

# MacUser

THE MACINTOSH RESOURCE

## A MAC OF ANOTHER COLOR?

Why Apple's  
New IIGS  
Is Going to  
Help the Mac

### ACCOUNTING PLUS

Smarter Bookkeeping  
from Insight

### BUDGET NETWORKING

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### ELECTRONIC MAIL

The Mail Always Gets  
There First with inBox

### SIX-PART HARMONY

Studio Session Adds  
More Voices to the Mac

### THE SECRETS OF PASCAL

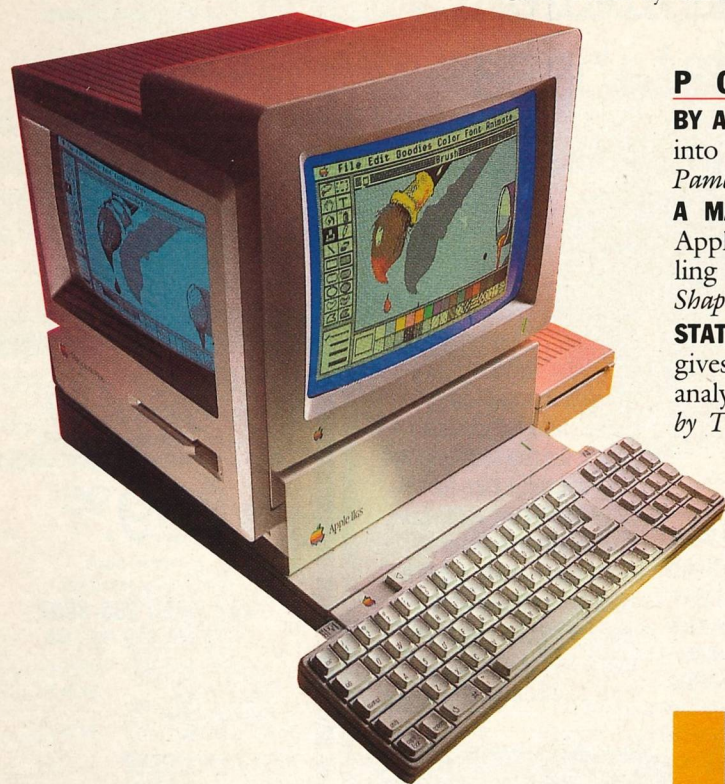
Doug Clapp Spills the Beans





# MacUser

Cover Photo by Chris Stevens



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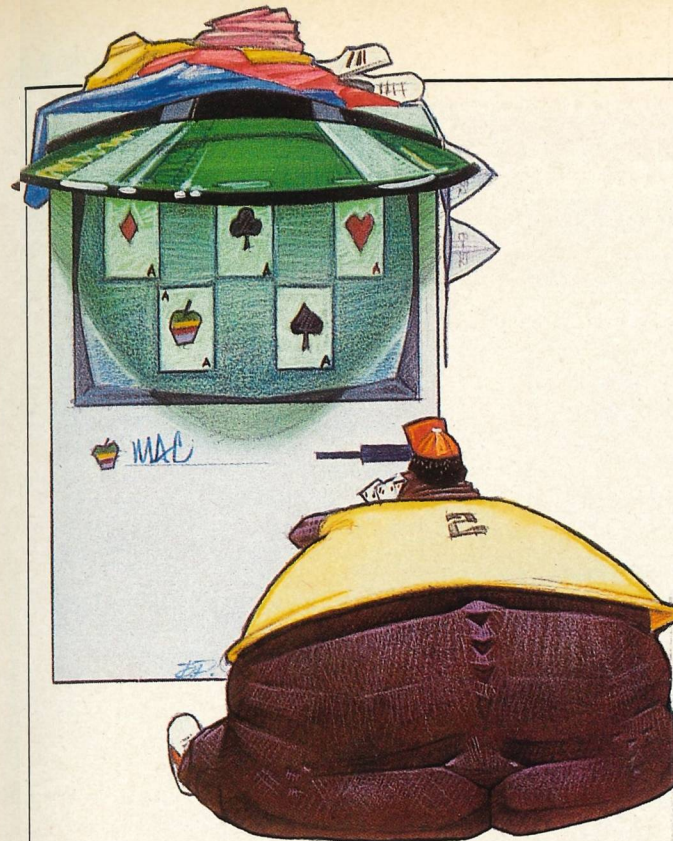
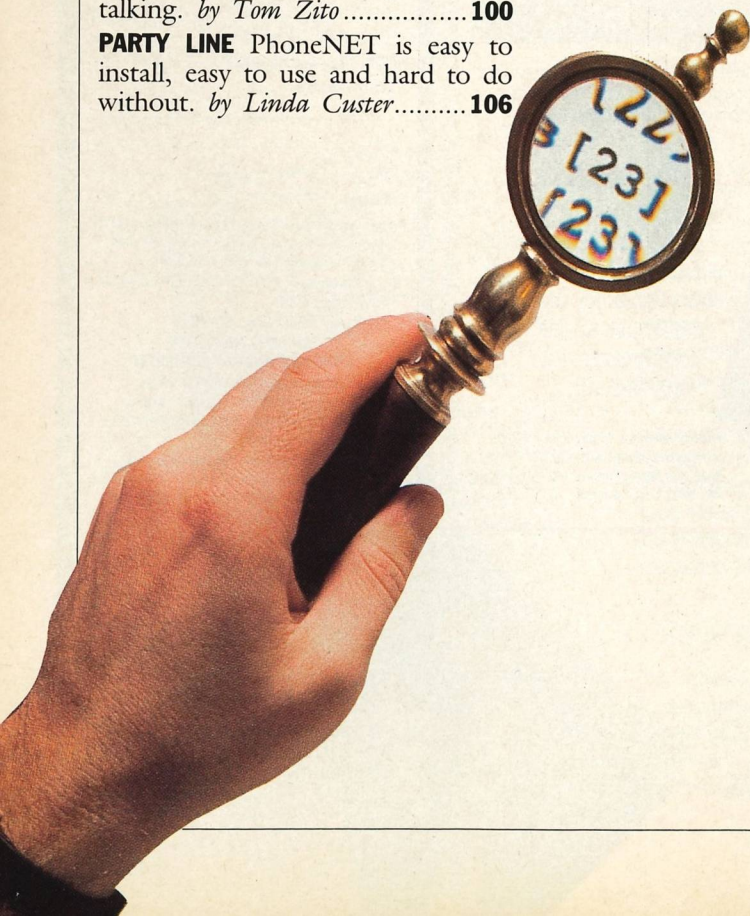
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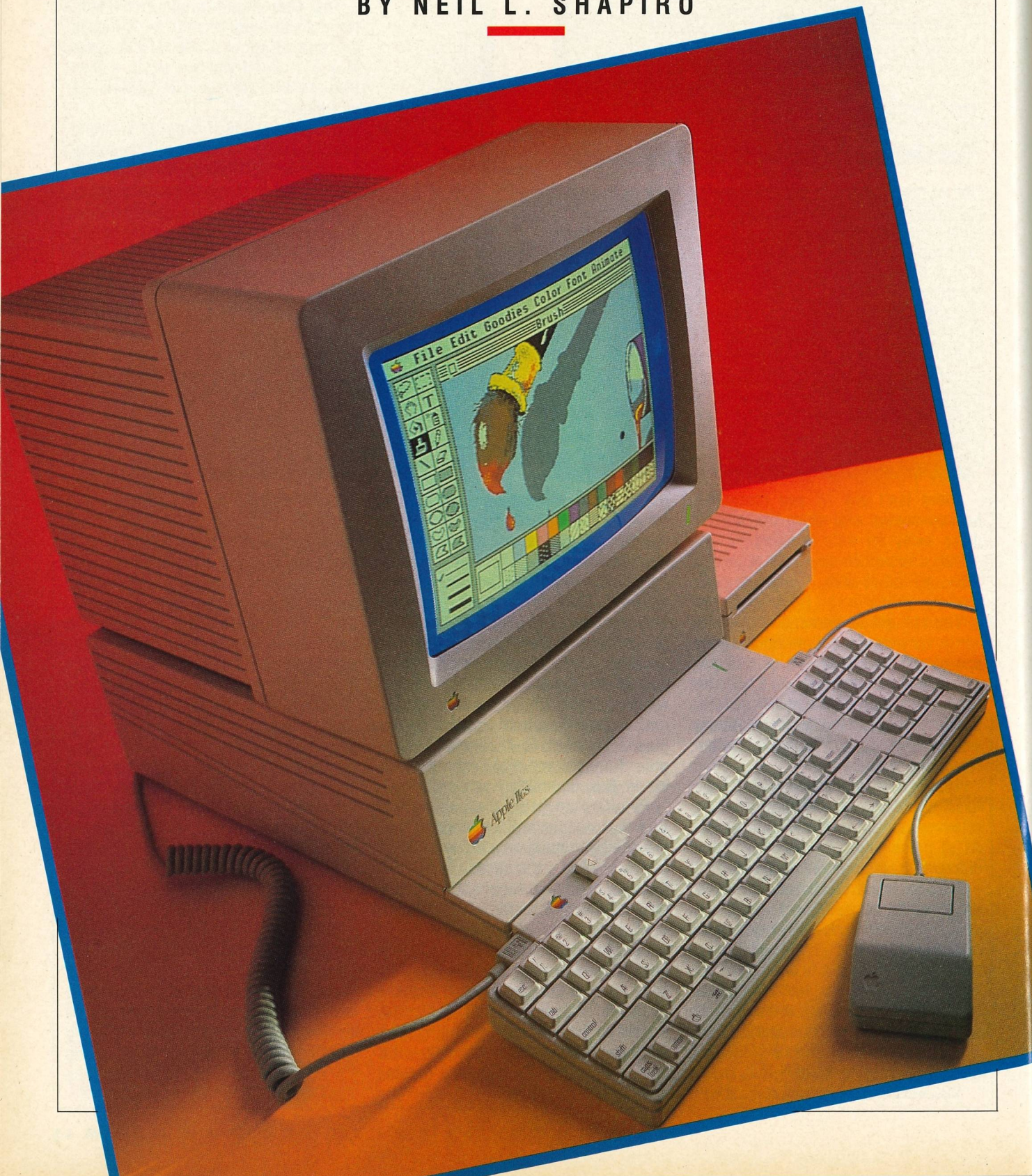
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# A MAC OF ANOTHER COLOR

BY NEIL L. SHAPIRO



## The Apple II GS features color Graphics and Sound. What should we Macintosh owners make of this new machine?

I MOVED A WINDOW AROUND ON-screen, resized it, played a bit with the scroll bars and then moused up to the menu bar. I clicked on the Color menu and pulled it down. Displayed were 16 different colors, each one a solid bar of color right across the menu space — looking for all the world like those bright chiclets of color pigments in a child's watercolor set. As I moved the mouse, each of the colors highlighted one after the other. All I would have to do was to choose and the resulting graphic demo would be displayed in the color of my choice.

It was beautiful, it was color, it was real, it was an Apple computer. But it wasn't a Macintosh.

### ANOTHER PART OF THE ORCHARD

I was using Apple's newest computer, the Apple II GS. This latest addition to the Apple II family of computers features a 16-bit processor, color graphics, and the capability for a Mac-like interface style of programming and program design. Does this mean that Apple now has somehow decided to do what very few other computer companies would care or dare to do — compete with the Apple Macintosh? Does the right hand at Apple know what the left hand is marketing?

As it turns out, the Apple II GS complements the Macintosh product line rather than competing with it. And, the design and product placement of this new computer proves once and for all that both right and left hands at Apple are now working together in perfect harmony.

But before we start explaining what the new machine means for all of us who own Macintoshes, and what it implies about the new Apple Inc.'s corporate workings, let's take a quick look at the interior and some of the technical specifications of this colorful new Apple blossom.

First thing to note about the new

Apple II GS is that it looks neither like a Macintosh nor like one of the older Apple IIs. It has its own, unique design and "look."

The system unit, which contains the motherboard and the power supply, is a boxy-looking enclosure. It has a small footprint, thanks to the fact that the power supply "floats" over the left side of the board. The detached keyboard looks very similar to the keyboard on the Mac Plus and features 80 keys including cursor direction keys and a numeric keypad. The monitor is styled to match the system unit. The computer will accept either a 3.5-inch 800K drive (which looks like the drive on the IIc rather than the one on the Mac) or one of the older 5.25-inch Apple II drives.

There are a number of built-in ports on the system unit itself. There are two serial ports, each of which may be configured for various serial devices such as modems and printers.

There is a disk port from which the 3.5-inch drives may daisychain. There are also two video outputs: a composite video output and an RGB output. (This is an analog RGB output, not the digital variety of RGB.)

All the units are in a new color that Apple calls "platinum" but which my mother taught me to call "light gray." But by any name it is a handsome, high-tech color.

When you swing up the top of the system unit and look at the motherboard you see seven I/O slots, much like in the Apple IIe. These slots will accept the various peripheral cards now made for the Apple line by both Apple and many other manufacturers.

This is the first hint of the amazing compatibility features Apple built into the machine. The Apple II GS will accept almost every card ever made for an Apple II computer.

It will also run almost all of the software that the Apple IIe can utilize.

A good portion of this is due to Apple's choice of CPU for the Apple II GS — a Western Digital 65SC816. This is a 16-bit microprocessor with a 24-bit address path. The CPU also features two clock speeds and complete 6502 emulation.

The 6502 is the older 8-bit CPU that Apple IIc's and IIe's are based upon. So, when you use the II GS to run Apple IIe software the 16-bit CPU gives itself somewhat of a cybernetic lobotomy and turns into, for all intents and purposes, an 8-bit 6502 machine. And it also slows down from its normal 2.8 MHz speed to the older 1 MHz speed.

Also on the motherboard are nine new LSI (Large Scale Integration) chips that Apple designed especially for the II GS and which govern the various features of the computer. While their complete description is beyond the scope of this article, suffice it to say that the chip count in the II GS is surprisingly small given its power and capabilities.

Present are game/joystick connectors, headphone jack, sound in and out, and the keyboard and mouse connectors (part of the new Apple Desktop Bus standards). There's also a built-in clock feature.

Before we lower the hood and look at the screen display we do need to examine one chip in depth. It's called the DOC chip which stands for "Digital Oscillator Chip." It's the one with the name "Ensoniq" emblazoned on top. The Ensoniq Corporation is very famous in the world of music for its digital synthesizing devices and equipment. This particular chip contains 32 oscillators for up to 15 voices. It also has "sampling" ability so that a circuit could be offered to record sounds or voices to be played back and modified by the chip's ability to work on waveforms. It's the DOC that puts the S in the GS's Graphic and Sound abilities. Now, how about those graphics?

### GRAPHICS AND TEXT

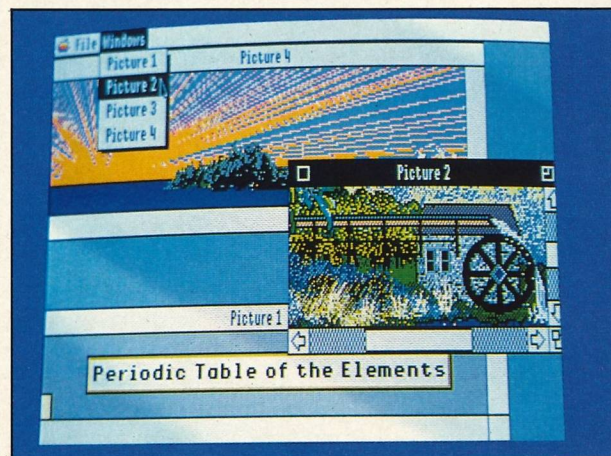
The Apple II GS has seven video modes. There are two text modes (40 and 80 column) which, under



# A MAC OF ANOTHER COLOR



**Color!** The Apple IIGS' Super-Res graphics modes offers a choice of 4,096 colors. In the 640 Super-Res mode (shown here) there may be up to 4 separate colors on every scan line so hundreds of colors may be shown on screen.



The Apple IIGS shares many of the same ROM routines as in the Macintosh. This enables easy programming of such things as windows, pulldown menus and many other Macintosh interface techniques.



The Super-Res graphics mode should prove very popular and there will be many ways to take advantage of its capabilities to draw artwork as shown here. One of the first programs to be released for the IIGS is planned to be a MacPaint-style program with full color support.

analog RGB video, can be quite colorful. The text screen is divided into three areas: text, text background and border. Each of the three may be displayed in any of 16 colors on an analog RGB monitor. (Composite video results in shades of gray scale.)

The Apple IIGS shares all of the three graphic modes possible in earlier Apple IIs. Lo-Res (40 X 40, 16

colors), High-Res (260 X 192, 6 colors) and Double-Res (560 X 192, 16 colors) are all fully supported.

To this the Apple IIGS adds Super-Res which, itself, is available in two "flavors." The 320 Super-Res graphics (320 X 200) may access 4096 colors with up to 16 of those colors appearing on each scan line. The 640 Super-Res graphics (640 X 200) may also access from a choice

of 4096 colors but with only 4 colors appearing on each scan line. This means that up to 256 colors may be on-screen at one time. The 256 on-screen colors may be displayed at the pixel level next to each other so that, like on the Sunday comics page, the eye can visually mix these colors to obtain even more possibilities, at the expense of some resolution. (This process is called "dithering.")

The 640 Super-Res graphics are the most important from the standpoint of bringing the Macintosh interface to the Apple II line, but more on that below.

## DOING IT LIKE THE MAC

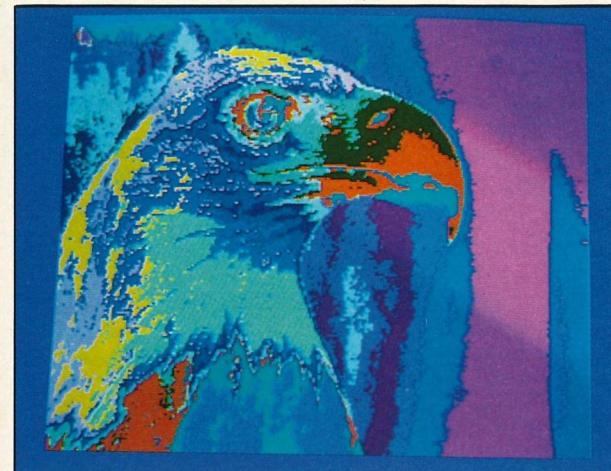
If you are a Macintosh developer you are probably familiar with *Inside Macintosh*, a vastly large publication which lists all of the Mac's various ROM calls, tells how they can be utilized, and which explains the user interface techniques that should be standard to every program. People who were developing programs for the Apple IIGS back when it was code-named the "Cortland" already have 11 huge, loose-leaf binders crammed with information. This *Inside Cortland* information will shortly be released to all (and probably retitled to *Inside the IIGS*).

As it turns out, *Inside Macintosh* and *Inside Cortland* are very, very similar in many areas. This is because many of the Mac's built-in ROM routines were also built into the Apple IIGS.

Just like in the Mac, there is a Toolbox inside the Apple IIGS. Many of the Tools will arouse feelings of *deja vu* in anyone who knows the Mac. While in the Mac all of the Tools are in ROM, presently some of the Apple IIGS' Tools load into RAM but they work the same way.

The Memory Manager Tool, as in the Mac, allocates memory and "handles" memory requirements. All programs, desk accessories and the operating system depend on the Memory Manager to find the memory they need when they need it. Programmers, as on the Mac, will have to learn about things like handles and pointers to use this Tool properly.

QuickDraw II is very similar to



One of the more glorious of Apple's demo programs for the Apple IIGS was written by Apple programmer Eagle I. Berns. I wonder why he chose this noble bird to color?

the Mac's own QuickDraw routines. Just as on the Mac there are ROM calls to quickly do such things as draw lines, polygons and circles, fill areas and do dozens and dozens of such graphical feats. And, of course, the Apple IIGS' color routines are completely supported.

The Window Manager is present. This allows the programmer to simply call existing routines to make on-screen windowing relatively simple to achieve. Likewise, the Dialog Manager helps in creation of dialog boxes and the Control Manager will allow the programmer to instantly create such things as buttons and check boxes, scroll bars and other mouse-activated controls.

The Apple IIGS also calls for "event-driven" programming just as does the Macintosh. This is not like programming an IBM computer where the user can only do certain things at certain times of the program. Rather, there are events such as mousing to a menu which the user can do anytime during the program. So the program must be written so as to watch for these events and to respond to them whenever the user triggers such an event. Of all the concepts involved in learning how to program the Mac, and now the IIGS, this one will give the most programmers from older backgrounds the most problems in comprehension. Until a programmer truly understands that the user is in charge of the program it will be difficult to master the technique. Obviously, when mastered, the rewards are great.

Development languages and techniques for the Apple IIGS are still firming up. While they are much more advanced than were comparable techniques for the Mac at the time of that introduction (Apple is learning!) they are still not complete.

CPW (Cortland Programmers' Workshop) so far has a prerelease C compiler and the Pascal is rumored to be coming along and might be available by the time you read this. There is a 65816 assembler based on the *Orca/M* program.

It seems certain that other, more consumer-oriented high-level languages will also soon be available. We have heard unsubstantiated rumors (isn't this fun?) of everything from icon-oriented, building-block programming to compiled BASICS with full Toolbox access.

## IS THE MAC STILL THE MAX?

At first glance it almost appears that the Apple IIGS and the Macintosh are in competition. After all, the IIGS features many Mac-like capabilities. As we've seen above, it even features many of Mac's own built-in routines. And it has color.

But it is not competition. Rather, it is a melding of product lines, a coming together — a focusing — of corporate and technological vision.

While the Mac interface on the Apple IIGS makes that machine a much nicer choice to use and to program on than many other new computers, it is not up to the Mac in terms of power, speed and overall usability.

For example, the Mac interface on

the Apple IIGS requires use of the machine's 640 Super-Res graphics. When in that mode everything, from text to dialog boxes to graphic output, is drawn to the screen; just as text is now considered to be drawn to the Mac screen. On the Apple IIGS we may soon see such things as dialog boxes with colored buttons (*Don't* press the red one!) as well as mixing fonts with graphics featuring hundreds of colors.

But compared to the Mac's bit-mapped screen, the 640 Super-Res text cannot appear as crisp, as clear, as defined and as readable as can text on the Macintosh. Keep in mind that the original reason that the Macintosh was designed as a black-and-white computer is just as valid today as it was then. The resolution of a black-and-white screen can be made much higher than on a color screen given the same money to spend on monitors.

Then there are the speeds of the II machines. The older Apple II plodded along at a pace of 1 MHz clock rate. The new Apple IIGS goes at 2.8 MHz (actually 2.5 MHz after some system requirements are met). This is quick, but it isn't speedy.

If you are interested in desktop publishing, spreadsheets, word processing — the Macintosh will still be the top of any line. While the Apple IIGS will be able to do all of these things, and may even do them with a mouse and Mac interface, on the Mac the display should prove to be better and the speed much faster.

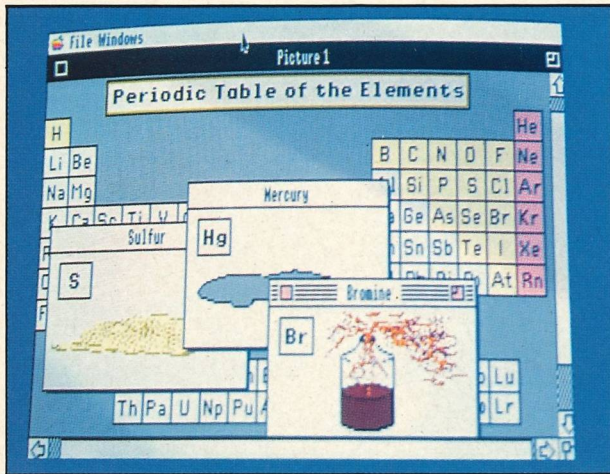
*So, for business, the Macintosh is still the world's premier microcomputer system.*

There will, however, be some areas that — in the short run — may be "taken over" by the IIGS. The most obvious area is education. Right now the Apple II is a standard machine in many schools; but schools have been wondering when Apple would upgrade to a more powerful, but still affordable machine.

The Apple IIGS will fit right in with most school curriculums thanks to its Apple IIe compatibility. And, thanks to its new graphic and sound abilities, upcoming programs for education should be very exciting.



# A MAC OF ANOTHER COLOR



Windows opening over windows, layer upon layer of information: The Apple IIGS' screen can get just as chockful as a Mac's! Of course, as always, it will be up to the user to make the most of the power.

It will also not hurt that Apple has announced a \$499 upgrade from the IIe to the IIGS (beginning in January of 1987). Many schools will likely take advantage of this offer.

Beyond schools, many at-home uses would be enhanced by the addition of color even though there is a loss of text resolution and processing speed compared to the Macintosh. Even some small businesses might want to opt for the IIGS.

But the real question we should be asking ourselves is not what are the relative positions of the machines today. It is, rather, what are the consequences of this introduction for the coming months, even the coming years?

## DO GetFuture

Back in 1984 and 1985 there appeared to be two Apple Computer Inc.'s existing under one corporate roof. The Macintosh division and the Apple II division were separate all along the line. Different people designed the computers, different teams supported them, different departments marketed and funded them.

It was no secret that the Macintosh was then-CEO Steve Jobs' special baby. Apple seemed to be lavishing attention on Mac development while neglecting the Apple II. While, from our standpoint as owners of the Macintosh computer, that hardly seems a terrible thing to do — think about it for a moment like an Apple stockholder.

The Apple II was, and still is, accounting for a very big percentage

of Apple's sales and their market share in personal computing. No matter how powerful the Macintosh was (and is) they could not afford to lose that segment of the market. But the Apple II was clearly becoming antiquated.

So, through a series of boardroom maneuvers such as are often chronicled on soap opera TV programs, Steve Jobs was moved from the CEO position and John Sculley stepped in to take over the reins. (Jobs would later leave the company he had founded along with Steve Wozniak.)

One of Sculley's first moves was to totally and clearly revamp the double-headed Apple Corporation into one lean, corporate machine with one obvious goal — to design and market all Apple-branded computer systems. At this point development on the Apple IIGS began in true earnest.

Now that the Apple IIGS has been released it is clear that Apple Computer should be able to hold onto, and even expand, their complete market share of the personal computing field.

Beyond that, the way the two machines complement each other is truly an interesting topic. Keep in mind the similarities in the Toolbox calls and programmability.

Right now the education market in Mac software is, frankly, pretty sparse. I expect that as the Apple IIGS generates interest among programmers we will first see an explosion there of educational programs featuring such things as pull-down

menus, mouseability and other Mac interface characteristics. Following that, I would expect to see many of these programs "ported" over to the Mac.

The net effect of the Apple IIGS assault on the educational market, from the Mac standpoint will be an increase in the Mac's own educational potential.

From the Apple IIGS standpoint, the present wealth of Macintosh software should offer a fantastic starting point. Many Mac programs will be able to be ported over to the Apple IIGS with only minimal effort. Thus, we should see the Apple IIGS having more software near to its introduction than any other new computer system has ever enjoyed.

I think that we will see more and more software houses devoting themselves to both the Mac and to the Apple IIGS. While individual parts of each program may be best on one machine or another, we will see the general overall quality of the software for both machines improve.

The realm of hardware compatibility even between the two machines will also be very important. For example, with the addition of an inexpensive interface card, the Apple IIGS is able to use Apple's new SCSI hard disk drive. Other manufacturers are reportedly planning to design drives that will be able to network with both Apple IIGS's and with Macs, or even direct connect to both at once. Monitors, printers and many other devices will be compatible between the two machines.

If the law of supply and demand holds true, I think we can expect to see many peripherals for the Macintosh becoming cheaper thanks to the widening marketplace for those peripherals. The most thankful of all toward the Apple IIGS may prove to be a Macintosh user's wallet.

The Apple IIGS is a fine addition to Apple's line of computer products. It may also prove to be an unexpected, but welcome, impetus to further Macintosh-specific developments. ☐

NEIL L. SHAPIRO IS EDITOR-AT-LARGE FOR MACUSER AND CHIEF SYSOP OF MAUG.



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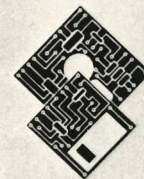
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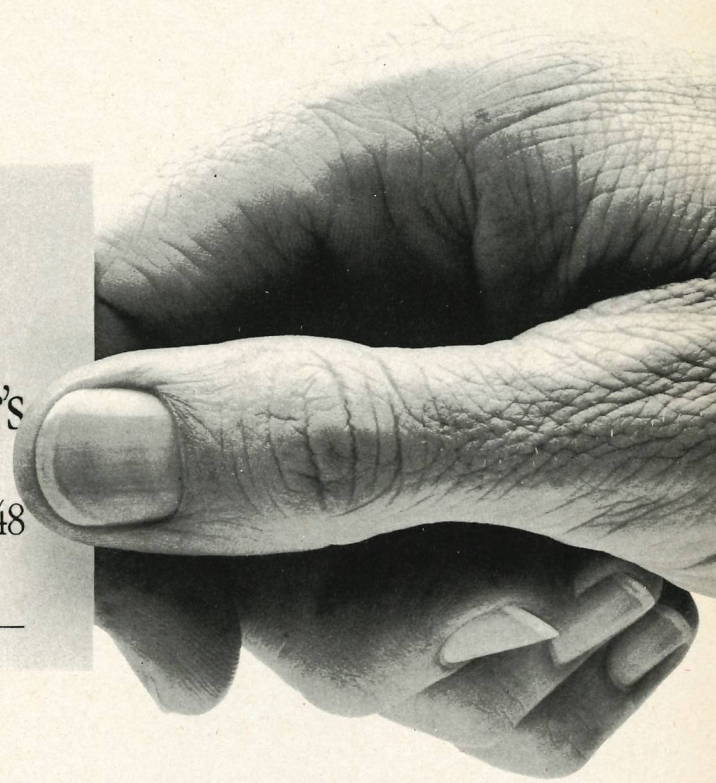
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by Neil L. Shapiro

## HOW'S YOUR DEALER?

I've been an Apple customer ever since the original Apple II made its debut. I fell in love with that computer, then with the Mac. So, for almost the past ten years, I've had much experience in using Apple products. All in all, I've been pretty happy — with one great exception.

A few days ago I angrily walked out of an Apple dealership, as I have done many times before. This time I have come to a conclusion: I will never return to an Apple dealer to buy anything that I can just as easily mail-order, unless Apple changes many of the policies and procedures associated with their dealer network.

Before I begin listing some of the changes that I suggest, I'd like to say that the dealer problem is not solely Apple's. Many other computers have just as poor and unresponsive a dealer network. But we're talking about Apple here. Apple makes the best micros, and their dealer network should reflect this.

I'd also like to say that this editorial should not be taken as reflecting against all dealers. I have heard, and believe, that there are dealers who make their customers very happy. I feel envious of their customers. So far, in ten years, I have not personally met such a dealer.

### BUYING AT LIST

The latest dealer whose store that I stalked out of was one who I've dealt with for the past year. In that year's time I have spent at least \$200 a month in his store buying everything from software to peripherals.

That day, I needed a fan. Now, the fan I wanted listed at about \$100. The dealer offered to sell it to me at exactly the list price. I thought, seeing as I could get it mail-order for about \$65, it should be somewhat less. So, we settled on \$85.

While I was there I picked out some blank disks, two programs, paper and enough other goodies to bring the total bill to well over \$250. The dealer refused to take a charge card because he had "given me a deal" on the fan.

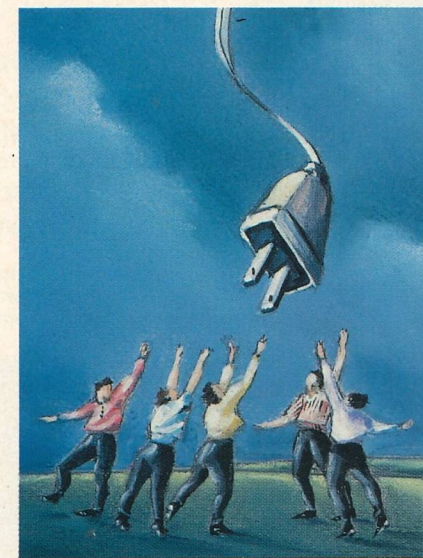
So, I left him looking at the pile of unsold goods on his counter, went home and telephoned the Mac Connection

people; spent my \$65 (on a charge card) and had the fan in two days.

*Why is it that Apple dealers seem to feel that they have an inalienable right to sell all merchandise at list price?*

Later today I plan on buying a new stereo receiver. I want one that is at least 100 watts per channel and I will visit the four audio stores near to me. Each of them will treat me like a king, taking me into huge demo rooms, and will price cut their eyeballs out to get my six hundred or so dollars.

The typical computer dealer will tell you that they simply can't compete with the mail-order places because they do not sell the goods in quantity.



### PROTECTIONISM

But the real reason for dealers not going below list price on any item is because they don't have to on the big ticket items. And that's because Apple will not allow people like the Mac Connection, Programs Plus and many other reputable mail-order houses to sell Apple-brand computers.

When Apple first squashed the mail-order computer market it made some sense for that time in history. Apple felt that a local dealer was needed in order to support the typical new customer.

But many of today's Apple computers are the next best thing to appliances to set up and get running. Did you need a dealer to tell you how to hook up your Macintosh? I doubt it.

Well, how about if something goes wrong?

All I can say is that if something goes wrong with your computer approach the resulting call on a dealer in the same way that you would board a New York City IRT subway at 2 AM. For you folks west

of the Hudson River, that means to be exceedingly careful and to be sure that your insurance is paid up.

Here's the kind of support that I have received from dealers in the past few years:

One dealer attempted to charge me \$120 in labor for running a RAM test because it took 3 hours. (Of course, it was just the machine doing the work; you start the test, go away and come back at least 3 hours later to check the results on the screen.) I explained to him I knew how to run a RAM test myself and that I also knew where the Department of Consumer Affairs was located. Scratch one dealer.

Another dealer replaced a pad in my Apple II disk drive and did an alignment procedure. Total cost of that was \$196. Screaming and threatening finally resulted in the old parts being replaced, the drive being unaligned again, and my paying only \$30 for an "estimate." Left that dealer too.

Yet another dealer once told me that my new Mac Plus should be opened up and cleaned every 6 months because of the way dirt "sticks" in the vents. If I had been stupid enough to take him up on that then every year he would have received \$100 from me and I at least would have had a clean Mac. Left that dealer too.

Then there was the time I had with the new modem cable. I had just purchased an Apple modem secondhand from a friend. It came without a cable. So, I went to one dealer who said that they didn't have it in stock. By the sixth dealer I was smelling a rat. Sure enough, the dealer inadvertently revealed that he didn't have cables to sell *separately* in stock. It turned out that if I did not buy my modem from him I was not entitled to purchase a cable. He simply refused to sell me a cable as he had six modems and six cables (packaged separately, each with its own parts number and each listed as a separate retail item).

I realized that all six dealers had probably lied to me. This time I knew I was in the right. I called Apple's New York City office.

I wound up speaking to a person who seemed to be paid to defend the dealer rather than to help the consumer.

This is the kind of dealer support that I have been able to personally find in the New York City—Long Island area. There may, in fact, be one or more decent and honest dealerships somewhere in this region. I only hope that I will someday find them.

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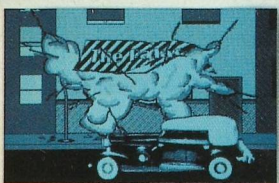
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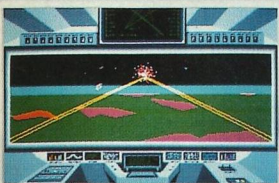
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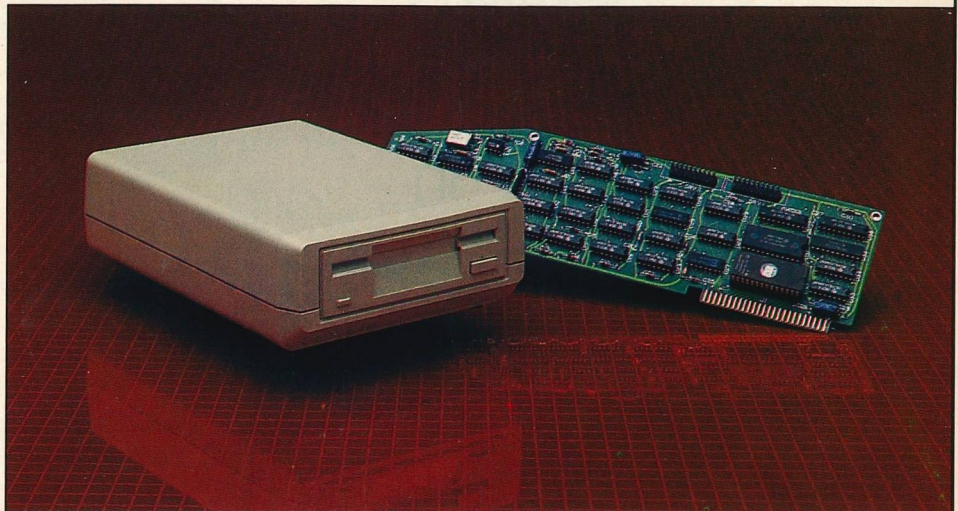
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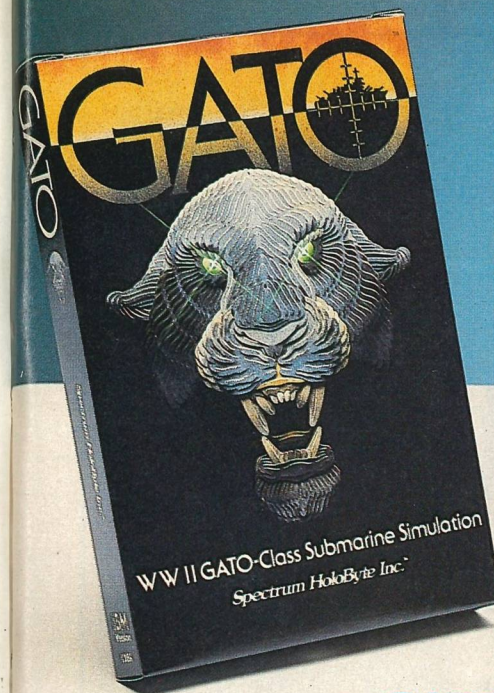
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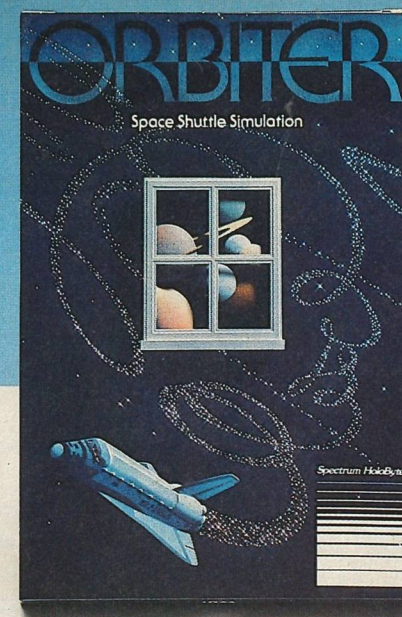
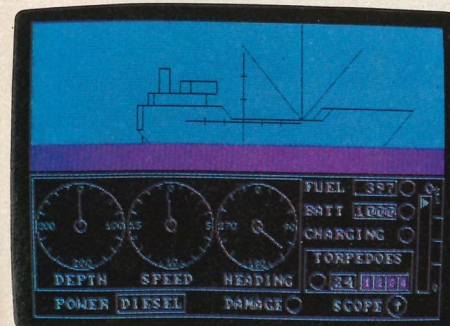
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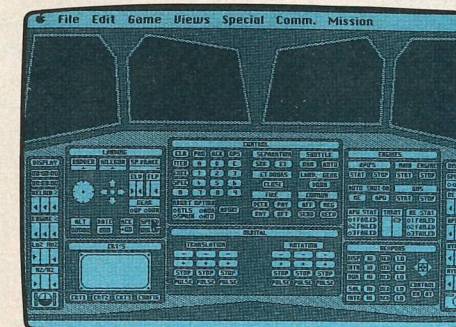
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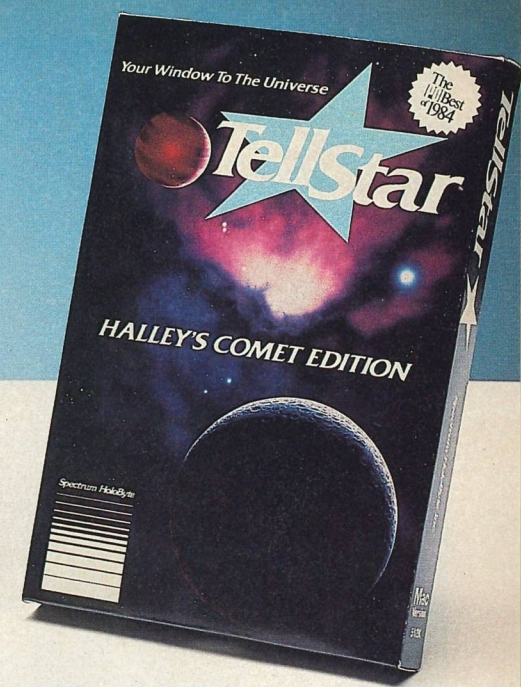


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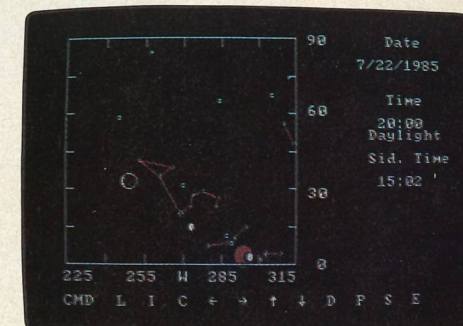
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