OA-A, highlight the glossary you wish to delete, and press the Delete key. To set up new glossaries, press OA-A and follow the instructions in the manual.

Glossaries may be used to enter "boilerplate" text (information that you use frequently in your documents) and can include printer options. In a glossary data base file, Open-Apple commands are designated with the @ sign, and if you're familiar with the chart of ASCII key equivalents and AppleWorks embedded commands, you'll learn the control key (^) syntax quickly: ^M is Return, ^B is boldface begin, and so on. In the example below, @O means Open-Apple-O, to go into the Printer Options screen; "PD" is the printer option "Print Date." ^M^[] are Control-M and Control-[] respectively, the letter-key equivalents for Return and Escape.

```
File: Glossary.ADB          REVIEW/ADD/CHANGE          Escape: Main Menu
Record 1 of 4 (4 selected)
Selection: All records
```

Key	Receivable Msg	Msg 2
30	@OPD^M^[, your account is 30	Perhaps you have overlooked this
60	@OPD^M^[, your account is 60	Please remit today.
90	@OPD^M^[, your account is 90	Please remit immediately to avoid
120	@OPD^M^[, your account is 120	The account has been placed for c
	Esc	First text line
	Rtn	Second text line
	Print Date	
	OA-O (Printer options)	

After setting up the glossary data base shown above, a glossary entry is established by pressing OA-A in any word processor file:

```
File: Ltr.Past.Due          GLOSSARY          Escape: Edit rules
=====
```

Menu title: Past Due

- Glossary file Glossary.ADB
- List category Key
- Prefix text As<spc>of<spc>today,<spc>
- Receivable Msg <spc>days<spc>past<spc>due.<spc>
- Msg 2 none
- <undefined>
- <undefined>

In a word processor file, upon selecting the Key (30, 60, 90 or more days) with the OA-G command, the glossary automatically types the appropriate phrase in the word processor with the prefix text, "As of today," the Print Date symbol, and the rest of the glossary text associated with that key's record:

As of today, √, your account is 30 days past due. Perhaps you have...

Which, when printed, results in:

As of today, April 3, 1994, your account is 30 days past due....

You do not have to maintain a data base to use glossaries. If loading a glossary data base to the desktop is inconvenient, define only the "Prefix text" line in the glossary definition. This line allows more than the 80 characters actually seen on the screen (about 128 characters are permitted). Since the prefix text for all glossaries is stored in AppleWorks memory and is available at all times, no data base file is needed.

Menu title: Letterhead

- Glossary file none
- List category -
- Prefix text <ctrl-B ctrl-C>TEXAS<spc>II<ctrl-B rtn>2018<spc>Oak<
- <undefined>

Although it is partially unseen on the glossary edit screen, the full line of prefix text includes centering, boldface begin and end, and unjustify (end centering) commands, and creates the letterhead shown below:

```
<ctrl-B ctrl-C>TEXAS<spc>II<ctrl-B rtn>2018<spc>Oak<spc>Dew<rtn>San<spc>
Antonio<spc>TX<spc>78232<rtn rtn ctrl-N>
```

```
----Centered
                                |TEXAS II|
                                2018 Oak Dew
                                San Antonio TX 78232
```

----Unjustified

MERGE AHEAD

AppleWorks mail merge prints multiple form letters, incorporating selected entries from a data base file. Mail merge in AppleWorks 4 accesses the data base file directly, using its record selection rules, instead of requiring you to first copy or print to the clipboard from the data base. Instead, use OA-R to select the records to be merged with the word processor document, then move to the word processor file, where the OA-A command (Add Glossary/Mail Merge) has already activated mail merge, and print. Mail merge now includes a "don't reformat" option for printing forms without joining the text with the word processor line. Regular AppleWorks mail merge justifies, or joins, the line:

The rent on your safety deposit box is due on #[Date]. Please remit \$#[Amount] in the enclosed envelope.

The new, formatted mail merge uses pound signs (#####) as spacers to allow columns to line up and forms to be filled:

The rent on your safety deposit box is due. #[Date]##### #[Amount]

You do not have to choose between regular and fixed-form mail merge. AppleWorks recognizes the pound sign following a mail merge command, automatically formats the document, and may even mix the two forms of mail merge in a single document.

IN CONCLUSION

It is a pleasant challenge to learn about each of the elements of AppleWorks 4, discovering how the program is constructed and how the parts work together to enable us to perform the tasks we require—and tasks we never imagined. By becoming a knowledgeable user of AppleWorks, you will greatly increase your effectiveness and enjoyment. Watch for in-depth explorations of the Data Base and Spreadsheet modules in upcoming issues! ■

TEXAS II Subscription Information

TEXAS II, TEXAS II on Disk
 6 issues, \$15.00 or 6 issues + 3 disks, \$39.00
 Kingwood Micro Software
 2018 Oak Dew
 San Antonio, TX 78232-5471
 1-210-490-6373

THE INTERNET: THE CRE

PART II: GETTING CONNECTED BY M.G. ROBERTS

Direct Connection

There are three ways to connect to the Internet. The first is a direct Internet connection. With a direct connection, your computer becomes a part of the Internet itself. You become a site on the network, with a name and domain of your own. When you use FTP to retrieve a file, for example, the file is transmitted directly to your computer.

In the past, a direct Internet connection (also known as TCP/IP) required an expensive leased telephone line dedicated to the connection—far beyond the means of individual users. Typically, a company or some other large organization would lease a line and thus connect their entire local area network to the Internet. Now Macs and PCs can get the same kind of connection through regular dial-up lines using protocols called PPP (Point to Point Protocol) and SLIP (Serial Line Internet Protocol). Procyon, Inc. (the publishers of GNO/ME, a Unix-like multitasking environment for the IIGs) are working on a product which will provide this capability to Apple II users as well, but the product is not yet ready for release—and besides that, you'll also need Internet access tools such as Gopher, WAIS, Veronica, Telnet, and others, none of which yet exist for the IIGs. At this point, then, direct Internet connections are an option only for PC and Macintosh users.

Dial-Up Connections

A second type of connection is the dial-up connection. With a dial-up Internet connection, you obtain an account on a computer that's connected to the Internet as described above. You will probably be expected to pay for this service. (Many such systems are simply workstations, minicomputers, or even fast PC clones with several modems attached.) This is clearly the easiest way for an Apple II user to get on the Internet.

When you log in to your dial-up Internet provider, your Apple essentially becomes a terminal on their computer. (Several other users may be using the system in the same way at the same time.) What appears on your Apple's screen is exactly what would appear on the remote computer's screen if you were there using it. You can easily read mail and newsgroups and generally cruise the Internet right from your own home; display speed is limited only by the connection speed. The main difference you'll encounter is that when you transfer a file via FTP, the file ends up on your host's

hard drive—not on your computer. A separate step is required to transfer the file from the host machine to your computer.

Currently, the largest national provider of this type of access is probably Delphi, a commercial online service—the first such service to offer full Internet access. While most online services are offering simple e-mail and, sometimes, Usenet gateways, Delphi offers FTP, telnet, Gopher, Internet Relay Chat, and most of the other Internet services you'll want to explore. The service is menu-driven, and online help is available to get you through the tough spots. (In contrast, some dial-up Unix systems drop you into a Unix operating system prompt at logon!) If you come upon insurmountable difficulties, chat lines and newsgroups are just a menu selection away. This is a real boon when learning something as tricky as the Internet!

To use Delphi, you'll need a modem, of course. The faster the better—Delphi's top speed is 9600 bps. (There is no surcharge for 9600 bps access.) You'll also need a terminal program—one that has a good VT-100 emulation, such as ProTerm, Spectrum, or AnsiTerm, is a necessity.

You can call Delphi's customer service number, 800-695-4005, for instructions on how to log on and set up an account. Delphi offers a five hour free trial to "surf" the Internet to help you decide whether the service is right for you. If you keep your account, Delphi's 20/20 plan gives you 20 hours of online time per month for \$20 (there's also a \$3/mo. Internet surcharge). Considering the other services Delphi offers in addition to Internet, this deal is unbeatable!

Delphi is a great start for people who want to learn about FTP and Usenet, and it's also a good way of getting the Apple II FAQ, which I mentioned earlier, since you can get it as part of your five trial hours. While some may think that Delphi, by reason of being a commercial online service and not a dial-up Unix machine, isn't a "real" Internet connection, I submit that the "realness" of an Internet connection is based on what services you can access. By this measure, Delphi's Internet services are pretty darn real.

Of course, if you find you need an Internet connection several hours a day, even Delphi may become prohibitively expensive. In this case, you can get a dial-up connection for \$10–\$50 per month (including unlimited access).

The trick is finding one in your area—most of these smaller Internet access points can't be accessed by a nationwide network like the one Delphi uses, so if there isn't one nearby, you may be stuck with long-distance telephone charges. Also, you may be confronted with the dreaded Unix prompt; many of these providers don't have menus at all.

My suggestion is to begin with a Delphi account. Over the span of the first month or so, use Delphi's reasonable rates to explore the Internet as you learn about it. Spend the majority of your initial time reading books, rather than online. Read and participate in the A2 Usenet newsgroups to find the information for your next step—a local dial-up Internet connection. Obtain the Apple II FAQ to enhance your knowledge of the Apple II on the Internet. You may want keep your Delphi account even after you switch Internet providers, opting for their 10/4 plan—\$10 per month for 4 hours—if you use minimal time.

When you're ready, find an Internet service provider. A widely-distributed text file called PDial contains a list of such providers; it's one of the things you should look for while you're on Delphi. It, and a similar file called Nixpub, are available at many FTP sites—and is probably also available in the libraries on Delphi, GENie, CompuServe, AOL, and other services. These lists are current, but by no means comprehensive. Word of mouth oftens ferrets far better deals than the PDial list—so be sure to ask others you encounter on the Internet what kinds of deals *they're* getting. Be sure to contact user groups and computer dealers (it doesn't have to be an Apple dealer; the Internet is blind to brand names).

Don't forget to contact your library. Librarians often maintain an Internet account for their own use—and some libraries even have Freenets (a free public-access Internet system), or can tell you where to find one. And, of course, the library is also a wonderful place to find more Internet books! While you're at it, look for an introductory book on Unix; it will stand you in good stead if you end up getting a shell account.

Different service providers offer different levels of service, and may charge dramatically different rates. Rates were much higher in years past, when any kind of access was rare. Some companies have not been quick to follow the trend toward lower rates. You can expect to pay around \$25 a month with most

ATURE THAT HAD TO BE

providers; some may have lower rates, but these lower rates may restrict the features you can use or limit you to a certain number of hours per month. More than \$50 a month is Information Highway Robbery.

Your service provider will almost certainly have *all* the Internet goodies, but it might be a good idea to make sure. Later in this series I'll explain briefly at what each cryptically-named Internet feature is used for.

Freenets

You may be lucky enough to live in an area with a Freenet (see sidebar). Freenets are community groups organized to provide the entire community with free access to Internet. They usually include FTP, e-mail, Telnet, and Usenet newsgroups, although some may be limited to non-real-time features (e-mail and newsgroups) if they don't have a direct Internet connection. Access time may be limited, but these systems are free—and you can call one today.

Bulletin Boards

If you're not ready to use all the features offered by the Internet, and don't have (or want) an account on a commercial network, but like the idea of being able to send e-mail to anyone with an Internet account, you may want to investigate bulletin board systems. Many free bulletin board systems offer Internet e-mail, and some even have newsgroups, although, since such BBSs don't have a direct Internet connection, they don't usually have features like IRC or FTP.

One such bulletin board system is ProLine. ProLine, which happens to run on the Apple II, was developed by the Morgan Davis Group, and is now run by dozens of system operators around the country. Each ProLine system forwards e-mail to others, and eventually your message reaches a system that's actually on the Internet. Since ProLine BBSs mostly exchange information at night, it may take a day or two for your e-mail to get where it's going (compared to a few *seconds* from Delphi or another

system that's directly on the Internet)—but it works, and nearly all ProLine sites are free.

Many ProLines carry a few Usenet newsgroups, and there's also a hierarchy of ProLine-specific newsgroups which are only distributed to ProLine sites. All in all, ProLine is a very interesting system, designed by an interesting man. Each ProLine BBS has a downloadable file listing the locations and telephone access numbers of all the other ProLine sites. Morgan Davis' BBS in San Diego can be reached by modem at 619/670-5379. (Once you get on there, of course, you can get the list of ProLine sites and find a closer system.)

You may also encounter other BBSs which offer some form of Internet e-mail or newsgroup access. For example, if your local school district runs a FrEdMail site, you can send and receive Internet e-mail there. I've also encountered several PC-based bulletin boards with newsgroups and/or e-mail. In short, it pays to look around—you never know what kind of free or cheap Internet access you'll find. ■

NATIONAL PUBLIC TELECOMPUTING NETWORK AFFILIATE SYSTEMS (March 28, 1994)

BIG SKY TELEGRAPH

Dillon, Montana
Western Montana College
710 S. Atlantic
Dillon, MT 59725
Modem: (406) 683-7680 (1200 baud)
Internet: 192.231.192.1
Contact Person: Frank Odasz
voice: (406) 683-7338

BUFFALO FREE-NET

Buffalo, New York
Town of Tonawanda
1835 Sheridan Drive
Buffalo, NY 14223
Modem: (716) 645-6128
Internet: freenet.buffalo.edu
Contact Person: James Finamore
voice: (716) 877-8800 ext 451

CIAO! FREE-NET

Trail, British Columbia, Canada
School District #11 (Trail)
2079 Columbia Ave.
Trail, BC V1R 1K7 CANADA
Modem: (604) 368-5764
Internet: 142.231.5.1
Contact Person: Ken McClean
voice: (604) 368-2233

THE CLEVELAND FREE-NET

Cleveland, Ohio
CWRU Community
Telecomputing Laboratory
310 Wickenden Avenue
Cleveland, OH 44106
Modem: (216) 368-3888
Internet: freenet-in-a.cwru.edu
Contact Person: Jeff Gumpf
voice: (216) 368-2982

COLUMBIA ONLINE INFORMATION NETWORK (COIN)

Columbia, Missouri
University of Missouri—Columbia
Campus Computing
200 Hinkel Building
Columbia, MO 61211
Modem: (314) 884-7000

Internet: bigcat.missouri.edu
Contact Person: Bill Mitchell
voice: (314) 882-2000

DAYTON FREE-NET

Dayton, Ohio
040 Library Annex
Wright State University
Dayton, OH 45435
Modem: (513) 229-4373
Internet: 130.108.128.174
Contact Person: Patricia Vendt
voice: (513) 873-4035

DENVER FREE-NET

Denver, Colorado
4200 East Ninth Ave.
Campus Box C-288
Denver, CO 80210
Modem: (303) 270-4865
Internet: freenet.hsc.colorado.edu
(140.226.1.8)
Contact Person: Drew Mirque
voice: (303) 270-4300

FREE-NET ERLANGEN-NUERNBURG

Erlangen, Germany
FIM Psychologie
Maximiliansplatz 3
Erlangen, BY 91054 GERMANY
Modem: +49-9131-85-8111
Internet: 131.188.192.11
Contact Person: Dr. Walter F. Kugemann
voice: +49-9131-85-4735

GREAT LAKES FREE-NET

Battle Creek, Michigan
P.O. Box 1615
Battle Creek, MI 49016
Modem: (616) 969-GLFN (4536)
Internet: not available
Contact Person: Merritt W. Tumanis
voice: 616-961-4166

LORAIN COUNTY FREE-NET

Elyria, Ohio
32320 Stony Brook Drive
Avon Lake, OH 44012
Modem: (216) 366-9721

Internet: freenet.lorain.oberlin.edu
(132.162.32.99)
Contact Person: Thom Gould
voice: 1-800-227-7113 Ext. 2451 or
216-277-2451

MEDINA COUNTY FREE-NET

Medina, Ohio
Medina General Hospital
1000 E. Washington Street
P.O. Box 427
Medina, OH 44258-0427
Modem: (216) 723-6732
Internet: (not receiving telnet connections at the moment)
Contact Person: Gary Linden—(Medina Gen. Hosp) Project Director
voice: (216) 725-1000 Ext. 2550

NATIONAL CAPITAL FREE-NET

Ottawa, Ontario, Canada
Computing Services
Carleton University
Ottawa, ON CANADA K1S 5B6
Modem: (613) 780-3733
Internet: freenet.carleton.ca
(134.117.1.25)
Contact Person: David Sutherland
voice: (613) 788-2600 ext 3701

OCEAN STATE FREE-NET

Providence, Rhode Island
Rhode Island Dept. of State Library Svcs.
300 Richmond Street
Providence, RI 02903
Modem: (401) 831-4640
Internet: 192.207.24.10
Contact Person: Howard Boksenbaum
voice: 401-277-2726

OZARK REGIONAL INFORMATION ON-LINE NETWORK

Springfield, Missouri
Springfield-Greene County Library
MPO Box 760
Springfield, MO 65801
Modem: (417) 869-6100
Internet: ozarks.sgcclib.mo.us

Contact Person: Annie Linnemeyer
voice: (417) 887-3030
fax: (417) 887-2586

PRAIRIENET

Champaign-Urbana, Illinois
Graduate School of Library & Information Sci.
Univ. of Illinois at Urbana-Champaign
426 David Kinley Hall
1407 West Gregory Drive
Urbana, IL 61801
Modem: (217) 255-9000
Internet: prairienet.org (192.17.3.3)
Contact Person: Ann P. Bishop
voice: (217) 244-3299

RIO GRANDE FREE-NET

El Paso, Texas
P.O. Box 20500
El Paso, TX 79998
Modem: 915-775-5600
Internet: rgfn.epcc.edu
Contact Person: Don Furth
voice: 915-775-6077

SEATTLE COMMUNITY NETWORK

Seattle, Washington
c/o CPSRI/Seattle
P.O. Box 85481
Seattle, WA 98145-1481
Modem:
Internet:
Contact Person: Randy Groves
21240 NE 12th, Redmond, WA 98053
voice: (206) 865-3424

TALLAHASSEE FREE-NET

Tallahassee, Florida
Dept. of Computer Science
Florida State University
Tallahassee, FL 32306
Modem: (904) 576-6330 or
(904) 488-5056
Internet: freenet.fsu.edu (144.174.128.43)
Contact Person: Hilbert Levitz
voice: (904) 644-1796

TRISTATE ONLINE

Cincinnati, Ohio
Cincinnati Bell Directory, Inc.
Room 102-2000
201 East 4th Street
Cincinnati, OH 45201-2301
Modem: (513) 579-1990
Internet: tso.uc.edu
Contact Person: Michael King—
TSO System Administrator
voice: (513) 397-1396
fax: (513) 721-5147

VICTORIA FREE-NET

Victoria, British Columbia, Canada
Victoria Free-Net Association
C/O Vancouver Island Advanced
Technology Centre (VIATC)
Suite 203-1110 Government Street
Victoria, British Columbia
V8W 1Y2 CANADA
Modem: (604) 595-2300
Internet: freenet.victoria.bc.ca
(134.87.16.100)
Contact Person: Gareth Shearman
voice: (604) 385-4302

WELLINGTON CITYNET

Wellington, New Zealand
Richard Naylor
Wellington City Council
P.O. Box 2199
Wellington, NEW ZEALAND
Modem: +64-4-801-3060
Internet: kosmos.wcc.govt.nz
(192.54.130.34)
Contact Person: Richard Naylor
voice: +64-4-801-3303

THE YOUNGSTOWN FREE-NET

Youngstown, Ohio
YSU Computer Center
410 Wick Avenue
Youngstown, OH 44555
Modem: (216) 742-3072
Internet: yfn.ysu.edu (192.55.234.27)
Contact Person: Lou Anschuetz
voice: (216) 742-3075

AN INTERVIEW WITH BILL HEINEMAN

by Tara Dillinger

Bill Heineman is a programmer, game specialist, and Apple II visionary who works for Interplay, Parsons Engineering (where he's Manager of Software Development), and several other companies. He may be reached at Parsons Engineering, 5101 Rimhurst Ave, Covina, CA 91723. Phone: 818/966-5538.

II ALIVE: In some circles, Bill, you're known as "Burger Bill." Where did that nickname come from?

HEINEMAN: It started around 1983, when I was working 12-18 hour days at Interplay. I'd walk to work every morning and stop at a local burger place on the way and buy a couple of burgers for lunch. I virtually lived at Interplay, and when it was lunch time, I'd pull out the burgers and people would say "It's burger time!" That's when people started calling me Burger Bill.

But the incident that cemented the name was the day I got to work at 6 AM and worked for nine hours before I got hungry enough to eat lunch. I pulled this burger out of my drawer and started munching. One of the guys I worked with, who was a real health food nut, saw me eating the burger, and all of a sudden his eyes bugged out as he realized that that burger had been in my drawer for at least 9 hours—probably longer! He let loose this ungodly scream, leaped to his feet, and bolted out the door. A few minutes later my boss stormed in and demanded to know what I did to him. It turned out that he'd gone into the restroom and tossed his cookies. From that day forward, the nickname stuck.

II ALIVE: How did you first get started with computers? When did you get your first Apple II?

HEINEMAN: It was really early in the Apple II era—I'd say late 1977 or early 1978. Two friends of mine both got Apple IIs. I played around with them, trying to decide whether I wanted one of those or a TRS-80. Eventually I decided that since the Apple II had color, I'd go with that. So I saved up money from my paper route—I was 13 or 14 years old. And I bought a used Apple II and took it home and started playing around with it. About a year later I bought a disk drive for it. I knew imme-

diately that I wanted to work with computers for the rest of my life. I didn't expect that I would still be working with the Apple II 16 years later, though!

I was just playing games, learning BASIC, and having fun until my first real programming experience, which involved the game *Ultima I* (of course it was just called *Ultima* back then, since there weren't any sequels yet). A lot of that program was written in Applesoft BASIC. So I started playing around with the code and changed it into a game I called *Ultima Plus*. Every single command was a parody of the way it was in the real *Ultima*. And I added a bunch of new commands and weapons, like a super zapper that could wipe out all your characters. I changed the text so that characters said sarcastic things like "What would you like to steal tonight?" or "How many bags of slime can I shove down your throat?" instead of "How much food do you want to buy?" I spent quite a bit of time with it and mastered Applesoft and learned a little assembly. After that project was complete I knew I wanted to learn assembly language.

II ALIVE: What was your first programming job?

HEINEMAN: At one point I was really into figuring out how hardware worked. I took apart an Atari 2600 and figured how to program it, and that's how I got my first programming job with Avalon Hill. Back then Atari video games were the big thing, and I wrote *Penetrator* and *UXB: Unexploded Bomb* for Avalon Hill.

II ALIVE: Games seem to play an important role in your life.

HEINEMAN: Well, in 1980-82, I was the World Video Game Champion and wrote articles for the *Electronic Games Magazine* on

how to beat video games. So, yes, games always were important to me. They just seemed like the most fun thing you could do with a computer.

II ALIVE: After Avalon Hill, then what?

HEINEMAN: I worked for Time-Warner with a company called Owl Electronics. We designed a little cartridge which plugged into an Atari 2600 to let you play games over cable TV. It's very much like what the cable industry is trying to do today with Sega and Nintendo. But in 1983, people just stopped buying video games, and I was suddenly unemployed. I worked for Atari for a short time and got canned when they laid off everybody in my department.

After that, an old hardware hacker friend of mine helped me get a job at a place called The Boom Corporation, which died shortly thereafter but was reformed as Interplay. This was in late 1983, and I've been working for Interplay ever since then.

II ALIVE: Interplay did a lot of Apple II games. Are they still doing that?

HEINEMAN: Well, we've got two Apple II products in the wings, which I worked on, but unfortunately while there are plenty of companies willing to distribute PC and Mac games, not many companies are interested in the Apple II.

A lot of the games I port to the Apple are done just because I want to see an Apple II version of the game. But of course I can't release my version of the game without the permission of the people who own the distribution rights—and those people frequently want more money than the game is worth in the Apple II market. A perfect example of that is *SimCity*. I'm 99% done with a IIGS version of *SimCity*, but I've talked to Maxis and they wanted an exorbitant amount of money to let some other company distribute it.

But the biggest headache was *Ultima I* for the IIGS. In the fall of 1992, a couple of friends and I ported the 1986 reissue of *Ultima I*, revamped it, and updated it for the IIGS. We wanted Big Red to carry it, but when I first started to talk to Origin, the publisher, most of the people I talked to didn't even know what an Apple II was! It's amazing how short people's memories are. So we went back and forth for a while, and just when we had the wrinkles ironed out and a contract ready to be signed, Origin was bought by Electronic Arts. The whole company was in chaos, and they completely lost track of that little Apple II contract that was floating around. At this point I told Softdisk and Big Red that if they could get the rights to the game, they could publish it, but they were unsuccessful too.

So a year later, a friend of mine at Interplay asked me "What are we gonna do with this *Ultima* thing?" Out of frustration, I did what I should have done in the first place—I called

Richard Garriott, a.k.a. Lord British, the designer of *Ultima*. The first thing he said was "Oh, you have a IIGS version of *Ultima I*? Is it System 6 compatible?" He not only remembered the Apple II, but he'd kept up with it! He was ecstatic when I told him what I'd done, and ended up I getting the rights for Vitesse. It should be shipping by the time you read this.

II ALIVE: Speaking of games, let's quickly cover all your Apple II games. What were they?

HEINEMAN: For the Apple II, I did *Mindshadow*, which was a graphic text adventure, *Tracer Sanction*, *Borrowed Time* and *Tass Times in Tone Town*. For Epyx, I did *World Karate Championship*. Then *Bard's Tale III*, *Neuromancer*, *Dragon Wars*, *Ultima I*, *Mario Teaches Typing*, and *Mah Johng 2.0*.

For the IIGS, I did *Tass Times in Tone Town* and *Mindshadow*. For Casady and Greene I did *Crystal Quest*. And for Electronic Arts/Interplay I did *Bard's Tale I & II*—also *Battle Chess*, *Neuromancer*, *DragonWars* and *Out of This World*.

Oh, I forgot the ones I did for Softdisk G-S—*Rescue Rover* and a new release, *Catacombs Abyss*—a *Wolfenstein 3-D*-like game. And speaking of *Wolfenstein 3-D*, I'm working on a version of that for the IIGS, along with *Wasteland 2000* and *SimCity*.

Bard's Tale III and *Wasteland* for the IIGS were finished by the time we broke away from Electronic Arts. Sadly, both these programs were canned, not just for the Apple II but for the Amiga, IBM and the Mac, too.

II ALIVE: Interplay games seem to have a lot of detailed and subtle graphics in them.

HEINEMAN: Todd, our art director at Interplay, is the one responsible for that. That's an Interplay trademark, to put a lot of detail into a game. For example, in some of the dungeons in *Bard's Tale II* there are skulls in the walls, and if you stay there for a while you'll see a snake pop out, slither around and go back in again.

II ALIVE: You haven't just done games, though—you've also done several utilities and productivity programs, right?

HEINEMAN: Yes—the best-known is probably *Harmonie*, the printer driver collection from Vitesse. *The Deliverance 1.3* upgrade, also for Vitesse, was another one. I did a lot of code for their Quickie hand-held scanner, too. Another package I did was *ContactsGS*, which is now being released by Joe Kohn for Shareware Solutions. I also did a major amount of work on AppleWorks GS 2.0.

II ALIVE: People are curious about what happened to the AppleWorks GS 2.0 project. Since you mentioned it, what can you tell us about it?

HEINEMAN: AppleWorks GS 2.0 was initiated by Quality, who needed a project leader. Jim

Merritt became the project leader, but he just didn't have the time to devote to the project between his day job and his family obligations.

The source code was a nightmare. I started working on it independently from Jim Merritt in my free time. There was some duplicated effort, and Jim decided he didn't want to use my code—which was actually OK by me, because I was looking at the project as a learning experience—but then he dropped out of the project, and I didn't have time to be a real project leader. Although a few people were approached about leading the project, no one really wanted to take that responsibility. I've heard Quality Computers is letting some other groups take a shot at it now.

I still want to work on it, but my time is limited. I'd like to re-engineer the software so that every part of AppleWorks GS is a separate program—then you could use a program like The Manager to run whichever modules you needed. Publish and subscribe, like Mike Westfield has developed for his products, could be used to tie the modules together. It's doable, but a big job. Maybe someday...

II ALIVE: What other projects have you worked on?

HEINEMAN: Well, there was the Apple IIGS clone, the Avatar. We had done a lot of work on that, including all the hardware design and the Toolbox, but we wanted it to run at a much higher speed than the IIGS and we couldn't get a commitment from a supplier to make fast 65816 processors. You can get them now, but you couldn't when we first started working on the project. We redesigned it to use the ARM 7 RISC processor, and planned to have a 65816 emulation, but then Apple came out with the PowerMac, using a RISC chip, and we heard there were some people working on Apple II emulators for that. Between the lack of funding and the production cost, and the changes in the industry, the Avatar's market window came and went.

Steve Parsons and I also designed a product that combined the Avatar technology with the Game Wizard, a Super Nintendo add-on which allowed people to save cartridge games to disk and to modify them to have extra lives, skip levels, and so forth. The gadget we came up with was a plug-in for the Super Nintendo which could run Apple IIGS software like *HyperStudio*, *Teach*, and the Finder. The Super NES has a 65816 processor just like the IIGS, but there are a lot of other hardware differences between the two machines, and the design was complicated and expensive. Also, even though it ran IIGS software, programs had to be stored on IBM-style MFM disks. It didn't seem likely that people would spend \$400 for a IIGS emulator on their Super Nintendo when they could buy a used IIGS for the same price or a brand new one for \$599. If we could get the price down to \$199 it might be feasible, but we'd need to know for sure we could sell

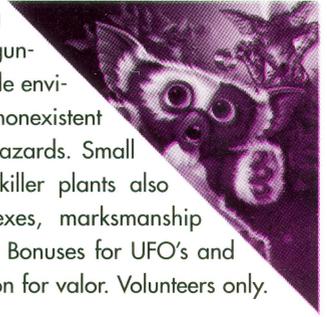
(Continued on page 46)

APPLE II GAME CLASSICS \$9.95 EACH OR 3 FOR \$19.95

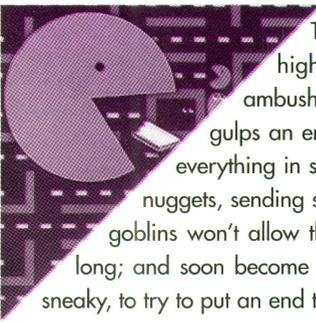


GREMLINS

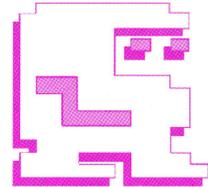
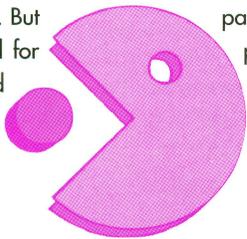
Applications being accepted for replacement gunners in high-risk job. Hostile environment. Road conditions nonexistent due to meteor and crater hazards. Small native population of killer plants also reported. Quick reflexes, marksmanship and diving skills a must. Bonuses for UFO's and enemy tanks. Recognition for valor. Volunteers only.



PAC-MAN

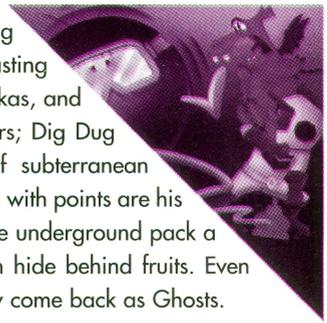


The refinements of dot chomping lead to high scores as hungry Pac-Man avoids ambush by voracious goblins. When Pac-Man gulps an energy dot he can turn the tables and eat everything in sight. . . that includes yummy bonus nuggets, sending scores into the thousands. But goblins won't allow themselves to be gobbled for long; and soon become their old selves, fast and sneaky, to try to put an end to Pac-Man's three lives.

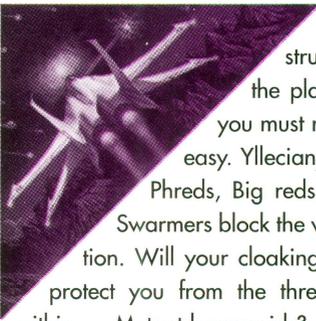


DIG DUG

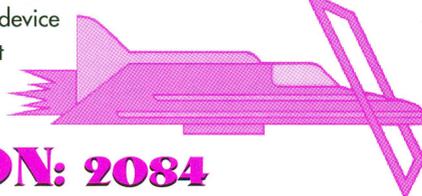
Dodging and blasting Pookas, and dropping rocks on fire-breathing Fygars; Dig Dug burrows his way through a maze of subterranean paths. Ripe fruits and veggies, loaded with points are his passion. But the evil denizens of the underground pack a potentially lethal wallop, and can hide behind fruits. Even when Dig Dug kills them they may come back as Ghosts.



STARGATE

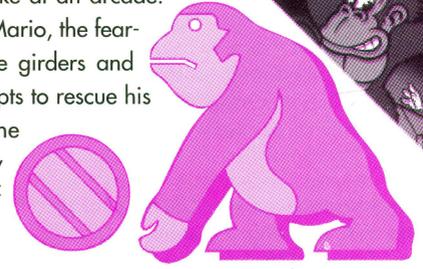
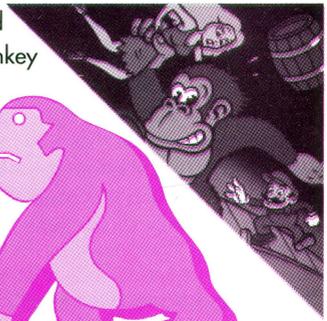


The entire universe is your enemy as you struggle to rescue humanoids stranded on the planet surface. To take them into a Warp you must reach the Stargate. But getting there isn't easy. Yllecian space guppies, Dynamos, Space hums, Phreds, Big reds, Munchies, landers, Baiters, Pods and Swarmers block the way spewing death and destruction. Will your cloaking device protect you from the threat within. . . Mutant humanoids?

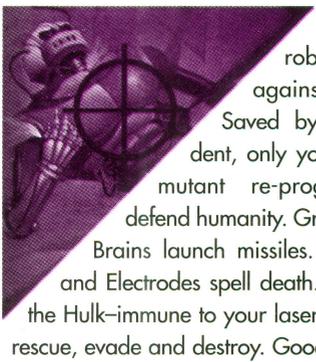


DONKEY KONG

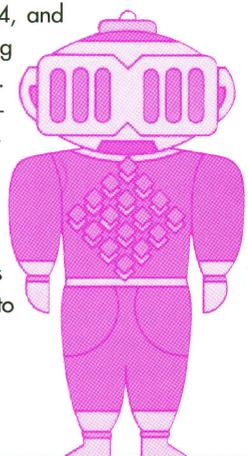
You can feel an excitement tingle up and down your spine when you play Donkey Kong at home, just like at an arcade. Your joystick guides Mario, the fearless carpenter, up the girders and elevators as he attempts to rescue his sweetheart from the clutches of Donkey Kong. All the thrills of the arcade game.



ROBOTRON: 2084

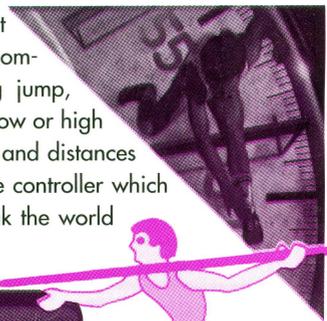


It's the year 2084, and robots are turning against their masters. Saved by a genetic accident, only you can resist their mutant re-programming and defend humanity. Grunts close in. The Brains launch missiles. Tanks, Sheroids and Electrodes spell death. And then there's the Hulk-immune to your laser. Your mission is to rescue, evade and destroy. Good Luck.

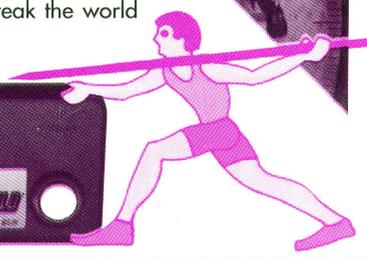


TRACK & FIELD

You've worked long and hard to make it this far. Now it's time for head-to-head competition in the 100 meter dash, long jump, javelin, 110 meter hurdles, hammer throw or high jump. You're out to beat the best times and distances on record. Included is a special arcade controller which gives you everything you need to break the world record in athletic competition.

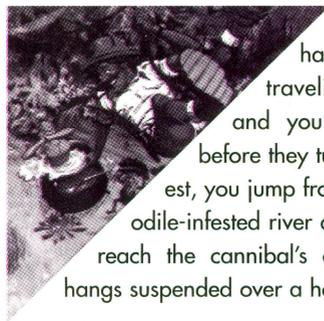


COMPLETE WITH ARCADE CONTROLLER



APPLE II GAMES

JUNGLE HUNT

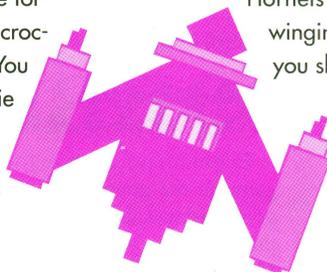
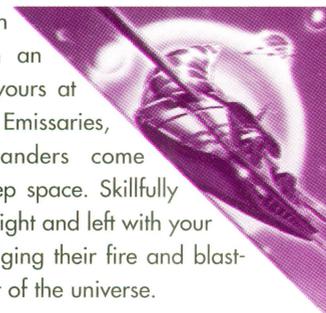


Savage cannibals have kidnapped your traveling companion, and you must rescue her before they turn her into stew! In the deep jungle forest, you jump from rope to rope. Then you brave a crocodile-infested river and a landslide of huge boulders. You reach the cannibal's campsite just in time—your sweetie hangs suspended over a hot cauldron of boiling goo!

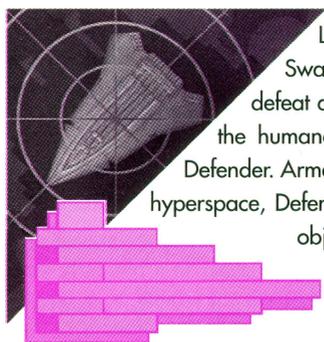


GALAXIAN

You feel that spine-tingling exhilaration every time you play GALAXIAN in an arcade. Now the same sensation is yours at home. Wave after wave of Drones, Emissaries, Hornets and Commanders come winging in from deep space. Skillfully you slide your ship right and left with your joystick, dodging their fire and blasting them out of the universe.



DEFENDER

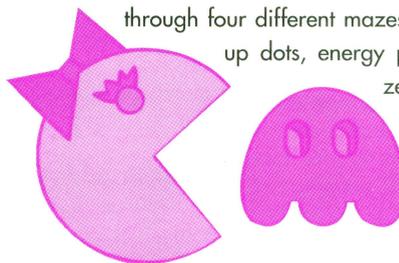
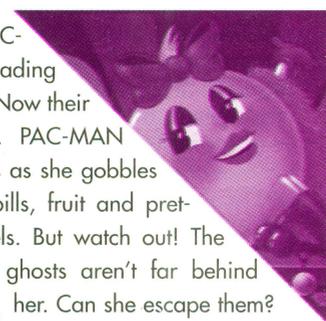


Landers, Bombers, Baiters, Pods, and Swarmers. The alien attack has come, and defeat at the hands of crazed invaders threatens the humanoids. Their only hope is the spaceship, Defender. Armed with smart bombs and able to shift into hyperspace, Defender evens the score only to become the object of another foul attack: kidnapped humanoids transformed into killer mutants.

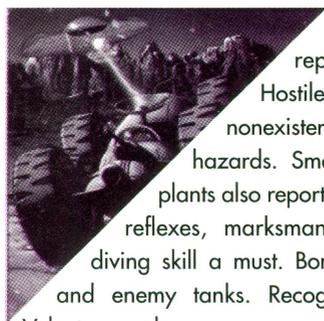


MS. PAC-MAN

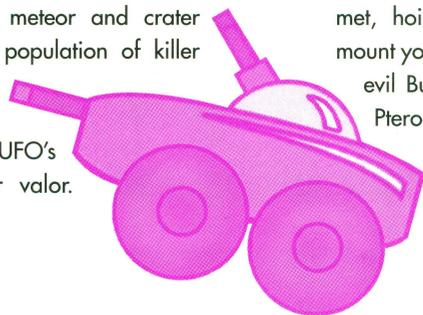
It was the love match of the century, PAC-MAN, star of the arcade, and his leading lady the unforgettable MS. PAC-MAN. Now their romance continues. You guide MS. PAC-MAN through four different mazes as she gobbles up dots, energy pills, fruit and pretzels. But watch out! The ghosts aren't far behind her. Can she escape them?



MOON PATROL



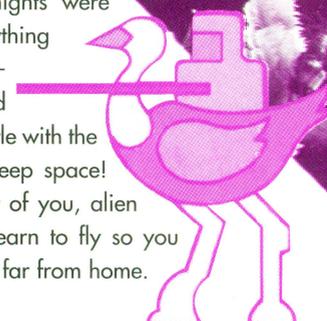
Applications being accepted for replacement gunners in high-risk job. Hostile environment. Road conditions nonexistent due to meteor and crater hazards. Small native population of killer plants also reported. Quick reflexes, marksmanship and diving skill a must. Bonuses for UFO's and enemy tanks. Recognition for valor. Volunteers only.



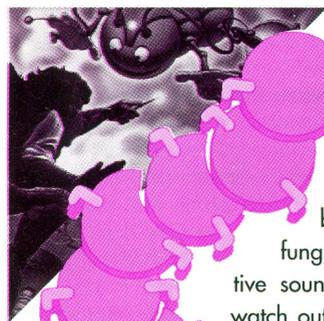
In days of olde, when knights were bolde—they never saw anything like this! You don your helmet, hoist your lance and mount your ostrich to do battle with the evil Buzzard Riders in deep space! Pterodactyls to the right of you, alien eggs to the left—learn to fly so you won't die so very far from home.



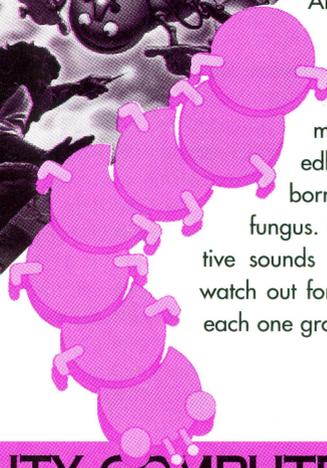
JOUST



CENTIPEDE

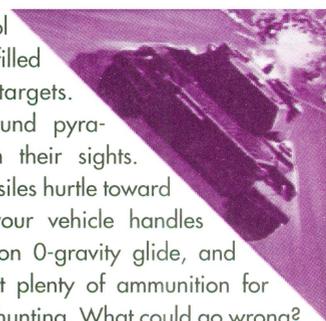
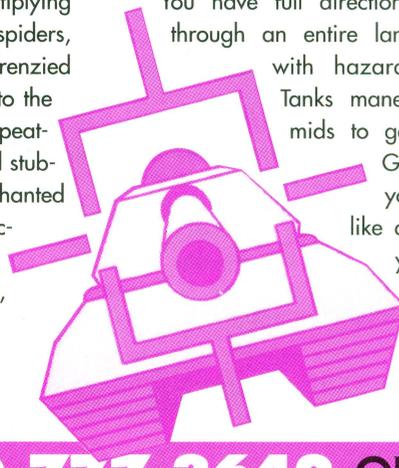


An insidious invasion of multiplying insects (centipedes, jumping spiders, poisonous scorpions, and frenzied fleas) pose different perils to the mushroom patch. You must repeatedly blast enraged creepers and stubborn obstacles or lose your enchanted fungus. Remember to listen for distinctive sounds of the attacking bugs; and watch out for blasted centipede segments, each one grows a new head.



BATTLEZONE

You have full directional control through an entire landscape filled with hazards and targets. Tanks maneuver around pyramids to get you in their sights. Guided missiles hurtle toward you. But your vehicle handles like a dream on 0-gravity glide, and you've got plenty of ammunition for saucer hunting. What could go wrong?





by Ellen Rosenberg

► *So the Apple II family of computers is no longer being produced. So America Online is dropping support of its Apple II software. So Big Red Computer Club plans on closing at the end of the year. So what else is new? Shareware, freeware and public domain programs for the Apple II, that's what's new. They keep popping up, despite the big guys' dismissal of the computer that runs them. Like weeds in the field—no, make that wildflowers in the field—they keep growing despite the odds. For Apple IIGS users this issue, we'll take a look at some new stuff requiring System 6.0 from the talented Bill Tudor, two really neat games that must be booted directly from your floppy drive, a wormy game, and a mathematical graphics program.*

Prince Cupric II, IIGS

Ed Olson, freeware

Prince Cupric II is a cute little arcade game in the style of Marble Madness. Your purpose is to help the prince (the blue sphere) escape from the dungeon of the evil witch Chemilia. Not an easy job, considering there are five levels to the top and increasing numbers of henchmen (orange spheres) on your trail. The little chemical packets (red squares) are your ticket out, if only you can get them before the henchmen get you! Not exactly an intellectually stimulating game, but a fun time passer.

Because it has its own operating system, this disk needs to be booted directly from your 3.5 drive by typing PR#5 after running BASIC.SYS-

TEM, or by setting your startup slot (in the Control Panel) to slot 5.

Ecomaniacs, IIGS

Ed Olsen, shareware, \$8.00

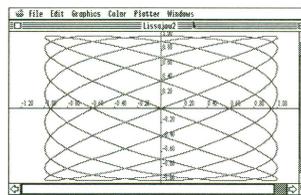
Ecomaniacs is an economic simulation game in the genre of SimCity. You must use your business and people skills against that of the computer, your only competitor in the city. By building stores, warehouses and factories, and by regulating wages of employees and prices of products, you have it in your power to thrive or to go bankrupt. Unlike Prince Cupric II, this is a thinking game.

Like Prince Cupric II, this game has its own operating system and must be booted directly from the disk drive. If you don't have a hard drive, just stick the disk in and boot. It may run slowly on unaccelerated systems, so be patient during loading.

MathGraphics, IIGS

Dirk Froehling, shareware, \$15.00

The plot thickens! This function plotter saves plots as a QuickDraw II picture, allowing you to print graphs at the highest resolution your printer supports and to import them to desktop publishing programs, such as AppleWorks GS. Graphs can also be saved as bitmapped pictures. This looks like a highly sophisticated program—a bit over my head, to be honest. Good documentation accompanies the program. Requires System 6 or higher.



Desktop Doctor, IIGS

Bill Tudor, shareware, \$10.00

A Finder Extension (requires System 6.0 or later) whose sole purpose is to fix the Finder's desktop and icon files. It removes duplicate entries, keeps desktop databases up to date, and checks and fixes icon application filenames. Until you've had a problem with these files, you have no idea how useful this program can be. Documentation included.

File Finder, IIGS

Bill Tudor, shareware, \$10.00

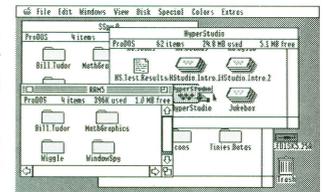
File Finder is a Finder Extension (requires system 6 or later) that helps you find the files on your disks or in folders. The search can be conducted by name, partial name, creation or modifi-

cation date, file type or size, embedded text, or any combination of the above. Once a file is found, you have the option of deleting, opening, peeking or opening the Finder window containing the file. Handy, handy, handy. Docs included.

Minimizer, IIGS

Bill Tudor, shareware, \$10.00

This is a super useful Control Panel (CDev) that allows you to minimize the size of your open window displays. A must have for crowded desktops! By clicking the selected key and the zoom box of the window, the whole window shrinks to the size of the title bar in a regularly sized window. It can be moved around or restored to original size. Documentation included.



ShowClipNDA, IIGS

Bill Tudor, freeware

Ever get caught with the need to view the clipboard, only to find the Show Clipboard menu item missing from the application's menu? No more! This new desk accessory is always available from the Apple menu, allowing you to view the contents of your clipboard.

Wiggle, IIGS

Richard C.A. King, shareware, \$5.00

Another one of those worm-must-eat-to-live games with a slight twist. Instead of using the keyboard to change his (I say "his"—but actually earthworms, at least, are both male and female) direction, thus preventing him from hitting the surrounding electric fence, you nudge the mouse. The harder the nudge, the more energy he loses, so reaction time must be quick but gentle. Fun.

The Shareware Spy Library

Programs mentioned in Shareware Spy are available from most online services and user groups. As a convenience to those without access to a local user group or a modem, we also offer the programs on disk. Send check or money order (in US funds) for \$5 per disk to: Shareware Spy, PO Box 866511, Plano, TX 75086-6511. (If you live outside North America, include an additional \$5 per order for airmail shipping.) Make checks payable to "Shareware Spy." Allow 2-4 weeks for delivery.

(Continued on outside back cover)



Games of Chance

by Mike Westerfield

Anyone who thinks the lessons of high school are soon forgotten must not have gone to the same school I did. I still distinctly remember several of the problems we solved in probability class in the hallowed halls of Crawfordsville High School back in... well. Back in 1972. That's when we started doing practical problems—like developing a winning strategy for roulette.

A QUICK LESSON IN ROULETTE

For those of you who have never experienced the joys of donating money to a casino, let's start with a quick lesson in finances, Las Vegas style.

Roulette is a game of chance where a marble is spun around the rim of a spinning wheel rotating in the direction opposite from the marble's spin. As friction slows the wheel, the marble eventually falls into one of 38 depressions in the wheel. These are numbered 1-36, with two additional slots labeled 0 and 00. There are a variety of ways to bet. You can bet a dollar on number 14, for example, and if the marble ends up in slot 14, you win 36 dollars (since the odds were 36 to 1 against that happening). The 0 and 00 slots are for the house; you can't bet on them, and if the ball lands there, all bets go to the casino.

For our purposes, you can also bet red or black, or even or odd. Each covers half of the 36 numbers you can bet on, but only pays the amount of the bet. That is, if you bet one dollar on red, and win, you get two dollars back.

The strategy we'll look at here is called doubling. Let's say you start with a one-dollar bet, and win. Your net winnings at that point are one dollar, since you got two dollars back—your original one-dollar bet and one additional dollar. If you lose, though, you've lost a dollar, and so on the next spin your strategy dictates that you must bet two dollars. Assuming you win that time, you get four dollars back, having bet a total of three dollars, so your net winnings for the series of bets is still one dollar. If you lose, you double again, betting four dollars—and keep right on doubling until you

finally win, which, according to the laws of chance, will happen eventually. No matter how many times you lose and have to double, though, your net winnings are still just one dollar for the series of bets. Once you finally win, you drop back down to a \$1 bet and start over. So far, it looks like a sure thing—if you don't mind winning money a dollar at a time. Roulette moves pretty quickly, so you might be able to make several dollars an hour—it won't make you rich, but it definitely beats losing. Oh, sure, things can get dicey. Every once in a while you'll find yourself betting \$512 or more, which can be difficult to lay down on the table—but you do eventually win.

Alas, as most of us who have ever gambled know, the only sure thing in Las Vegas is that, all things considered, you always lose in the end. In this case, the catch is that the casinos impose a betting limit to prevent just this strategy. While attending Comdex in Las Vegas a few years ago, I did a little research in the casinos. At one table, the minimum bet was \$2, and the maximum bet was \$200. Once you have lost a \$128 bet at such a table, you simply can't double it to \$256. Even if you bet \$200 (the full amount) and win, you will have lost \$111 on the series, since you needed to double your \$256 bet to come out \$1 ahead. You then need to win (using the doubling strategy) on the next 111 "series" to make up for what you lost. There are different limits at different tables, of course, but for simplicity's sake, we'll use a minimum of \$1 and a limit of \$100 in our program.

FROM HIGH SCHOOL TO COLLEGE

A few years later, in a slightly more sophisticated course taught by a guy with a Ph.D. in mathematics and a specialty in statistics, I found another catch. You see, besides assuming no table limit, our simple version also assumes we have infinite wealth. It's not very likely, but if you play long enough, you eventually have to pony up \$1,048,576. And you have a 50-50 chance of loosing that million-plus dollars, and if you do, you'll need to bet

\$2,097,152. Most of us have more modest limits on our Visa card. Anyway, my professor claimed, without proof, that on a 50-50 proposition, you were as likely to double your money by betting the whole wad at once as by playing the doubling game.

Well, our program puts this to the test. The program isn't a game, but a simulation. A few issues ago we already looked at a simulation that simulated the growth of a forest fire. The same idea of using a random number generator to simulate the real world works for the roulette wheel, too.

THE SIMULATION

For this simulation, we'll start with \$100 and try to double our money. If we succeed, ending up with \$200, we win the game. If we fail, ending up with nothing, we lose the game. Of course, one game doesn't mean much. We could, if the random numbers happen to fall in our favor, win or lose any game of chance, no matter what the odds are. To decide how well the overall strategy of doubling works, we'll play lots and lots of games, tallying the results as we go. The program in Listing 1 does the job.

As usual, I'm not going to go over the listing line-by-line. Instead, I'll take a moment to discuss in more detail a topic that is very important for simulations—random numbers, and just where they come from when digital computers are such exact beasts.

The short answer is that you don't really get random numbers at all. What you really get from a digital computer's random number generator are pseudo-random numbers—a sequence of numbers with no obvious correlation. For example, the numbers

4, 1, 9, 7, 1, 6, 9, 3, 9, 9, 3, 7, 5, 1, 0

seem like a pretty random sequence of digits. You're not likely to find a test for randomness that will tell you this is not a random sequence of digits, and in fact, this sequence of digits has even been used in mathematical studies where a stream of random digits were needed.

If you know the trick, though, it's pretty easy to create the digits from scratch. They happen to be the 36th through 50th decimal digits of the number π , which any self-respecting computer could calculate.

Pseudo-random number generators like the one built into ORCA/Pascal do the same sort of thing. The numbers they spit out seem random, but, in fact, they are based on a mathematical formula. If you know the formula and the starting point, it's easy to recreate the sequence of "random" numbers. The trick is to choose a formula in which the numbers are distributed fairly evenly throughout the allowable values. In other words, if your generator produces numbers from 0 to 9, no digit should be generated more frequently than any other digit.

The first problem with computerized random number generators is that they repeat. If you start with an integer data type and use some mathematical formula to create another integer from the starting value, feeding each output back as the next input, it's easy to see that after at most 65536 numbers the sequence will repeat, since there are only 65536 bit patterns you can form with an integer (which is defined as 16 bits in most languages). There isn't much point in simulating several hundred thousand spins of a roulette wheel with a random number generator that will repeat after a few tens of thousands of numbers!

Fortunately, ORCA/Pascal doesn't have this problem. The random number generator used in the ORCA languages works with a 16-byte (128-bit) number, so in theory, it can generate as many as $3e38$ (that's 3 followed by 38 zeroes) different numbers before it repeats. In practice, the actual number of values will be a lot smaller, but we don't need anywhere near that many numbers.

Another problem that crops up with random number generators, especially when they are used in games, is getting a starting number for our formula. In ORCA/Pascal, you supply the starting number with the Seed procedure. For our simulation, you could just pick some number—the last four digits of your phone number, for example—and the random number generator would produce an acceptably unpredictable series of numbers. Of course, you'd get the same sequence of numbers each time you ran the program, but that's not a big deal for this particular simulation. For a game, though, it's critical to start with a different seed each time you use a random number generator, and even in a simulation it's a nice touch. Listing 1 solves the problem with the Randomize procedure, which grabs a starting value from the Apple II's clock—a number which will never be exactly the same each time the program is run.

The last problem we have to deal with is that, if we don't use them carefully, we can turn a series of random values into a series of not-so-random roulette wheel results. The obvious way to convert an integer into a value from 0 to 37 (0 and 37 represent the 0 and 00 on the roulette wheel) is to use the mod operator, like this:

LISTING 1: WHEEL.PAS

```

program Wheel (output);

uses Common, MscToolSet;

const
    numberOfGames = 1000;           {number of games to play}

var
    g: 1..numberOfGames;           {loop variable}
    wins: integer;                 {number of 'wins'}

procedure PlayGame;

    { Play one game }
    {
    { Notes: If the player wins, the global variable 'wins' is }
    { incremented. }
    }

const
    startingPot = 100;             {starting money}

var
    bet: 1..maxint;               {current bet}
    money: 0..maxint;              {current amount of money}
    win: boolean;                  {did we win?}

function Spin: integer;

    { Return the results of one spin of the roulette wheel }
    {
    { Returns: 0 to 36; 0 has twice the probability of any }
    { other number. }
    }

var
    s: integer;                    {preliminary result}

begin {Spin}
    repeat
    s := RandomInteger;
    if s < 0 then
        s := -s;
    until s < 32756;
    s := s mod 38;
    if s = 37 then
        s := 0;
    Spin := s;
end; {Spin}

begin {PlayGame}
    money := startingPot;
    while (money <> 0) and (money < 2*startingPot) do begin
        bet := 1;
        win := false;
        while (bet <= money) and (not win) do begin
            win := Odd(Spin);
            if win then
                money := money + bet
            else
                money := money - bet;
            writeln('money = ', money:1, ' ; bet = ', bet:1, ' ; win = ',
win); }
        bet := bet*2;
        end; {bet}
    end; {while}

    if money <> 0 then
        wins := wins + 1;
    end; {PlayGame}

procedure Randomize;

    { Initializes the ORCA/Pascal random number generator based }
    { on the time of day. }

```

```
roulette := RandomInteger mod 38;
```

This takes the remainder of the number after dividing it by 38—which will always yield a result between 0 and 37. Hey, it works! The problem is that it isn't truly random unless you need to generate random numbers between 0 and 63, or 0 and 255, or zero and one less than any number that's divides evenly into 65,536. To see why, let's try a smaller range of numbers. Let's assume we're generating random numbers with a 20-sided game die, then using the mod operator to reduce the range to 1-6, like a normal die. Table 1 shows what happens. Along the top, you see the result of 1-6. Under each number is a column of numbers from the 20 sided game die that result in that number when the numbers from the 20-sided die are "remapped" to a 6-sided die. To get the final number, look up the value in the table and read off the result from the first row.

6 sided result	1	2	3	4	5	6
20 sided value	1	2	3	4	5	6
	7	8	9	10	11	12
	13	14	15	16	17	18
	19	20				

Table 1:
Mapping a 20 Sided Die to a 6 Sided Die

Look at the probability of getting each number. For the first number, there are four ways to get the result: 1, 7, 13 and 19 on the 20 sided die all get treated as a 1. That's a probability of 4/20, or 0.200. The same thing happens for a result of 2. From 3 to 6, though, there are only 3 ways to get the answer, so the probability of ending up with 3, 4, 5 or 6 is 3/20, or 0.150. That may not seem like much of a problem, but would you bet \$1,048,576 with even slightly loaded dice?

The easy way to handle this problem is to throw away the values 19 and 20. If they come up, just roll again. That's effectively what the simulation in Listing 1 does with all of the gyrations in the subroutine Spin.

THE RESULTS

I ran the program 10 times, and recorded and tallied the results. With the doubling strategy, I won 3160 times out of 10,000 tries, or about 32% of the time! How disappointing. The chances of winning a single spin at the roulette wheel betting on even or odd is 18/38, a little over 47%. This means that out of 100 \$1 bets, you will lose \$1 53 times, and win \$1 47 times—in all, losing a little under \$6 for every \$100 you spend. Doubling your bets, on the other hand, means you lose \$34 for every \$100 you spend. Obviously, if you just enjoy the activity of gambling and don't want to spend too much money, it's better to keep your bets to \$1 rather than doubling.

```
var
  asciiTime: packed array [1..20] of char; {system clock time}

begin {Randomize}
  ReadASCIITime(@asciiTime);
  Seed((ord(asciiTime[16]) << 8) | ord(asciiTime[17]));
end; {Randomize}

begin {Wheel}
  wins := 0;
  Randomize;
  for g := 1 to numberOfGames do
    PlayGame;

  writeln('You won ', wins:1, ' of ', numberOfGames:1,
    ' games (', round(wins/numberOfGames*100.0):1, '%).');
end. {Wheel}
```

The reason you can never come out ahead lies in the house numbers, 0 and 00. These numbers come up nearly 5.25% of the time, and you always lose when they do. When the house numbers are taken out of the simulation, evening the odds, the doubling strategy won 5,020 times out of 10,000—just about exactly 50%. Which means my professor was right: on a 50-50 proposition, the doubling strategy is about as effective as just betting everything all at once. When the odds are skewed—like in a roulette game with 0 and 00 included, where the odds of winning an even/odd bet are less than 50%—the doubling strategy is considerably worse, because you are exposed to the 5.25% odds that the house will win many more times instead of just once.

So, if you wander through a casino in Las Vegas and are tempted to try doubling your money at the roulette wheel, your best bet is to bet it all at once! Your odds of doubling your money that way are 47%, while playing the doubling game used in the simulation gives much lower odds of success—just 32%.

Better yet, leave the money in your pocket. 47% odds of winning don't represent anything resembling a safe bet. Over time, the only one who truly wins is the house.

OTHER STIMULATING SIMULATIONS

Lest you think that there are no practical applications to this sort of simulation, you should know that the same ideas you see here can answer all sorts of every day questions. Heck, we already learned something I didn't know before I wrote the program; namely, the best strategy for doubling your money at a roulette wheel. I would have thought the doubling scheme would work just as well as betting everything at once.

Another simulation with some practical merit is one I wrote to simulate the popular Pyramid card game. (If you've never seen it, check with any shareware library for a copy of the game. It's available on almost any platform.) After losing that game lots of times, I decided to find out just what my chances of

winning the card game really were. After finding out with a simulation, I quit playing. Now I waste my time playing Mines instead.

You can simulate all sorts of other things, too. The same ideas were put to use by Barbara Allred to simulate the spread of the AIDS virus. Traffic planners use these ideas to simulate traffic flow as they try out new highway designs. The list goes on and on.

FURTHER READING

The key to good simulations is careful use of the random number generator. If you're going to do a lot of simulations, be sure to read about how they work and how to test them, especially if you are going to be using another computer or language and don't know how good its random number generator is. A good place to start is Algorithms, Robert Sedgewick, Addison-Wesley, 1983. Sedgewick doesn't get too deep, but gives a good overview and some practical, simple tests for randomness. If you want to pull out the really big guns, refer to The Art of Computer Programming, 2nd edition, Volume 2: Seminumerical Algorithms, Donald E. Knuth, Addison-Wesley, 1981. Knuth beats the subject to death in 177 pages of heavy-duty mathematics.

As for simulations themselves, they're everywhere. Once you start looking around, you'll find one for almost any subject. I've even found them in textbooks on quantum mechanics, of all places. Once you understand the ideas, though, it's pretty easy—and fun—to just write your own.

AFTERWORD

So did I walk past that roulette wheel without trying for some practical experience? Of course I did. I'm crazy, not stupid. The best case—\$6 lost for every \$100 spent—is still a loss, and I don't enjoy gambling enough to give the casino that much for the privilege. (Understanding how some of the games work, and how they're all designed to favor the house, takes much of the enjoyment out of the activity.) All of my gambling is done by running my small business. The only people who gamble more than entrepreneurs are farmers. ■



America Online Dumps Apple II Users

Users of America Online have noticed over the last few months a marked increase in problems with the system, mostly related to performance. While most such problems have been due to AOL's recent explosive growth, others—such as the profusion of new areas which cannot be accessed by the Apple II version of the software—are not. With new versions of the Mac and Windows versions of AOL on the way, this situation will probably only get worse. Luckily, though, AOL has come up with a solution: get rid of the Apple II users.

In a letter sent to users of its Apple II software early in August, America Online president Steve Case explained that the service now finds it "commercially impossible" to properly maintain the Apple II product. On November 1, 1994, everyone who is still using only the Apple II version of the AOL software will have their accounts deactivated. (You can have your account transferred to the Mac or the Windows version of the software if you like.)

Case's letter cites a lack of "technical support from the industry" as the primary reason for the decline in service and for this decision. With so many developers leaving the Apple II, says Case, the company was not able to add new services, fix existing problems, or prevent new problems. I guess they didn't look too hard for such developers, because available for download right under Case's nose is a shareware program called Online Enhancer, which fixes many bugs and adds new features to the IIGS version of the AOL software. The developers of this product reportedly received no support from AOL staff in creating the product. Draw your own conclusion about the sincerity of Case's "dear Apple owner" letter.

But Apple II owners are not alone. The users of the Deskmate version of AOL are also getting the heave-ho. (Deskmate was a software product bundled with Tandy personal computers for several years which included, among other things, an AOL account.) The Deskmate users got a letter almost identical to the ones sent to Apple II owners, with "Tandy" replacing "Apple II." The first sentence of the letter even refers to AOL Deskmate users as being "the foundation upon which the entire America Online service has been built"—the same praise doled out to Apple II users.

Interestingly, yet another letter recently posted by AOL refers to Macintosh users as the foundation of the service. I think they're a little confused. Or maybe it's just that on America Online, you'll always be the first one there, but you'll never be the last to leave.

Other Online Services Quick to Take Up Apple II Slack

GENie and Delphi are both rushing forward to fill the vacuum in Apple II online support caused by America Online's decision to cease support of their Apple II product. GENie is offering former AOL subscribers a \$50 credit

to sign up. This \$50 is not "seventeen free non-prime hours" but a \$50 credit which can be used for any service GENie offers—including daytime access (which carries a surcharge), high-end services like NewsStand and Official Airline Guide, or even GENie merchandise such as jackets, none of which are charged as "non-prime hours." This is by far the best offer GENie has ever made to Apple II users.

SyndiComm, the independent contractor which runs the Apple II areas on GENie, also reports that special pricing is available on *Spectrum*, *ProTERM*, and *Talk Is Cheap* for AOL users, some of whom may not have a good general-purpose telecommunications program. A new version of *CoPilot* (the IIGS offline reader) has also been released, following close on the heels of a new version of GEM (the 8-bit Apple II offline reader) a couple months ago. SyndiComm also reports that it is working on an AOL-like "front end" (for navigating GENie in real time) for the IIGS, which it hopes to release by late 1994 or early 1995.

For more details on these offers, write to A2.HELP on GENie. AOL users can use the Internet gateway to e-mail a2.help@genie.geis.com (as can anyone with Internet access)—or see GENie's ad in this issue for signup instructions.

Delphi is still an excellent value in the Apple II arena, offering a low rate of \$20 per month for up to 20 hours of access with the 20/20 Plan (additional hours are \$1.86), or, for infrequent users, up to four hours per month for \$10 on the 10/4 Plan (additional hours are \$2.56). It offers 9600 BPS access with no surcharge through its Boston dial-up and is expected to offer nationwide 9600 BPS access soon. For an additional \$3 per month, Delphi also offers Internet e-mail, newsgroups, IRC, telnet, gopher, and other Internet services. Your first five hours are free—just dial 1-800-695-4002 with your modem to sign up. At the Username prompt, enter JOINDELPHI. At the Password prompt, enter APPLEIISIG.

Quickie C, Quickie Do

The long-awaited Quickie C (the C stands for color) hand-held scanner should finally be shipping by the time you read this. Vitesse has been waiting for a part needed for the kit, but it's finally ready. Unlike other hand-held color scanners, the Quickie C makes you scan the document in three passes with a different color overlay each time. A special tray is provided to allow the three passes to line up perfectly. This three-pass approach means that color scanning is slower than with other color hand scanners (bad) but the scanner is less expensive (good) and the Quickie C kit can be used as a retrofit by current Quickie owners as well (very good). The software is rumored to allow the creation of 4, 16, 256, and 3200-color images. Watch for a review soon.

Vitesse is also releasing the IIGS version of the classic fantasy adventure role-playing game, *Ultima I*, mentioned by Bill Heineman in his interview this issue. While it has the fla-

vor and plot of the original, *Ultima I* for the IIGS also includes enhanced IIGS music, sound, and graphics—and it operates under GS/OS. It's \$39.95, plus \$5 shipping directly from Vitesse. If you've never played before, now is the time to experience the world of *Ultima*—and if you're already a fan, you'll be thrilled with this new version.

The Big Red Machine

It's old news by now that the Big Red Computer Club is planning to close at the end of the year. But all may not be lost. Your Rumormonger recently heard through the grapevine that John Wrenholt, the founder and owner of Big Red, merely wants to retire. Initial attempts to find someone to take the reins of the club evidently failed, causing John to decide to close it down. But after the announcement in Big Red's newsletter, *Scarlett*, a number of people have expressed interest in keeping the organization going. It's not over yet. One frequently-mentioned name is Joe Kohn, who worked with Wrenholt and Big Red for many years before starting Shareware Solutions II. Let's hope someone works something out.

Seven Wonders of the Hills

According to the rumor mill, Seven Hills has a new version of *GraphicWriter III* in the works. This new version will finally do away with the goofy font menu that supported only a limited number of fonts and sizes. The new version will also support object-oriented graphics, so graphics created in draw programs can be scaled and rotated without loss of resolution. And, of course, a number of bugs will be squashed. Seven Hills has not yet announced a release date for this product, but we've heard Christmas mentioned as a target date.

We also hear that the popular telecommunications program *Spectrum* is also getting a revamp. Among other things, scripts will run more than twice as fast as the current version, and many bugs will be fixed. There will supposedly be one real knock-your-socks-off feature, but we can't tell you what it is because we don't know what it is. Whatever it is, it'd have to be big, since *Spectrum* already has basically every feature known to man. As with the *GraphicWriter* upgrade, no release date is known.

Byte Works Bytes Back

New versions of The Byte Works' ORCA/M, ORCA/Pascal, and ORCA/C were all announced in July. Registered owners of version 2.x of any of these programs can download the update for free from GENie (send e-mail to BYTEWORKS for access to the private library). Or the update can also be ordered directly from The Byte Works for \$7. The \$7 is waived if you buy any other Byte Works product at the same time—and coincidentally, Byte Works has a new spreadsheet out (*Quick Click Calc*) that everyone should buy anyway, so you essentially get the upgrade for free. ■



Apples in the Wings

by D.C. Marriott

Apple IIs have been a part of clubs and community organizations ever since they were introduced. Apples have been used to write newsletters, keep membership lists, and balance budgets in everything from sewing circles to the Chamber of Commerce. But when I joined our local amateur theater group several years ago, I discovered that the Apple II has an especially useful role to play in community theater.

MASTERING PROPERTIES

The first job I was given when I joined the local drama club was properties master. We were doing a play that involved a large number of props, some carried on by members of the cast, others that had to be carried on or cleared by the backstage crew. That job required organization, so naturally, I created an AppleWorks database to help me. When creating any database, the key is to ensure that you have enough fields. The database I created had the following fields:

- Property:
- Owner:
- Stored:
- Placed by:
- When:
- Removed by:
- When2:

This database told me at a glance whether I had taken care of every property under my control.

The first field identified each and every prop that we used in the play. Since many of our props were borrowed from club members, the second field identified the owner, so that all of the props could be returned to their rightful owners once the show was over. The third field told me where each prop was to be kept prior to its arrival on stage. Most of the props were kept on tables in either the left or right wing of the stage. However, a few were kept in the dressing room, and some were kept in the pockets of costumes, or in other props (for example, in a suitcase or a purse), and this field was useful in keeping track of those props.

The fourth field indicated which member of the cast or crew was assigned to take the prop onto the stage. The fifth field told when the prop was to go on stage. If it was carried on by a cast member during the play, that field told me in which Act and Scene the prop was to make its appearance. If the prop was taken on by a member of the crew during a blackout, then the field indicated during which break the prop was to be moved onto the stage. Similarly, the next two fields told me when the prop was to be removed from the stage, and by whom.

Using the Records Selection feature of AppleWorks, I was able to print a report for each member of the cast and crew, listing the properties for which they were responsible. For example, if I wanted a list of the props that Chris was responsible for, I would type OA-P to move to the print functions of my database. I would then create a report with all of the fields except "Owner". I would then type OA-R. At the prompt, I would indicate that I only wanted those entries where

"Placed by" contains "Chris" or "Removed by" contains "Chris". I would then name the report "Chris" and print it. For the stage manager, I prepared a list of where all of the props were supposed to be at the start of the play, and a list of which props were needed for each scene. Armed with these lists, I was quickly able to determine that each property was in the right place at the right time.

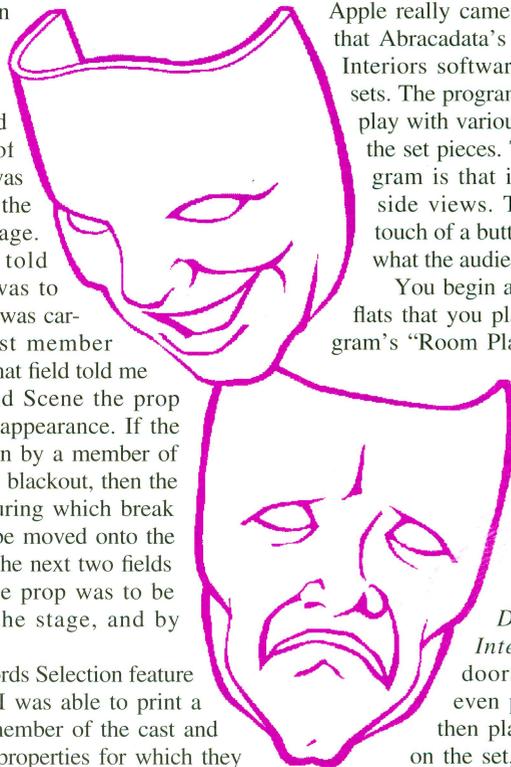
READY, SET, GO

It was when I started designing sets that my Apple really came into its own. I discovered that Abracadata's Design Your Own Home: Interiors software is perfect for designing sets. The program allows the set designer to play with various possible arrangements of the set pieces. The key feature of the program is that it allows for both top and side views. That means that, with the touch of a button, the set designer can see what the audience would see!

You begin a stage plan by drawing the flats that you plan to build, using the program's "Room Plan" mode. Draw the walls

with upstage at the top of the drawing, and downstage at the bottom. The drawing mode includes a measurement at the bottom of the scene, so you can draw to scale. You then move to "Furniture Plan" mode.

Design Your Own Home: Interiors allows you to add doors, windows, closets, and even pictures to the walls. You then place the furniture you want on the set, using the program's own library of set pieces. When you think you have the set you want, you can change the view to "front", and see the set that the audience will see. *Design Your Own Home* saves plans in standard hi-res format, so you can use other Apple drawing or painting programs to touch up your plans.



There are two limitations to *Design Your Own Home: Interiors* as a tool for designing sets. One is that the program expects that you are dealing with a standard, level room. If you want to design a set with raised platforms, you will have to add them later, using another drawing program. Secondly, the "room size" is limited to 23' X 16'. However, this limitation is easily overcome by splitting a larger set into two plans. Simply designate the plans "Stage.R" and "Stage.L". The two plans can be printed together using the program's own print mode, by rotating the plans 90° and printing one right after the other. Alternatively, the two halves can be joined together in a single double hi-res picture using a program like Beagle Bros *TimeOut Paint*.

CREDIT WHERE DUE

Like most amateur theater groups, ours likes to keep a video record of all of our productions. Once again, an Apple can help by creating opening titles and closing credits for the video. I like to give the names of the actors in the opening credits, and give a complete list of the backstage crew at the end of the video. One of the advantages that Apples have over other computers is that they can be connected directly to a VCR, without special cards or adapters. That makes it easy to use your Apple to add attractive titles to any videotape. Broderbund's

VCR Companion is a product designed specifically for that task.

VCR Companion works much like *Print Shop*: you choose borders, fonts, and graphics from a menu, and then put everything together. It also allows you to incorporate animations and pictures. The text can be static, or can scroll across the screen, either horizontally or vertically. This feature allows you to include long lists in your credits, without having to worry about running out of space on the screen. You can therefore give due credit to every member of your cast and crew, even for a large production. *VCR Companion* also has a variety of transitions and special effects, so you can really become creative.

VCR Companion comes with a library of borders, background pictures, fonts and animations. It also has utilities that allow you to convert any double hi-res picture for use as a background. If you also happen to own Broderbund's *Animate*, you can create your own animations for use with the program. For a recent production of *The Merry Widow*, I drew a ballroom with *Dazzle Draw*, and created an animation of a waltzing couple with *Animate*. The couple waltzed through the ballroom as the names of the actors scrolled past them!

If you don't want to purchase a program specifically for making credits, you can create respectable credits with almost any graphics or hypermedia program. All it takes is a little cre-

ativity. If your graphics program happens to have a slide show feature, so much the better. *Dazzle Draw* comes with an excellent slide show package, which includes a variety of transitions. With a bit of ingenuity, you can make attractive titles, and even create simple animations. All you have to do is connect your computer to the RCA plug on your VCR, and whatever you have on your screen can be recorded on tape.

CURTAIN CALL

Of course, there are many more ways that your Apple II can help put a production on stage, from making posters and programs to keeping phone lists for the cast and crew. From the first auditions to closing night, the Apple II is a performer that's welcome in any community theater. ■

SOFTWARE MENTIONED IN THIS ARTICLE:

AppleWorks

Claris Corporation
P.O. Box 58168, Santa Clara, CA, 95052-8168

Design Your Own Home, Interiors

Abracadata, Ltd.
P.O. Box 2440, Eugene, OR, 97402

Animate, Dazzle Draw, and VCR Companion

Broderbund Software, Inc.
P.O. Box 612, Novato, CA, 94948-6121

BOTTOM LINE



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Games Modems Play

by Erik Engbrecht

► *This article is not intended as a primer on modem use. It is intended to introduce you to the concept of online gaming and give you some idea of what's out there, but will not attempt to teach you the fundamentals of using modems to telecommunicate. Past articles in the Modem Nation series are good introductions to telecommunications.*

You've probably heard a lot about the useful things modem can bring you: technical support for your computer system, huge libraries of free software, electronic mail. These things are all wonderful, but they don't exactly make most of us jump up and down. (If they make *you* jump up and down, perhaps you should seek professional help before it's too late.) But there's one aspect of telecommunications that almost everyone who talks about the subject leaves out: online games! If you're interested in computer games, you're missing an enormous amount of computer fun if you don't own a modem. On-line games often offer game play you can't get anywhere else, especially in the area of multi-player games.

It's been said in this column that the important thing about modems is not that they connect computers together, but that they connect people together. If you think playing games against the computer is fun, wait until you meet your first human opponent via the computer!

TOOLS OF THE TRADE

To explore the world of on-line gaming, the first thing you need is a modem and telecommunications software. Any modem will do, although 9600 bps is quickly becoming the minimum acceptable speed. More importantly, you should look for modem software with what is known as ANSI-BBS emulation, sometimes called just ANSI. Not all on-line games require ANSI-BBS emulation, but many (especially those run on PC-based BBSs) do, and other games support it as an option that improves play.

If you use an 8-bit Apple II, investigate ProTERM, published by Intrec Software. It supports a rudimentary (but usable) black-and-white ANSI emulation that works well enough

for most games. (Modem MGR, from MGR Software, also reportedly has added ANSI in a recent upgrade, although we haven't tested this program.) If you own a IIGS, get a IIGS-specific telecommunications package, such as Spectrum from Seven Hills, ANSITerm from Parkhurst Micro Products, or even SnowTerm, a shareware program by John Snow. IIGS-specific modem software that does ANSI-BBS sup-

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ports color, unlike the 8-bit software, and a proper ANSI character set. (ProTERM translates the ANSI character set to the Apple's Mouse-Text characters, which is the best you can realistically expect on older Apples; the IIGS programs use super hi-res graphics to support more ANSI features.)

The next thing you need is an account on a system with online games. You have your choice: easy to find, but expensive—or cheap, but harder to find and access.

NATIONAL SERVICES

The easiest way, with the least hassle, is to subscribe to a major online service such as GENie, CompuServe, or Delphi. Such services feature many excellent games which Apple II users can play. These games can be incredibly extensive; you might literally be playing on-

line interactive adventures with dozens or even hundreds of other players at the same time. A game like Dragon's Gate or Gemstone is a role-playing game where you can "design" your own character and go off in search of adventure, either on your own, or by meeting with other players who are online at the same time as you and forming teams with them. Your team will meet other teams, and can either fight them or join up with them!

Or you can play political games like Federation, where you fight interstellar battles and take part in political intrigue between the stars, with many other players in the same game at the same time. There are even graphically-based games like RSCards, where you can find opponents to play things like Poker, Chess, or Backgammon against. Besides all those, the Chat areas on these systems often host games (including trivia and word-based games). It can all be very exciting. And, because the national services have thousands of phone lines, getting through to them is almost never a problem.

The down side is cost; all of the national systems cost more than almost any local BBS. For example, GENie charges \$3.00/hour, which works out to five cents a minute for that system (CompuServe and AOL cost more, Delphi less). This isn't incredibly expensive, but when you realize that you certainly won't finish a game like Gemstone in one session, the price jumps up. Even a "short" game session may be a half hour or more, and you may want to play frequently to avoid being left behind by other players, so you can see how you may need to watch your pennies.

LOCAL GAMES

The harder, but cheaper, way to find games is to locate a local Bulletin Board System (BBS) that has games you'd like to play. You may be surprised at how many BBSs there are in your area, and it's likely that at least some of them will offer games. Local BBSs have the advantage of being cheap; some of them charge fees, but even these are usually much cheaper than the major online services, and many local systems are completely free. The

only problem is finding local systems and finding out which ones offer what.

The best way I can think of is to check to see if your local High School or library has a BBS; many schools and libraries have such systems. Then, set up an account on one of those systems, and ask the system operator (sysop) for the numbers of other local systems. If you do not have any luck that way, you might want to just ask around among high school kids in the area (like me), as they often know about stuff like that.

Once you find a board, you have to set up an account on it. We've covered this before—setting up the account is easy, but getting on can be hard. Local BBS systems are usually limited in the number of incoming phone lines they can support (some have just one line), so if too many people are trying to get on at once, you may get a lot of busy signals when calling them. (The more lines a system supports, the more interesting the games will generally be—you can still play some multi-player games on single-line boards, but players have to take turns, making one move on each call.) Less popular systems will be easier to get on, but might not have the variety of games or players you're looking for. Still, a system which is not mega-popular may be a very good place to start; the fewer people playing, the less confusing things are.

The more popular BBSs will be harder to log onto, but, generally, this is because they're simply better. The more popular a system becomes, the more the system operator is able to add. The best boards have fast computers, friendly sysops, better games, more phone lines (but never, it seems, enough), and so on. Some of these systems may even charge a monthly or annual fee of some sort. Once you set your sights on one of these harder-to-access systems, just use the continuous redial feature of your modem software (all good modem programs have this option now) and just keep redialing until you get through.

After you set up your account, you will have to wait until the sysop validates you to begin playing. Depending on the sysop, this can take anywhere from a couple of minutes to a couple of days. Some BBSs have callback verification, where the sysop will call you back to verify that you are who you say you are. (This is usually done on systems that charge a fee, but system operators who have had problems with hackers may also do this.) Sysops of popular boards sometimes limit the amount of time you can access the BBS per day, and attempt to make sure people don't sign up for multiple accounts to get more time to play games.

I recommend that you abide by the rules of the sysop whose board you are using. Don't try to circumvent a time limit by creating false accounts. Instead, if you don't like a rule, ask the sysop if there's some way the rule could be changed or an exception made (for example, some sysops of free boards will gladly increase your daily limit if you make a donation to the

BBS). If you can't live by the rules, find another board with less restrictive rules (you might have to pay for it, though). When you bend the rules, you not only run the risk of being kicked off the system you're calling (and being black-listed—sysops do talk to each other), you make the game harder for honest people to enjoy.

PLAYTIME

Once you have full access to a system with games, you can start to play. But first, you must find out where the games are on the system. On some systems this can be as challenging as some of the games themselves! How you access games will vary wildly from system to system, but most BBSs have an option on the main menu that takes you to a separate games menu. Usually this menu item is obvious—something like "Games" or "Online

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Games." Other systems use the term "doors" or "door games." Occasionally specific games, especially popular ones such "The Complex II" or "Adventure," might be found right on the main menu.

Still, you might have some hunting to do; local BBS systems are incredibly diverse. One BBS I used to play games on had a theme based on *Star Trek: The Next Generation*. To get to its games, you had to go into the "holodeck simulator." When all else fails, ask the sysop.

After getting into the games section of a system, you may be overwhelmed by the number of choices. A good game to start with is Trade Wars 2002. Loosely based on the television series *Star Trek*, the basic play of the game is easy, but over time you will find it rich and complex. Most of the time you're trading (if you are a good guy) or stealing (if you are a bad guy). This can get really boring, but stick with it. As soon as you have a good ship with a large arsenal and go to war, you'll see that it was all worth it. One thing you have to remember is that Trade Wars is a team game, and so you will need to find people to start a corporation with.

The enjoyment you'll get from a game like Trade Wars is very dependent on the other people playing. The goal is to develop planets and build the strongest corporation possible.

Play conservatively, leave aliens alone unless you are bad and need experience, or good and need alignment to get a commission. It takes a lot of dedication to become powerful. Trade Wars takes twenty to forty-five minutes a day to play.

OTHER GAMES

As I said, there are a number of games out there—so attempting to list them all would be futile, especially since new ones are being created every day. (There's even one game which lets the players design the game as they go along!) Still, some games have proven themselves "classics" through their staying power.

Barren Realms Elite, Solar Realms Elite, and the Alpha Colony series are all conquest-type games. You purchase industrial regions to produce weaponry, agricultural regions to produce food, and various other types of regions to make money. It takes ten to fifteen minutes per day playing time.

Red Dragon is a D&D style game. It is pretty easy, and depends a lot on luck. There is some strategy involved, but nowhere near as much as the other games of this type. If you want something easy to play that's fun and doesn't take much time, try Red Dragon. It takes ten to fifteen minutes per day.

The Pit is one of the few real-time action games. For this game, ANSI is essential, but color is not required. You play a gladiator-type character. You fight computer opponents and other human players. This game takes as much time as you want it to take, but the more time you put into it the better it gets... though it can be very frustrating at times.

Land of Devastation is a very good game. ANSI is essential for this one, too. You are a soldier, reclaiming the nuclear wasteland that used to be the United States. It is a futuristic role-playing game in which you move around on a map and fight mutant monsters. There's no set amount of playing time, you just play until you get tired.

THE FUN IS OUT THERE

You will encounter many, many other games as you explore the various BBSs in your area. There are so many different games that you could easily amuse yourself for years just on your local BBSs. On the whole, the fun of online games surpasses that of regular computer games, because online games allow you to play against actual human opponents. Don't worry about finishing an entire game in one session; the long, involved games save your game statistics from session to session, so you can play a little every day, slowly improving and also seeing how others have been doing while you were offline. The fact that others can play while you go about your real life puts an interesting twist on things that you just can't get from sticking a disk in your drive and booting up the same old games you've played day after day all by yourself! ■

A Tale of One City

(Continued from page 8)

What about that 32-bit version of the 65816? Mensch has the design partially completed, but until he has a customer who is actually interested in using the chip, it's going to stay that way. He mentioned that the only reason the chip exists even to that extent is that one of his licensees wanted, for competitive reasons, to be able to list a 32-bit processor in their product line. (Nobody has yet tried to order it.) In the embedded controller market, though, hardly anyone is using 32-bit technology—plain old 8-bit is by far the most popular.

Mac Attack

After lunch, the conference tracks split up again, with two sessions again running simultaneously. (We later discovered that the reason they'd been split in the morning, rejoined briefly for Mensch's session, then split again was that Randy Brandt was to have given the keynote address that morning, but Brandt had a last-minute situation that prevented him from arriving until later Thursday. Thus, his keynote had simply been swapped with the two sessions originally planned for Friday morning.)

While two members of the Western Design team demonstrated development tools for the Mensch Computer, I checked out the preview of Macintosh System 7.5 hosted by Mike Pruneau, a marketing representative from Apple's Kansas City office. Since this isn't a Macintosh magazine, I will refrain from telling you everything there is to know about System 7.5. The main new hot features are QuickDraw GX (a new graphics and printing architecture) and Apple Guide (an interactive help system that can actually show you what you're supposed to do). Apple has also bundled other components, previously available as part of System 7 Pro or as third-party extensions, into System 7.5. If you want to read more about it, go pick up *Macworld* or *MacUser*. Both of these magazines have recently featured in-depth explorations of the next Macintosh System release.

A couple of System 7.5's new features did, however, bring a few chuckles to the lips of the Apple II aficionados in attendance. System 7.5 now features a thermometer that fills in as the machine starts up—just like the IIGS. ("Took them long enough," a wag put in, prompting a wave of laughter.) The new Mac Find File desk accessory is also reminiscent of the IIGS Find File NDA. Pruneau laughed along with the audience—after all, he was able to look out across the crowd of Apple II nuts and see several PowerBook screens sticking up! It's been clear for years that Apple considered the Macintosh its future direction, and, for the most part, Apple II users have accepted that and no longer take it personally.

The code name displayed on the startup screen of the demo version of System 7.5 was "Capone." The notorious gangster Al Capone was also known as "the King of Chicago." And, by a strange coincidence, Microsoft Win-

dows 4's code name is "Chicago." It was a clever but subtle bit of code-name one-upmanship which, while largely unnoticed, was appreciated by those who caught it.

Amazing Three-Dimensions

After the Macintosh System 7.5 demonstration, I decided to see what was up with Animasia 3-D, the near-legendary IIGS 3-D animation program that Michael Lutynski has been working on for four years. (The competing session was a demonstration of Procyon's GNO/ME Unix-like operating system for the IIGS, curiously led not by Procyon's Jawaid Bazyar—who was in attendance—by by DigiSoft Innovations' Jim Maricondo.)

Animasia long ago passed the stage where it could be considered a mere "product" and became a true labor of love. After all, in today's IIGS market Lutynski is going to have difficulty selling enough copies of the \$99 program to recoup four years of work. Most people don't have as much persistence as he does. I hope the Apple II market supports him buy buying lots of copies of Animasia (hint, hint).

Having worked with the Lightwave 3-D software for the Video Toaster, I really appreciated Animasia's intuitive approach to modeling. Instead of creating objects in one application, then arranging the objects in another, as most 3-D programs require, Animasia lets you edit your objects right in the scene where they'll appear. The modeling tools are additive: that is, if you create a cube, then select a face of that cube and invoke the "cone" tool, a pyramid (a square cone) will jut out from the face of the cube. You can repeat this process ad infinitum to create really bizarre shapes. Other interesting tools include the one-click "doughnut" and "spiral" tools, along with a nifty tool that lets you extrude a shape along a path. Other aspects of the user interface, such as the way groups of objects are handled, convinced me that Animasia was probably the most user-friendly 3-D program I'd ever seen.

Due to the graphic limitations of the IIGS, the program's output basically consists of flat, colored polygons with a fixed palette. (The limited number of colors occasionally caused surface shadings to change abruptly as lighting shifted during the course of an animation.) Animations are rendered to a PaintWorks file using the IIGS "fill mode," which makes for compact animation files and smooth, flicker-free playback. Rendering can take anywhere from several seconds to several minutes per frame, depending on the number of polygons on the screen. The program uses optimized integer math rather than floating-point, but a 10 MHz or faster accelerator is recommended nonetheless.

Lutynski mentioned that he'd designed the user interface and the actual "gearwork" of the program to be completely separate entities. This will make porting the software to another platform simple—just write a new user interface, and re-compile the "3-D engine" (it's written mostly in C) for the new machine.

That's a good thing—Mac and Windows 3-D programs are all excessively complex (and expensive) for dabblers who just want to get their feet wet in 3-D animation. There's a definite market there, and I think that's where Lutynski will see his real payback. But we Apple IIGS users have the distinction of getting it first! The renderer, by the way, computes colors to 40 bits, which is more than enough for photo-realistic rendering on computers with 24-bit color.

The program lacks a few features (such as texture mapping and ray tracing) that more sophisticated 3-D programs have. But then, it doesn't cost \$800, either, and besides, the IIGS simply doesn't have the resolution or color palette to handle such detail, nor the CPU horsepower to render such complex images in any reasonable amount of time. Let's face it, nobody's going to create the next *Babylon 5* using Animasia on a IIGS—but it's a heck of a lot of fun, and an inexpensive way to learn about 3-D animation.

Lutynski reported that he was planning to write the manual in August and start shipping the program in September. Later in the session he mentioned that he wanted to optimize the program's code before shipping it to improve the speed. Frankly, unless he's a really fast writer or plans on including only skimpy documentation (which would be a shame—the program definitely needs a manual which will explain 3-D animation to complete novices), I think he's being overly optimistic. But, after a four-year wait, it looks like the IIGS world will finally have a solid, usable 3-D animation tool, I'd guess by the end of 1994. Keep your eyes open for more information.

And, at one meal in the Avila cafeteria, I overheard Lutynski and Roger Wagner discussing the potential of incorporating Animasia 3-D animations into HyperStudio. This is where deals are made, folks.

Thursday's Sessions Conclude

After the Animasia presentation, I went back to the other conference room to watch Apple Rep Mike Pruneau put the PowerMac through its paces. We have a PowerMac 6100 here at Quality, but I'd never seen an official Apple demo. As it turned out, most of the things Pruneau showed I'd already seen—such as the PlainTalk speech synthesis technology, the graphing calculator, and the Kai's Power Tools demo of real-time 3-D shading. I *hadn't* seen Adobe Photoshop 3.0 (code name: Tiger Mountain) running at blazing native speed on a PowerMac—but now I have. Wow. As I reported in this space not too long ago, the PowerPC chip has the sheer speed to do all sorts of things previously considered "impossible" for desktop computers. I came away impressed anew. (Meanwhile, Erick Wagner's conference in the other room, on interfacing outside devices to the Apple II, was also a good one, I heard.)

(Continued on page 40)

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A Tale of One City

(Continued from page 37)

The day's final sessions were Joe Kohn's "Looking Good In Print" and Greg Nelson's "Multimedia Authoring with CD-ROM." I already had a pretty good idea how to look good in print, I wasn't particularly interested in designing CD-ROMs, and most importantly of all, the previous night's lack of sleep was beginning to catch up with me. I went back to the dorms and caught an hour and a half worth of sleep before heading to that evening's celebrity roast. That was the plan, anyway.

The Night Life

Unfortunately I not only slept through the evening's buffet but also missed the beginning of the roast of Mike Westerfield, owner of the Byteworks and creator of the ORCA series of development tools. If the first half was as good as the second half, he was roasted quite thoroughly. To my stomach, however, the most important thing was Roger Wagner's announcement that he'd be buying pizza for all comers at midnight.

The dorms shortly became the focal point of activity. Each floor of the dorm had about twenty rooms and a central commons area. The second annual KansasFest "Bite the Bag" contest was held—since it's been held two years

in a row, I guess that makes it an official tradition. ("Bite the Bag" is a party game in which players take turns trying to pick up a paper grocery bag from the floor with their teeth. The catch is, only one part of the player's body may touch the ground during the "bite." When everyone in a round has succeeded or failed, a strip is torn off the top of the bag and another round begins. This game of balance and coordination becomes increasingly interesting as the late hour begins to take its toll.) Roger Wagner was this year's champion, his form demonstrating that he'd obviously spent many hours practicing. Eventually the pizza arrived, marking the end of the festivities.

All too soon, though, I found myself too tired to stand up. I somehow found my way back to my room and collapsed. And a few minutes later, it seemed, I awoke to find the sun rising on a Kansas City Friday morning.

A Good Friday

Friday's breakfast was rather more sparsely attended than Thursday's—just another sign (as if we needed one) that people were desperate for sleep. The day's sessions began with Randy Brandt's keynote address, titled "Confessions of a Primordial Programmer," a nostalgic speech recounting Brandt's past, the golden days of Beagle Bros, and the joys of working with Claris on AppleWorks 3.0. His

narrative was engrossing—but there's so much history in Brandt's experiences with the Apple II that the retelling took nearly the entire hour, leaving him barely enough time to announce AppleWorks 5, let alone demonstrate it.

AppleWorks 5 is the ultimate AppleWorks power-user upgrade. It will require a 3.5" drive and at least 256K RAM. While the final feature set hasn't been nailed down just yet, I did see Brandt demonstrating a much better version of the word processor's split-screen feature, and a database feature which allows a MouseText background to be designed for the data entry screen. The price for the upgrade hasn't been set as of this writing—AppleWorks 4 owners will probably receive an upgrade notice early in the fall.

Microsoft Invades KansasFest

After Brandt's speech, the conference once again split into two tracks. *II Alive* contributor Nathaniel Sloan talked about telecommunications scripting, but I'd wager most attendees opted for the sneak preview of Microsoft Windows 4.0, code-name Chicago. "Know your enemy" was justification enough for me. This session, hosted by Pat Wilson of Microsoft's St. Louis office, was to have required the signing of a non-disclosure agreement by atten-

(Continued on page 43)

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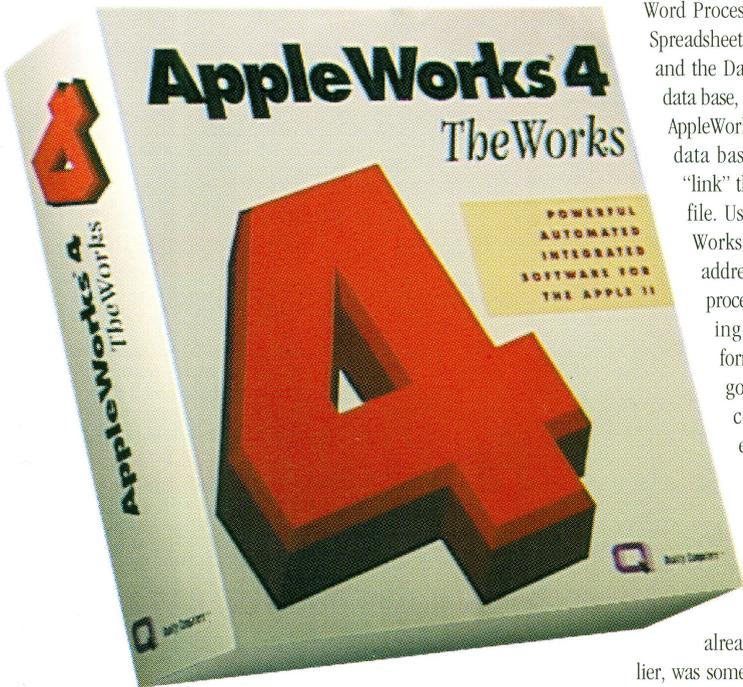
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Word Processor to access data base files, the Spreadsheet to access other spreadsheet files, and the Data Base to access word processor, data base, and spreadsheet files. For example, AppleWorks 4.0 will allow users to create a data base of names and addresses, then "link" the Data Base with a word processor file. Using the glossary function, AppleWorks 4.0 can look up and import an address directly into the current word processing document—without switching modules, copying, or manually formatting. You can also import categories from other data bases (and cells from spreadsheets) and to export information to other data bases, providing the Data Base module with relational capabilities.

MORE COOL STUFF

Other major features include built-in support for HP's popular Deskjet printers, faster display and finds in the Data Base, split screen capability in the Word Processor, and data math functions in the Spreadsheet. The Data Base will have improved import and export facilities for exchanging data with other computers, and will feature spreadsheet-style formulas in calculated fields. A global auto-save feature, available in all AppleWorks modules, will protect users' work from power failures; and a Quick-Path menu will let users set up a menu of their most frequently-used directories.

Because AppleWorks 4.0 includes TimeOut, adding useful enhancements is easier than ever. In fact, you can even install most enhancements without leaving AppleWorks.

TRUE TO ITS HERITAGE

AppleWorks 4.0 will remain true to the AppleWorks spirit. Menus will remain easy to navigate; commands will continue to be simple-to-remember Apple-key combinations; help will still be available with a single keypress; all previous functions will remain the same.

EVEN EASIER TO USE

Making AppleWorks, an already friendly program, even friendlier, was something we thought about carefully.

We had to be careful that what we were doing was REALLY making AppleWorks easier. We think we succeeded. For example, AppleWorks 4.0 can remember what order you used for each of your reports and will automatically sort the data base for you. The Spreadsheet now features a pop-up list of functions so users don't have to remember codes when entering formulas. The Word Processor uses distinctive symbols for formatting codes (instead of just carets) so boldface and underline can be recognized at a glance, instead of requiring the cursor to be on the formatting code to read it. The "Change Disk" menu allows users to display disk names by pressing OA-? instead of requiring them to know what slot and drive their data disk is in. "Add Files" displays text files and automatically loads them as word processor files instead of requiring users to go to a separate "New File" menu. The Word Processor lets you see and edit tab rulers right in the document. AppleWorks 4.0 even takes away the worry of saving your files with its Auto-Save function.

In 1988, AppleWorks seemed to have reached its pinnacle with the release of version 3.0. But you weren't satisfied and neither were we. That's why Quality Computers, and AppleWorks veterans Randy Brandt and Dan Verkade have developed AppleWorks 4.0—the most extensive upgrade in AppleWorks history.

ONE TOUCH COMPUTING

How would you like to automate AppleWorks? You can with AppleWorks 4.0. That's because AppleWorks 4.0 features dozens of built-in automatic functions that you can do with just a keypress. Imagine being able to set up and print an envelope automatically, or open a new data base with pre-formatted fields by pressing a key. There's lots of others just like it, and they're easy with AppleWorks 4.0!

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School P.O.'s by phone, fax or mail

A Tale of One City

(Continued from page 40)

dees—but Wilson held up the business section of that day's Kansas City Star, which featured a front-page story on Windows 4, and explained, "When I saw this I decided not to bother with the non-disclosure agreements."

Windows 4 is probably the most important product in Microsoft's history. Freed of the legal constraints that kept them from directly copying Apple's design in the past, the Microsoft engineers were finally able to design the Windows they wanted without having to worry about whether it looked "too much" like the Macintosh. The result, predictably, *does* look a lot like a Macintosh (or a IIGs)—but in my opinion the resemblance is only skin deep. Windows 4 and the Apple Desktop are only similar enough to confuse people who have to use both on a regular basis. It's different enough from Windows 3 that those users, too, will have to relearn the way they use their computers. So no matter whether you're coming from the Mac or Windows 3, Windows 4 will take some getting used to. I suspect that, Microsoft being Microsoft, this won't delay the acceptance of Windows 4 very long. After all, what else is there?

Most of the things Windows 4 does are things the Mac and the IIGs have been doing along. The much-vaunted Task Bar, which displays all running programs at the bottom of the

screen, along with a pop-up menu for accessing applications and accessories, is basically just a combination of the Apple menu and the application menu. (Not necessarily inferior or superior—just an interesting alternative.) Windows 4 will automatically recognize new peripherals and load the appropriate drivers, a feature Microsoft calls "Plug and Play." It's a big deal to PC users, but the hullaboo is a mystery to Apple II and Mac users, who have been enjoying pretty much similar convenience for the past sixteen years. Windows' File Manager and Program Manager have been combined into a single Finder-like program. File sharing is built in (a feature that previously required running Windows for Workgroups).

All this isn't to imply that Windows 4 is completely derivative of Apple's efforts. There are a few features I saw in Windows 4 that I think Apple could learn a lesson or two from. First is the "briefcase," a feature which allows people to copy files from desktop PCs to their laptops for a trip, then automatically put the revised files in their proper places when they return. It's a part of the operating system now—and a feature that Apple, with all its emphasis on connectivity, seems to have missed. Second is the "Network Neighborhood," a special icon on the Windows desktop which, when opened, shows all the network servers you can connect to—a vast improvement over the Mac's aging Chooser or GS/OS's AppleShare control panel. Apple should, and

probably will, be taking a very close look at Windows 4 and adapting these and other features to future versions of its user interface.

But the feature I liked most is one we'll likely never see in an Apple product—because it requires a second mouse button, and Apple has always contended that a one-button mouse is "less confusing." In Windows 4, clicking the right mouse button displays a shortcut menu which offers only the options you can do to the object you're pointing at. If you're in Excel (a Windows spreadsheet program) and pointing at a worksheet cell, the right mouse button displays a menu of the things you can do to cells. (You can still do it the old fashioned way—click the left mouse button to select the cell, then use the menu bar—but this way is obviously much faster because it eliminates all the extraneous choices that don't have anything to do with cells.) If you point at a program on the Task Bar and click the right mouse button, you get a choice of the things you can do with programs—you can even quit a program this way without bringing it to the foreground. If you drag an icon with the right mouse button, a menu pops up asking whether you want to copy the file, move it, or make an alias of it. It's almost like having someone looking over your shoulder constantly offering you only the relevant choices. Apple should look into finding some way to add this kind of intelligence to its own system software.

(Continued on page 44)

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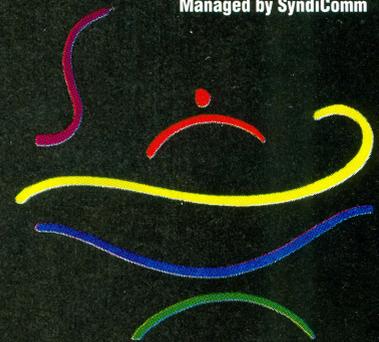
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A Tale of One City

(Continued from page 43)

Most of the attendees left from the Microsoft session thinking that Microsoft was playing catch-up with the Mac (true) but that they hadn't yet come close (debatable). I think Microsoft has done an excellent job of bringing most of the functionality of Macintosh System 7 to the PC-compatible world. There are a few rough edges, but there were also a few rough edges in the initial release of System 7. The trouble is that Apple has leapfrogged Microsoft with System 7.5—with new technologies like QuickDraw GX and Apple Guide, the built-in help system. By the time Microsoft comes out with the Windows NT equivalent of Windows 4, Apple will have System 8 and Open Doc. Still, while it's obvious Microsoft has learned a lot from Apple, it's also clear that Microsoft has a few tricks of its own. Competition of this sort almost always results in better products—and that will benefit both Apple Desktop and Windows users.

Time Flies When You're Having Fun

After lunch, I decided I needed some more sleep, so I went back to the dorm and napped through the following two sessions. On one track we had two separate sessions on Microsoft Office for Windows, and on the other track was Roger Wagner's "HyperStudio as a Development Environment," followed by Mike Westerfield's demonstration of the Byte-works' new IIGS spreadsheet, Quick Click Calc (which included a disclosure of the programming details of Westerfield's IIGS implementation of a "publish and subscribe" feature). While Roger Wagner is always interesting, I've seen him show HyperStudio plenty of times before.

I had a glimpse of Westerfield's spreadsheet later in the conference, and it looks like a great product. It's got a very friendly user interface, and also has a few unique capabilities (for example, the program understands letter grades, so teachers can easily average an A and a C and get a B, without having to use percentages). The graphing capabilities look complete, and then there's the publish and subscribe feature. What this means is that one spreadsheet can subscribe to another, and when the original spreadsheet is changed, the subscribing spreadsheet is updated to reflect the changes. If you're looking for a spreadsheet with a little more oomph (and a tad more stability) than the one in AppleWorks GS, Quick Click Calc is worth a look. Westerfield also told me that he plans to release other productivity titles under the "Quick Click" name.

While Bill Lynn demonstrated "Way Cool and Cheap Macintosh Utilities," former *inCider/A+* columnist Joe Kohn, now the publisher of Shareware Solutions II and self-described "Apple II Cheerleader," hosted a session on the Internet which was a logical follow-up to Jim Maricondo's introductory session the previous day. He began by stating that "all the

things Jim showed you are obsolete" thanks to a new Internet feature called the World Wide Web. The World Wide Web is a hypermedia system somewhat like HyperStudio (actually, since it's largely textual, it's more like Nexus)—except that where these programs link information that's all stored on one computer, the information referenced in a single Web document can be stored all over the world, in widely separated computer systems.

The Web can transmit graphics and sound as well as text. Apple II users will use a front end called Lynx, running on their dial-up system, to access the Web; there's also a full multimedia front end called Mosaic which runs on Macs, PCs, and Unix machines. The real power of the Web is that anyone can set up their own home page, reflecting their interests and personality. The last few months have seen an explosion in new Web material. The Kremlin even has a multimedia tour you can take via the Web. There's little doubt that this is, indeed, the future of the information highway.

The final sessions of KansasFest were Mike Westerfield's demonstration of 3D Logo, and GS+'s Joe Wankler's session on Newton programming. I'd seen 3D Logo earlier, so I opted for the Newton session, even though I don't own a Newton. To program a Newton you need a Newton MessagePad (of course), a Macintosh, and an \$800 Newton Development Kit. You design your programs on the Mac, then download them to the Newton for testing. And "design" really is the correct word, because Newton programming is completely object-oriented and graphical in nature—you can create a simple "Hello World" program without writing a single line of NewtonScript code. I already considered the Newton a nifty gadget, but I found it even more nifty when I got some idea of how it works internally. It really is a revolutionary software architecture. It blows my mind that Apple spent so much time and effort developing the operating system of a \$600 executive toy. Even if the MessagePad proves itself a flop, the technology inside it will probably live on in other Apple products. It's that cool.

The wrap-up of Friday wouldn't be complete without a description of the Nerf War held that night. Mike Westerfield caught wind of rumors that several attendees were planning a sneak Nerf attack on the rest of us—and so led an expedition of four, including yours truly, to the nearby Wal-Mart HyperMart to gather ammunition for defense. The war was bigger than anyone would have suspected. During the course of the war there were three or four additional trips made to the HyperMart to stock up on Nerf missiles, balls, guns, and other weaponry. Unfortunately, I missed most of the fun. You see, the Nerf Warriors went to see a movie, which left the rest of us sitting around in the dorms waiting for everyone to come back. I was planning to start the long drive home the next day—and so by the time the wars began, I was asleep. But at least I had a five-piece semi-automatic foam dart bow and arrow set.

Thank God It's Saturday

Saturday found only a few of us alert enough to make breakfast in the Avila cafeteria. The Mini-Expo, with small exhibits from a number of companies, began at 10 AM. Tom Weishaar and company had brought several tables full of leftover goodies from Resource Central—classic software, old reference manuals, and so on. Other exhibitors included Western Design Center (I got to play with a Mensch Computer, and managed to lock it up within ten seconds by attempting to run the built-in Forth language—which wasn't installed in the machine yet), the Byteworks, Roger Wagner Publishing, and Sequential Systems.

One highlight of the Expo was seeing the new issue of PowerGS, a freeware disk magazine put together by Auri Rahimzadeh. The youthful Rahimzadeh frequently comes off as overzealous online, but when I saw the magazine, I was impressed. The graphics are uniformly excellent, and there's a lot of interesting and useful material for Apple IIGS owners. The articles seemed reasonably well-written. The first two issues had some rough edges, but the third one is a pleasure. Check it out if you have a IIGS—it's available for download from most online services.

Finally, though, it was time to say goodbye to all my old and new friends, pack up my car, and head out. I ended up stopping for the night in Greenville, Illinois at a small motel called the Two Acres. It had a Magic Fingers massage unit on the bed—a true find! (Of *course* I tried it. And of *course* it didn't work.)

I think I enjoyed this sixth KansasFest more than any previous, except for the first. The last few years, I've been a session leader, and making sure I was prepared to present my material had preoccupied me. This year, I was free to enjoy the conference without any pressure. With products like Quick Click Calc and Animasia being produced, I left feeling good about the Apple II—and excited anew about the new technology represented by the PowerPC, System 7.5, Windows 4, and the Mensch Computer. I'm looking forward to going next year! ■

What Mistakes?

Fate is apparently conspiring to keep Joe Kohn's name in these pages. Last issue we ran a correction due to the fact that we omitted the address for subscribing to Kohn's publication, *Shareware Solutions II*. Unfortunately, that correction contained an error. Any letters you may have sent to Joe at 155 Alpine Street probably have been making some long, strange trips. The correct address is:

Joe Kohn
Shareware Solutions II
166 Alpine Street
San Rafael, CA 94901-1008

All Apple II

No Compromise

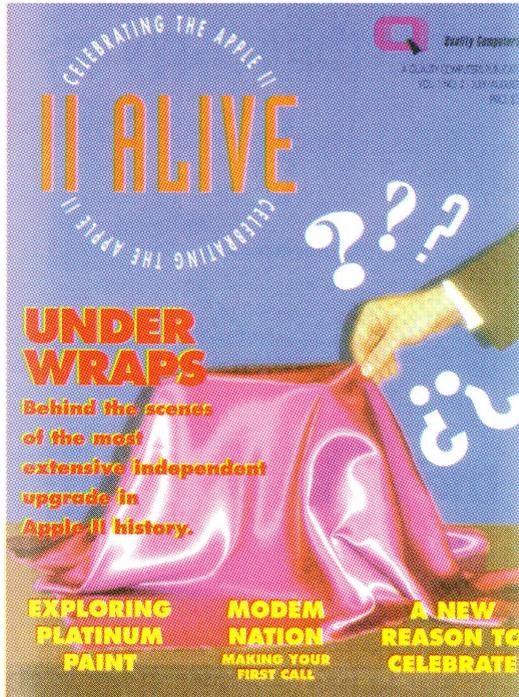
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Interview

(Continued from page 25)

10,000 units to do that.

II ALIVE: There was some talk about you doing a 486 PC emulation card for the IIGs. What happened with that?

HEINEMAN: All of our energy and time went into the Avatar. We could still do the 486 card, if there was a demand—it's a trivial project as far as the hardware. The software is where the main time would need to be spent. The price we were considering was \$500, so if there are people who are willing to spend that amount for a 1 megabyte 486/33—or a 66 for a little more money—expandable to 16 MB, we might be persuaded to build them. You'd also need a SuperVGA monitor for your GS, which would drive up the price. I don't know if people will spend that much to put a PC into their IIGs.

II ALIVE: Tell us about the Focus HardCard. What is it?

HEINEMAN: It's a hard drive on an interface card that plugs into a slot on the IIGs or the Iie. They range in size from 40 to 500 megabytes. Since it's all on one interface card, there are no wires to hook up, nothing else to install. Plus it's an IDE drive, which is the PC standard for hard drives—the volume of IDE drives keeps the cost low. Parsons Technology sells them.

II ALIVE: In closing, people usually assume that anyone who is doing well or seems to be creative or literate has gone to college. But you didn't, did you?

HEINEMAN: Not only did I not go to college, but I didn't actually graduate from high school. The school was bad—gangs, drugs, violence—so I took the California equivalency test and got out of there.

Sometimes a college education can be a negative for someone in programming, especially with games. You have to be able to think creatively, but the way they teach programming in college is more of a "follow this recipe" approach. The student can make the mistake of thinking that what they learned in school is the only solution, and stop thinking on their own. Sometimes we get job applicants at Interplay with a Master's or even just a Bachelor's in computer science, and they can't answer the simplest technical questions. They know how to write a program in C but they don't know how the machine works. One tipoff that someone went to college is when they tell you to buy a faster computer if a program doesn't run fast enough. That attitude just doesn't work in the game industry—the program has to run on a 386 or an unaccelerated Apple IIGs. The original Atari video games and even the original Nintendo weren't exactly speed demons. When you do a game, you have to write good code, and you have to understand and exploit the machine's capabilities to the fullest. Writing games separates those who really understand the art of programming those who don't. ■

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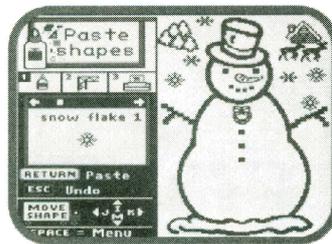
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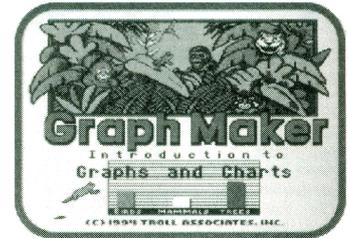


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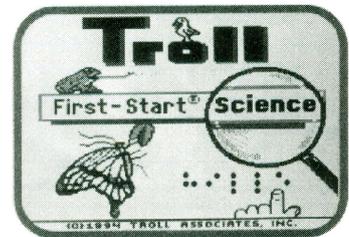
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with powerful TimeOut programs for AppleWorks!



TIMEOUT WRITER'S SUPER PACK

Includes TimeOut Grammar,
TimeOut Thesaurus and
TimeOut SuperFonts

only \$89⁹⁵

TIMEOUT DATA SUPER PACK

Includes TimeOut Graph,
TimeOut ReportWriter and
TimeOut SideSpread

only \$94⁹⁵

TIMEOUT TOOLS SUPER PACK

Includes TimeOut UltraMacros,
TimeOut DeskTools IV and
TimeOut ShrinkIt Plus

only \$89⁹⁵

TIMEOUT GRAMMAR \$49⁹⁵

*Make your writing stronger, clearer
and more concise!*

TimeOut Grammar detects grammatical errors, highlights the offending phrase, explains the error, and suggests a better way to say the same thing. You have the option to accept the suggestion, ignore it, or rewrite the phrase in a different way. It's you're writing, only better!

TIMEOUT DESKTOOLS IV \$29⁹⁵

The essential tools for any AppleWorks user!

Includes Calculator, Scientific Calculator, Print Preview, File Search, Directree (steps through a visual map of pathnames and files), Measurement Converter (great for U.S. to metric conversion and vice versa), Print Manager, Calendar, an updated area code listing and Stop Watches.

TIMEOUT SHRINKIT PLUS \$29⁹⁵

Never complain about disk space again!

If you're like most AppleWorks users, you fight the never-ending battle for more disk space. TimeOut ShrinkIt Plus is a file compression utility that works inside of AppleWorks. Includes ShrinkIt and ShrinkIt GS.

TIMEOUT SUPERFONTS \$49⁹⁵

Add style to your documents!

Add fancy fonts and graphics to your AppleWorks documents. Works with all the same formatting commands you normally use. Also includes a paint program.

TIMEOUT THESAURUS \$32⁹⁵

*Enhance your writing and improve
your vocabulary!*

A powerful, intelligent thesaurus with more than 5,000 root words containing over 45,000 synonyms!

TIMEOUT SIDESPREAD \$32⁹⁵

Never complain about disk space again!

Print your spreadsheet files sideways, and gain an unbroken vista of your spreadsheet data. Prints in two different fonts and a wide range of sizes.

TIMEOUT SUPERFORMS \$42⁹⁵

Design your own forms inside AppleWorks!

SuperForms is a utility that works with SuperFonts and lets you graphically design your own form right on the screen, so you know exactly how it will look when printed.

TIMEOUT ULTRAMACROS 4.3 \$39⁹⁵

Automate your AppleWorks!

A great time-saving device! UltraMacros, allows you to pre-record series of strokes and activate those same strokes with the touch of a key. Save up to a total of 180 macros with over 4,000 total keystrokes.

TIMEOUT REPORTWRITER \$48⁹⁵

Place data and text anywhere you'd like!

Combine information from several files into a print-ready report, or create a new database or spreadsheet.

TIMEOUT GRAPH \$52⁹⁵

Create beautiful graphs quickly and easily!

Organize your spreadsheet and database figures into clear, informative graphs, with titles, subtitles, legends, borders, and more.

TIMEOUT OUTLINER \$42⁹⁵

Organize anything and everything!

Organize information up to six levels deep. Create to-do lists and tests, prepare curriculum or generate lesson plans. Integrates seamlessly with AppleWorks.



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