Bob LeVitus
Michael Fraase

Mac
Culture
from the
Inside

# Guide to the
# Macintosh®
# Underground
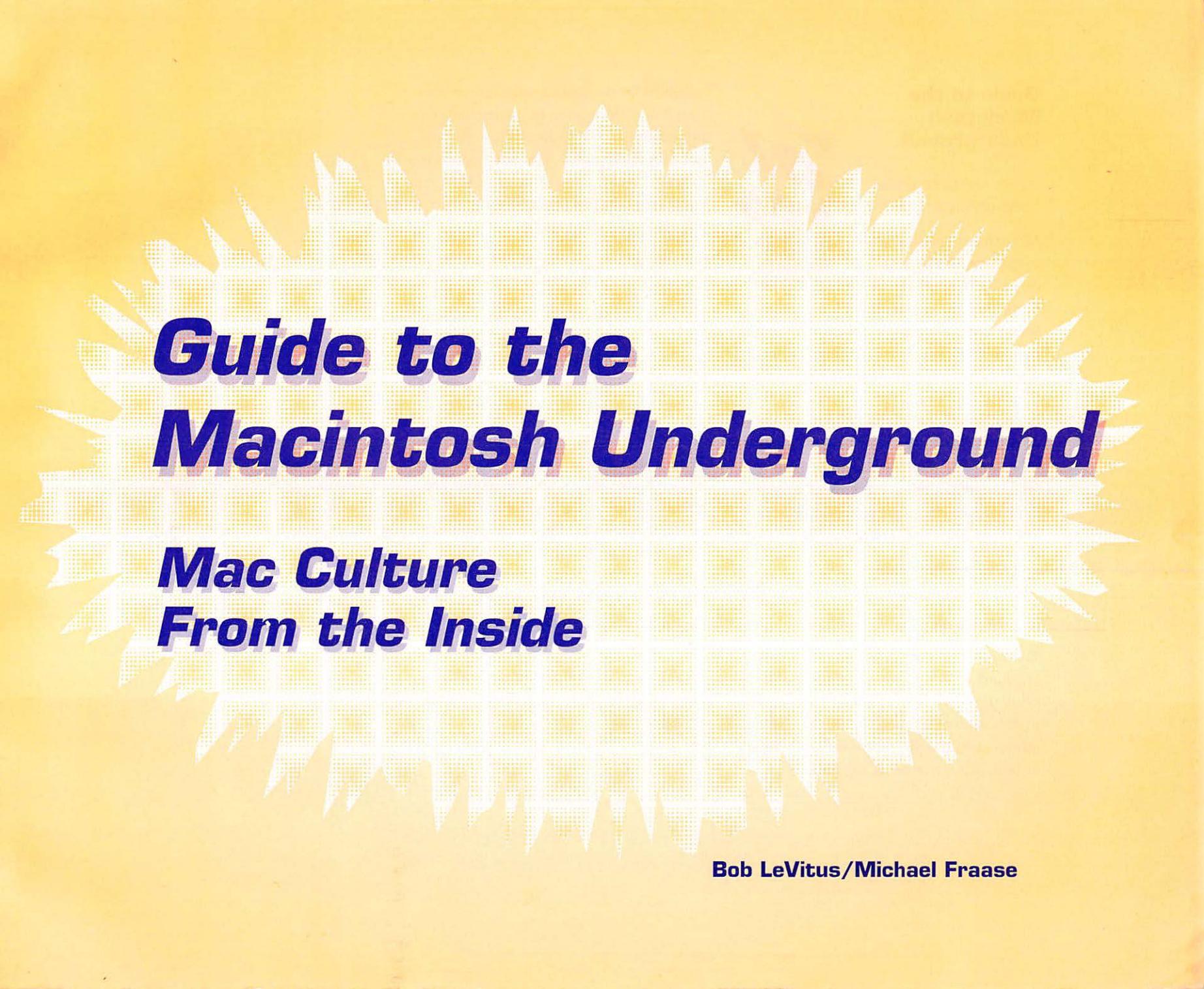
# Guide to the Macintosh Underground

## Mac Culture From the Inside

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**Hayden Books**

## About the Authors

Bob LeVitus was the editor-in-chief of the popular monthly periodical *MACazine* until its untimely demise in 1988. Since 1989, he has been a contributing editor/columnist for *MacUser* magazine, writing the Help Folder, Beating the System, and Personal Best columns at various times over the years. In his spare time, LeVitus has written 9 best-selling computer books, including *Dr. Macintosh, Second Edition*, a users guide called "How to Become a Macintosh Power User," *Stupid Mac Tricks*, *Marvelous Macintosh Games*, and the recently released *Dr. Macintosh's Guide to the On-line Universe* (with Andy Ihnatko), a hip guide to using a Mac and modem.

Michael Fraase is the proprietor of Arts & Farces, a multifaceted communications and professional services business specializing in hypermedia production, technical writing, desktop/electronic publishing, general Macintosh consulting, and software interface design.

Fraase is the author of numerous books, including the three-volume *Macintosh Hypermedia* series, *Farallon's MediaTracks*, *Groupware for the Macintosh*, *Structured Publishing From the Desktop: Frame Technology's FrameMaker*, the 15-volume *Rapid Reference Series*, and the *Mac Internet Tour Guide*.

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## Acknowledgments

## To Our Readers

Dear Friend,

I want to thank you on behalf of everyone at Hayden Books for choosing *Guide to the Macintosh Underground* to give you some unique perspectives of the Macintosh world. We hope you learn some interesting things about the world's best computer and that you have fun with this book. We have carefully crafted this book to make it as entertaining as possible.

What our readers think of our books is important to our ability to better serve you in the future. If you have any comments, no matter how great or small, we'd appreciate you taking the time to send us a note. Of course, great book ideas are always welcomed.

Sincerely yours,

*David Rogelberg*

David Rogelberg

Publisher, Hayden Books and Adobe Press

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## Macintosh Paradigm Shift

A paradigm shift occurs when, suddenly, a new perspective is gained on an old problem. A solution to a problem unexpectedly, almost painfully, becomes obvious just because someone had the audacity to look at the problem from a different angle.

Apple Computer has been a participant in the only two personal computer paradigm shifts to date: first, the introduction and subsequent success of the Apple II; and second, the Macintosh. Both of these products acted as catalysts to drastically change our perception of the computer; there were personal computers before the Apple II, and there were predecessors (and successors) to Macintosh, but none of these provoked a true paradigm shift.

Paradigm shifts, of course, are not very comfortable. Ask anyone who bought one of the original Macintoshes. But, as Alain Rossman (Apple, Radius, C-Cube, and more) is fond of saying,

"When it comes to paradigms, shifts happen."
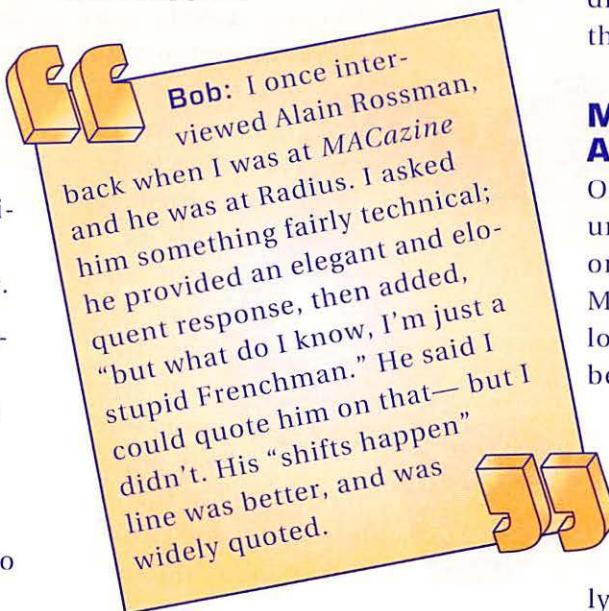
**Bob:** I once interviewed Alain Rossman, back when I was at *MACazine* and he was at Radius. I asked him something fairly technical; he provided an elegant and eloquent response, then added, "but what do I know, I'm just a stupid Frenchman." He said I could quote him on that— but I didn't. His "shifts happen" line was better, and was widely quoted.

Macintosh changed forever the way we think of computers. Never before had a machine seemed so inviting, so intimate, so nonthreatening, and so much fun. Many Macintosh owners developed relationships with their computers that could only be called symbiotic. We dressed our Macintoshes up with fancy paint jobs, began referring to them by name (or at least by the generic "Mac"), and, according to many studies, began to spend an inordinate amount of time with them.

## Macintosh, A Bicycle By Any Other Name?

One of the earliest Macintosh urban legends is that Steve Jobs originally wanted to call the Macintosh "Bicycle." Let's take a look at that for a minute. It's been pointed out that in terms of translating energy into transportation, there is nothing— neither animal nor machine—that is superior to a human on a bicycle (barely edging out, ironically, the lemming).

Compare the Macintosh to the bicycle. (We won't name any lemmings; it's too early in the book). Efficient. Sleek. Appropriate. If the Macintosh is a bicycle for the mind, then Mac software can be seen as the pedals—also elegant, efficient, and appropriate. They're still working on sleek.

## Are You an Outlaw?

This book is for Macintosh fanatics, Macintosh infonauts, and Macintosh outlaws. If you use a Macintosh as simply a replacement for a typewriter and adding machine, this book isn't for you. If you have a Macintosh with a simple gray desktop or a standard system beep, this book isn't for you. If you understand that the Macintosh is an information tool and that we're all infonauts, this book *is* for you. If you look for a File menu with Open... and Save... commands while you're dreaming, this book is for you, too. Finally, if you're looking for a book that explains how to accomplish tasks—click here to make this happen—this book isn't it. (Buy our other books for that.)

This is it—the slightly twisted collection of essays about the Macintosh experience you've been waiting for. This is a book by two Macintosh outlaw fanatics written for other Macintosh outlaw fanatics. This is a Macintosh book that we wanted to read, but there wasn't one, so we had to write it. As Macintosh celebrates its tenth birthday, this book is our tribute, our way of paying homage to the people, events, and products that made the first ten years insanely great. Take it with however many grains of salt you like.
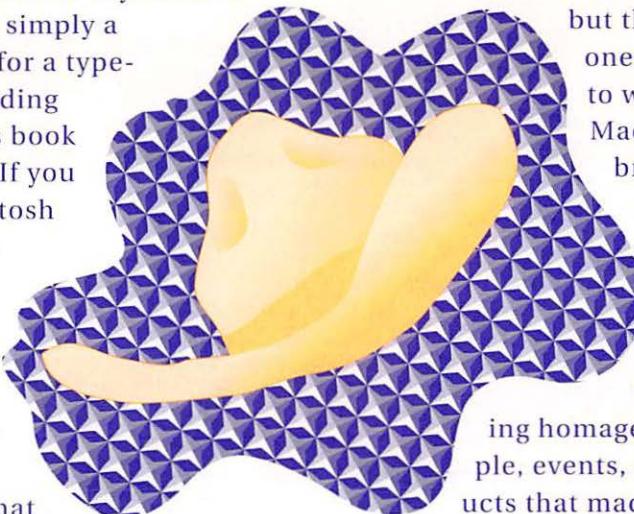
The Macintosh is a seed. This book is proof that Ken Kesey was right when he said that you can count how many seeds there are in the apple, but not how many apples there are in the seed.

# Contents at a Glance

# Early History:

## Steve and the Amazing Multi-Color Reality-Distortion Field

The Birth of the Macintosh (we capitalize it as you would any such blessed event) has been documented in magazines, newspapers, and books since time immemorial. Well, at least since the early 1980s. And though you've heard the story a million times, you've never heard our version, a delightful little ditty we call "Steve and the Amazing Multi-Color Reality-Distortion Field."

### In the Beginning...

The Xerox Palo Alto Research Center (PARC) Alto was one of the first computers designed that could be used by a single person. It had *64K* of RAM—that much memory cost about $7,000 in 1974—and a mouse.

The Alto also boasted a high-resolution screen with 500,000 individual pixels (the first Mac and all those with a 9-inch screen had a mere 175,104 pixels). The software that made the Alto run was written by a team headed by future Apple Fellow Alan Kay.
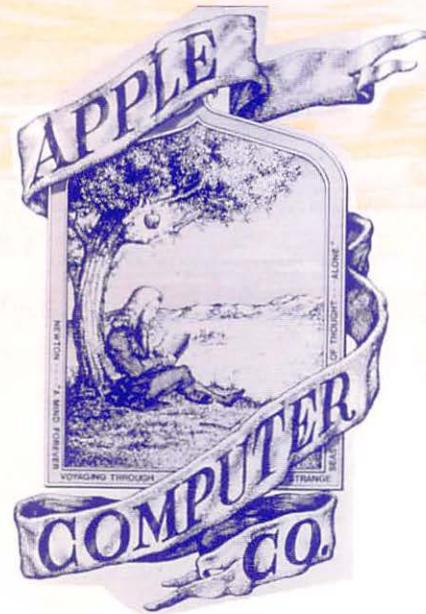
In 1964, Gordon Moore, one of the founders of Fairchild Semiconductor and later one of the founders of Intel, predicted that computer chips would get 30 percent cheaper each year for as far into the future as anyone could see. This theory became known as Moore's law and has so far turned out to be remarkably accurate.

The second part of Moore's law states that the number of transistors that can be built on a piece of silicon will double every 18 months. This part of Moore's law holds true today as well.

◀ The first Apple logo (Courtesy Apple Computer, Inc.)

Kay's take on Moore's law was that eventually all the parts of a computer would fit on the back of a flat-panel display screen. Kay's dream was to create a notebook-size computer powerful enough to hold encyclopedias of information and easy enough to be used by a child. This vision was the famous Dynabook. We will see one eventually. Probably even a Mac Dynabook. (It presumably won't be called that since one of the Japanese DOS-clone laptop makers has already used the Dynabook name for an altogether ordinary and pedestrian computer.)

Meanwhile, the Alto team had created a display screen that used a simplified visual metaphor to represent what was going on in the computer. The screen was "bit-mapped," meaning that every one of its 500,000 pixels could be turned on or off independently. Instead of displaying only text characters on the screen, the Alto could represent both text and graphics simply by turning on or
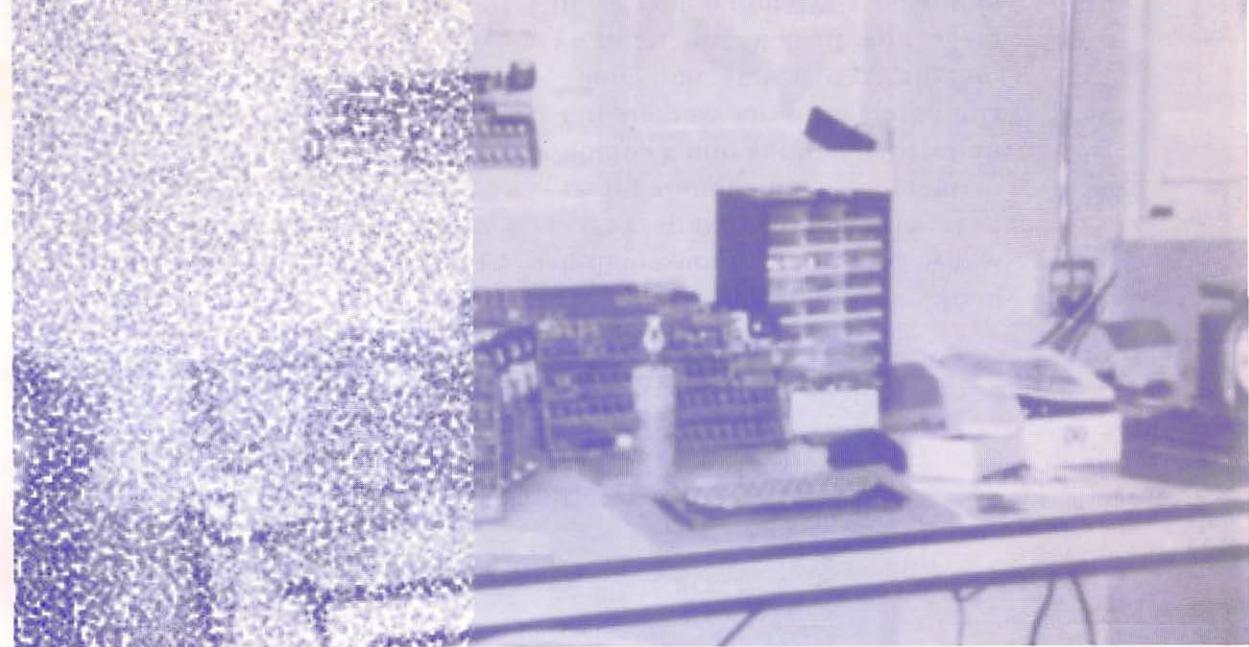


▲ **Jobs' garage—where it all began (Courtesy Apple Computer, Inc.)**

off the correct pixels. PARC's Alto also used overlapping windows that looked like overlapping pieces of paper on a desktop. Icons were displayed on the screen. When clicked, the icons initiated an action replacing the need for memorized commands typed at a command prompt. Unfortunately, the Alto was

huge; the monitor, keyboard, and mouse sat on a desk and the computer itself slid under the desk on wheels. Not exactly a Dynabook.

By 1979, Xerox management had approved a development effort to create an office computer based on the Alto. At that time, individual computers for office workers were unheard of and the home computer market looked much more lucrative. Xerox figured that the best way to get into the home computer market was to buy into Apple. (This was in the days before strategic alliances.) Because Apple's stock was in demand and had not yet been traded publicly, Xerox couldn't just walk into a broker's office and buy shares. A deal was struck between the two companies: Apple would allow Xerox to buy 100,000 shares and Xerox would give Steve Jobs a tour of PARC.
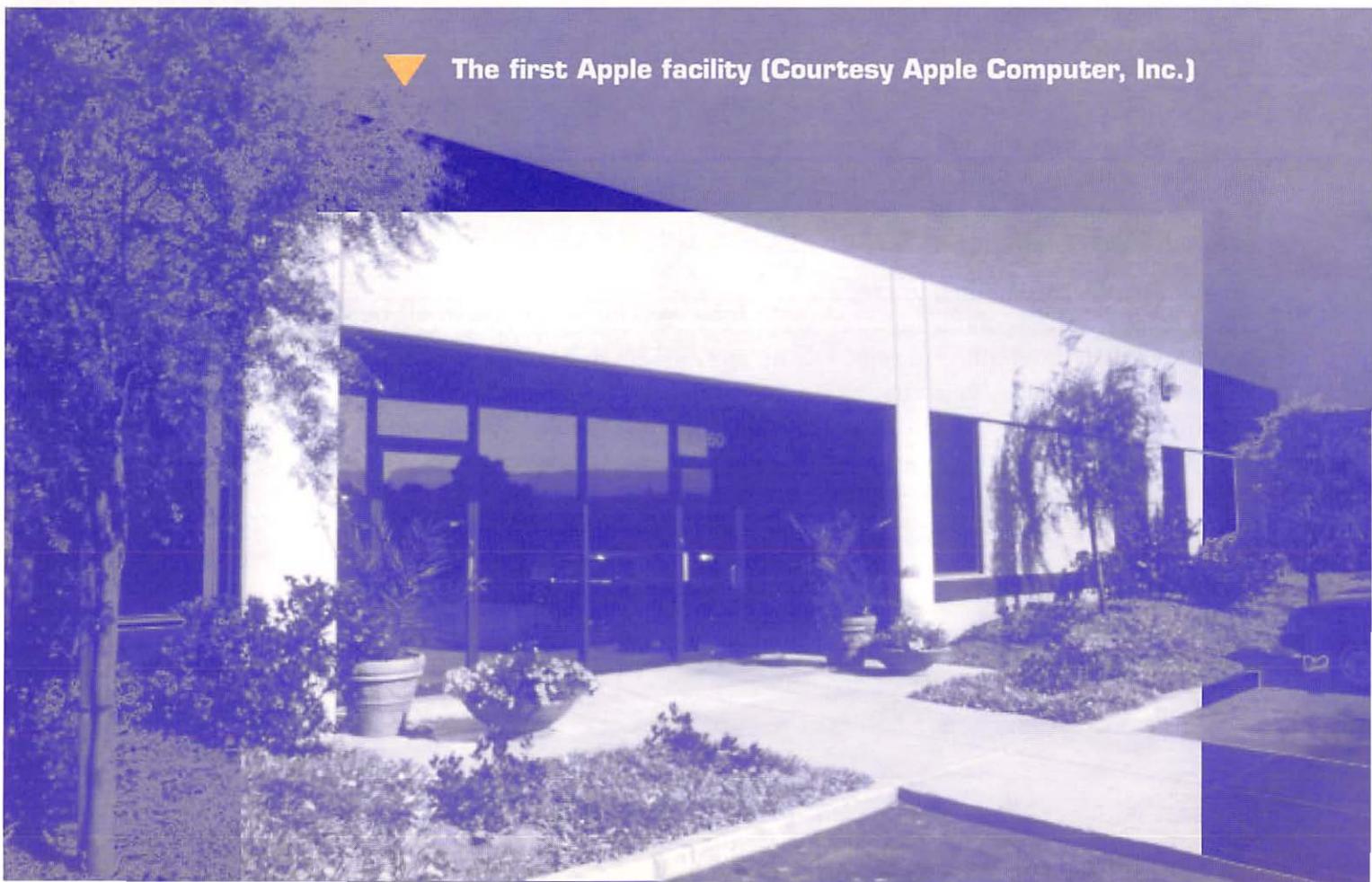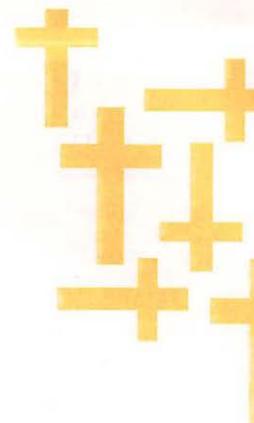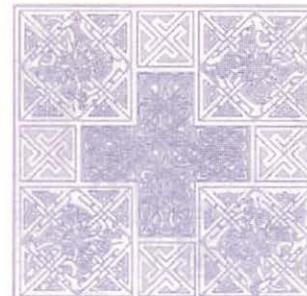
▼ **The first Apple facility (Courtesy Apple Computer, Inc.)**

# Steve Gets Religion

Prior to his Vivarium work at Atari, Apple, and MIT's Media Lab, Alan Kay promoted the notion of a computer small enough to be carried around comfortably—the Dynabook.

Steve Jobs toured Xerox PARC with John Couch and several Apple engineers. They were given a demonstration of the Alto. Jobs saw that the future was in visual computers—everything on and about the Alto's bit-mapped screen was visual—and he determined that he would create a visual computer that people would buy.

While at Xerox PARC, Kay envisioned the Dynabook as being powerful enough to do virtually anything the user desired while remaining small enough to be completely portable.

Dynabook, as Kay envisioned it in the early 1970s, was capable of handling several Mbytes of text and used a graphics interface and development environment called "Paintbrush." Paintbrush would enable even children to create programs by making pictures and animating them. Dynabook would also be capable of linking up to other Dynabooks and to any library in the world via a simple telephone connection. Finally, it would be made available for under $500 and would be provided to every schoolchild out of text book budgets.

Jobs, upon returning to Apple from his PARC tour, decided to change the direction of the main development project then underway called "Lisa." Apple's project was to become a visual computer employing a mouse, a bit-mapped screen, overlapping windows, and icons; it was to become a computer anyone could use just by clicking on pictures. Jobs hired several members of the Alto development team including Larry Tessler, the guy who'd demonstrated the Alto during Jobs' initial visit.
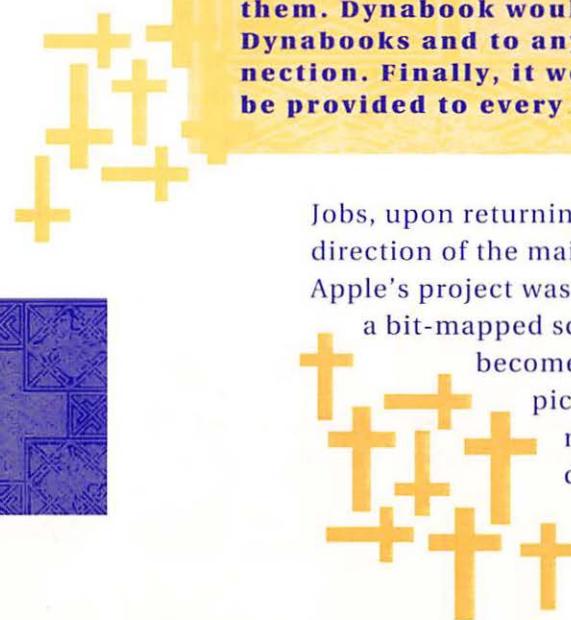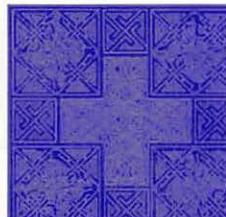
*Raskin had gotten permission from Mike Scott to build a computer that was to be as easy to use as a toaster...*

The year 1980 rolled around and things weren't going well for Apple. In the previous year, Apple had released the Apple III—a follow-up to the wildly successful Apple II. Within weeks of the Apple III's shipment, Apple discovered that the computer's hardware and software were both bug ridden and failure prone. Everything about the Apple III was a disaster and, predictably, it wasn't selling well.

In the fall of 1980, Apple's then-president Mike Scott reorganized the company into product-oriented divisions. Jobs badly wanted to run the Lisa division, but was denied.

Scott wanted Jobs to function as a corporate spokesperson during the turbulent initial public stock offering. John Couch was put in charge of the Lisa. Couch had come from Hewlett-Packard and wasn't accustomed to the free-wheeling, wide-open culture that was Apple. He was used to structure and corporate movements that were slow, if they moved at all.

By 1981, Apple's stock offering had been completed and Jobs was trawling for something to sink his teeth into.

At the same time, Jef Raskin was working on a very small project within the company that very few Apple employees knew about; it wasn't secret, just very small. Raskin had gotten permission from Mike Scott to build a computer that would be as easy to use as a toaster, to be called "Macintosh." Raskin wasn't married to the idea of windows and icons but he liked the idea of a high-resolution, bit-mapped screen like the ones he had worked with while at Xerox PARC. Thus, the main design goal for the Macintosh was that it would be a closed system and would have a high resolution, bit-mapped screen. Unlike Apple's successful Apple II computer (and all other personal computers), the Macintosh would have no expansion slots. Every Macintosh would be the same; customization would neither be allowed nor needed. At least that was the goal. Raskin's Macintosh, remember, was for people who would have as much need to explore the insides of a computer as they would a toaster. Everything that was needed—including the software—would be built-in.

Raskin tapped Burrell Smith—then working in Apple's service department—to design the main portions of the Macintosh hardware. Smith had an unorthodox approach to designing hardware that is best described as intuitive. He would study the manuals that came with various parts and would meditate on how they'd all fit together synergistically. You could argue with his approach, but not with the outcome. Smith was a brilliant designer.

Burrell Smith built two early Macintosh prototypes for Raskin using this intuitive approach: one was built around the Apple II's 6502 processor and the other was built around the Motorola 68000 processor used in the Lisa.

Bud Tribble was put in charge of creating the original Macintosh software. Tribble had worked with Raskin in performance art pieces at the University of California at San Diego.

About this time, Steve Jobs got wind of Raskin's Macintosh project and arranged raises for both Tribble and Smith. Jobs also began to bring in his own people to work on Macintosh including Andy Hertzfeld (who'd been writing software in the Apple II division), Steve Wozniak (co-founder of Apple and creator of the Apple II), Rod Holt (who'd designed the Apple II power supply), Jerry Manock (designer of the original Apple II case), Don Kottke, and Randy Wigginton.

"He would study the manuals that came with various parts and would meditate on how they'd all fit together synergistically."

# Move Over Rover,

## Let Stevie Take Over

Shortly after assembling a larger team, Steve Jobs informed Jef Raskin that he was taking over the hardware side of Macintosh development. A short time later, Jobs told Raskin that he was also taking over Macintosh software development and that Raskin could write the manuals. Raskin told Jobs where he could shove his manuals and went on a leave of absence.

Now in complete control of the Macintosh project, and hurt about being denied the chance to run the Lisa division, Jobs was determined to make the Macintosh—and just as importantly the team that built the Macintosh— "insanely great." Jobs was hell-bent on proving that great things could be accomplished if greatness was simply demanded from the development team. And greatness *was* demanded. Everyone on the

Macintosh team was committed to the project's success. It wasn't unusual for programmers to take up residence in their office. Team members could be found at work just about any hour of the day or night. This was all taken for granted. It was *expected*.

Apple Computer was at a crucial point in its short history. Sales during 1980 were approaching $120 million. Mike Scott's reorganization had been accompanied by a hiring frenzy and by autumn the number of Apple employees had doubled. Real engineers with real degrees were displacing old-time Apple hackers. These real engineers thought the Macintosh was just

another toy. On February 25, 1981, Scott fired 41 Apple veterans in a single move; this was know from that time forward as "Black Wednesday." Frustration grew and Mike Scott was replaced by Mike Markkula. Mike Markkula was a venture capitalist who invested in new companies. He had funded the bulk of Apple's start-up in addition to the small amounts put in by Jobs and Wozniak. (By the way, Mike's a very successful venture capitalist and one of the richest men in California. He is also an intensely private individual.)

The Macintosh division was a safe haven for the old-time Apple hackers and was housed in the second floor of the Texaco Towers on the corner of Stevens Creek and De Anza. Texaco Towers was several blocks and miles of attitude from the mainstream Apple campus on Bandley. Unlike the new engineers at Apple, the Macintosh team was concerned with changing the world instead of filling a market niche.

# Tribble in
## *Paradise*

Bud Tribble, the original software designer for Macintosh, was living in Bill Atkinson's house. Atkinson was designing LisaDraw, the Lisa's bit-map screen controlling software. The Lisa team was stealing ideas from Xerox and Tribble was stealing ideas from the guy at the center of the Lisa team. Macintosh was quickly evolving into a miniature version of Lisa, although no one at Apple seemed to recognize a potential marketing conflict. Lisa was designed for use as an office computer; Macintosh was a more powerful and easier-to-use personal computer for individuals.

In January of 1983, the Lisa debuted to what optimists might call a lukewarm reception. The Macintosh was scheduled for introduction that August. About a week after the Lisa was introduced, the Macintosh team took a two-day trip to the La Playa Hotel in Carmel, California. (The La Playa can best be described as a staid retiree hangout.) Although spirits were high, the Macintosh team was in severe trouble; nothing was close to being finished and a factory to build the computer didn't even exist yet.

Steve Jobs is famous in the computer industry for something known as his reality-distortion field. He has a charismatic knack that enables him to get almost anyone to believe almost anything. Even when you know what he's saying has no basis in reality, you want to believe it anyway. At the Carmel retreat, Jobs cranked his reality-distortion field to its highest level. He presented three terse statements to the assembled Mac team:

+ **Real artists ship.**

+ **Mac in a book by 1986.**

+ **It's better to be a pirate than to join the Navy.**

Jobs was calling for a distinction to be made between the Macintosh team and the rest of Apple. His call would've been seen as mutiny anywhere else in the world. But that reality-distortion field had everyone in attendance hypnotized. They were convinced that Lisa was a mistake because it was designed and developed by committee for corporate drones rather than designed by individuals for individuals. The intensity level was turned up several notches on the dial. They were convinced they were doing the Right Thing. Even if they were all doing it for the first time.

The Macintosh team members were young and inexperienced. They had all missed the 1960s, and Steve Jobs made Macintosh development sound like a religious experience and a cultural event every bit as important as the Summer of Love. Together, according to Jobs, they were on a mission. Or at least a great adventure.

# The Great Sugar-Water Hope

In April, 1983, John Sculley, formerly president of the Pepsi-Cola Company, was named president and chief executive officer of Apple. Sculley was lured to Apple with a $1 million salary, a $1 million first year bonus, a $1 million severance package, 350,000 shares of Apple stock, and a loan to buy a $2 million house in Woodside.

Sculley showed up for work on Wednesday, April 13, and introduced himself by saying that his job was to build Apple, not change it. He said that it was important for Apple to retain its corporate culture, but that the company had to shift away from being a one-product organization.

*Steve Jobs had consistently maintained a position of "one person, one computer" as being central to Apple's success. Sculley proposed to modify that position by providing a "total systems environment" to the corporate community. What Sculley was really saying was that to be successful Apple couldn't be Apple—it had to be IBM.*

On the technical side, John Sculley pretty much left the Macintosh team alone. The Mac team had given up on the original $995 target price for the Macintosh and had seen the price creep up to $1,495 and then to $1,995. Sculley wanted to charge $2,495 for the Macintosh in order to pay for a huge advertising campaign designed to differentiate Macintosh from the Apple II line. The Macintosh team was vehemently opposed to such a high price. They had engineered the Macintosh to be manufacturable for about $500 each and they felt that the Apple management was out to screw customers. The first Macintosh model sold for $2,495.

During the summer of 1983, friction was brewing between the Macintosh team and the rest of the people at Apple, especially those responsible for Lisa. The Macintosh team moved into a renovated building on Bandley Drive at the back of the

Apple campus called "Bandley 3." Susan Kare, the artist responsible for designing the Macintosh icons, had painted the pirate's skull-and-crossbones symbol on a piece of black cloth and hung it from a pole on the top of the building weeks earlier. Bandley 3 was right across the street from the Lisa people and the pirate flag was perceived as something of an "in-your-face" challenge. The Lisa people, in true design-by-committee fashion, formulated a wimpy response and ran their own colors up their building's flag pole: the Lisa logo. Lisa was getting bad press notices and sales were not stellar; the computer was expensive and very slow. The Lisa people were frightened. The Macintosh people were too inexperienced to be scared. Besides, they were all caught up in what can only be described as a religious fervor. They were out to change the world.

Steve Jobs made sure his Macintosh pirates had the best of everything. Bandley 3 had previously been used to house the Apple II division; more than 200 people had been crammed into the space now used by the fewer than 100-member Macintosh team. Feeling that they would be inspired by great designs, he parked his BMW motorcycle in one corner of the atrium and a $70,000 Bösendorfer piano in another.

By the summer of 1983, the Macintosh hardware was pretty much finished, but the software was not even close to being done. Mike Boich had been hired more than a year earlier as the Macintosh "software evangelist." His job was to get third-party developers to write software for the Macintosh. All he had available to show them was Bill Atkinson's MacPaint, but it was enough to convert lots of small companies to the Macintosh cause. The religious fervor that surrounded Macintosh was very contagious.

The free Lisa and Macintosh computers developers received as incentive to develop for the Macintosh didn't hurt either. (They had to give out Lisas because in the early days you needed a Lisa to create Mac programs. Macs themselves weren't powerful enough—yet.)

"Susan Kare, the artist responsible for designing the Macintosh icons, had painted the pirate's skull-and crossbones symbol on a piece of black cloth and hung it fom a pole on the top of the building weeks earlier."

11

A new approach to the manufacturing process was also central to the Macintosh development effort. The Apple II had been manufactured by cheap labor in Singapore. Jobs' vision was to construct an automated factory in the United States with the parts inventory kept to the absolute minimum necessary to fulfill a single day's orders. Steve Jobs wanted to use Macintosh computers to build Macintosh computers and hand-picked Dave Vaughan to make it happen. Apple's board of directors initially approved $3.6 million to set up the automated factory but then cost overruns forced Jobs to ask for more money—in the final accounting it cost $16 million—for the factory. Vaughan, a veteran of running one of Hewlett-Packard's plants, found he couldn't work with Jobs and quit.

In early September, 1983, trade journals were reporting that Lisa sales were abysmal. Apple's stock fell drastically—more than $8 in a single day. Computer companies were folding left and right and, to make matters worse, *Business Week* proclaimed IBM the winner of the computer wars. Game over, man. Unfortunately, the *Business Week* proclamation was made before IBM released its PC Jr.—a failure worse than the Apple III and Lisa combined. Apple knew that Macintosh was its only hope for success and maybe its only hope for survival. Mike Murray was hired to run Macintosh marketing and Apple gave him a $15 million budget for the product launch.

Murray re-positioned Macintosh as a productivity tool for knowledge workers, instead of a personal computer for individuals. The tenor of who Macintosh users would be was changing. Instead of being for people who didn't work in corporations, Murray believed that most knowledge workers did, in fact, work in large organizations. None of this changed the underlying design of Macintosh of course—just the marketing spin.

Macintosh simply wasn't designed for use by knowledge workers in large organizations (the operating system made it almost impossible to use a hard disk drive, for example). Nevertheless, Murray pegged his first year sales projections for Macintosh at 80,000 units a month, accounting for almost a million Macintosh computers sold in the first year. Murray based his numbers on the premise of 25 million office workers in the United States.

*"Apple knew that Macintosh was its only hope for success..."*

Cooler heads prevailed, and it was pointed out to Murray that at $2,500 each, his figures would result in $2.5 billion in sales. Chalk it up to Murray spending too much time in Steve Jobs' reality-distortion field. Projected Macintosh sales figures were reduced to about half—Apple managers figured they could sell 425,000 Macs in the first year, resulting in slightly more than $1 billion in sales. Never mind that Lisa sales were less than $100 million.

**"the crankless computer"**

This was an unusually stressful time within Apple. Macintosh team members were spouting phrases like "the crankless computer" and "a Cuisinart for the office." The reality-distortion field wasn't as effective in other parts of Apple where mumblings about "a trash compactor for your mind" were heard.

**"a Cuisinart for the office"**

Apple hired sci-fi filmmaker Ridley Scott (of *Alien* and *Blade Runner* fame) to direct the introductory commercial for Macintosh. The theme of the commercial was to present a dysfunctional totalitarian state—sort of like the U.S. Postal Service—and the power of the individual to overcome that adversity.

This was the famous "1984" commercial, and it would deliver the message that Macintosh would liberate 1984 from being like the oppressive 1984 portrayed by George Orwell. The Macintosh computer wouldn't be even shown. Everything was to be communicated by implication and innuendo.

The concept of Macintosh would be presented as a liberating experience—liberating individuality, creativity, and intuition—not a mundane, if complex, productivity tool.

# WHY

## *1984 Was Not Like 1984*

Most think that Apple's 1984 commercial was run only once. This isn't exactly true; the 1984 commercial was first run at the October, 1983 Apple annual sales meeting in Hawaii. Apple's stock performance was abysmal. Lisa sales were way below expectations, and Apple II sales were unimpressive. Apple had all the symptoms of a company out of control; growing too fast; there was too much of everything. Too many employees, too much inventory, and too much money being spent.

Steve Jobs appeared on stage in blue jeans, white shirt, bow-tie, and full-blown reality-distortion field. To hell with reality. Apple had Steve Jobs and his reality-distortion field. And this was, after all, a sales meeting.

"It is 1958! IBM passes up the chance to buy a young company that has just reinvented a new technology called xerography..." Jobs rumbled. "It is ten years later, the late 60s. Digital Equipment Corporation and others invent the minicomputer...." He continued, beseeching the crowd to remember how IBM had attempted to circumvent the minicomputer. "It is now ten years later, the late 70s," Jobs boomed. "Apple, a young company on the West Coast, invents the Apple II, the first personal computer as we know it today. IBM dismisses the personal computer as too small to do serious computing and therefore insignificant to its business...," he cried. "It is now the early 80s... 1981...," Jobs' voice trails off and the crowd goes wild, realizing full well that 1981 was the year IBM introduced its personal computer. "It is now 1984! And it appears that IBM wants it all...," Jobs' voice reverberates through the hall. "Will Big Blue dominate the entire information age?" Jobs question was met with a thunderous "No!" from the assembled masses. As

one voice, they continued screaming "No! No! No!" This was suddenly much more like a Baptist tent revival than a sales meeting.

With the final vibration of the final "No!" from the audience, Apple's 1984 commercial was projected on a huge screen behind Steve Jobs. The entire spirit of Macintosh was distilled in those 1,440 frames of film. "On January 24, Apple Computer will introduce Macintosh," the voice-over intimated, "and you'll see why 1984 won't be like 1984." On cue, a Macintosh descended amidst dry-ice smoke and laser beams. The audience erupted in nothing less than a religious frenzy, jumping on chairs, screaming, and testifying. Some probably even spoke in tongues. At that point, Jobs and the rest of the Macintosh team *knew*. Before they had *believed*—now they *knew*.

(As a special treat, we've reproduced the entire 1984 commercial in flip book at *the bottom of the right-hand pages*. Just thumb through the book quickly from front-to-back.)

> **" Apple's 1984 commercial was projected on a huge screen behind Steve Jobs. The entire spirit of Macintosh was distilled in those 1,440 frames of film."**
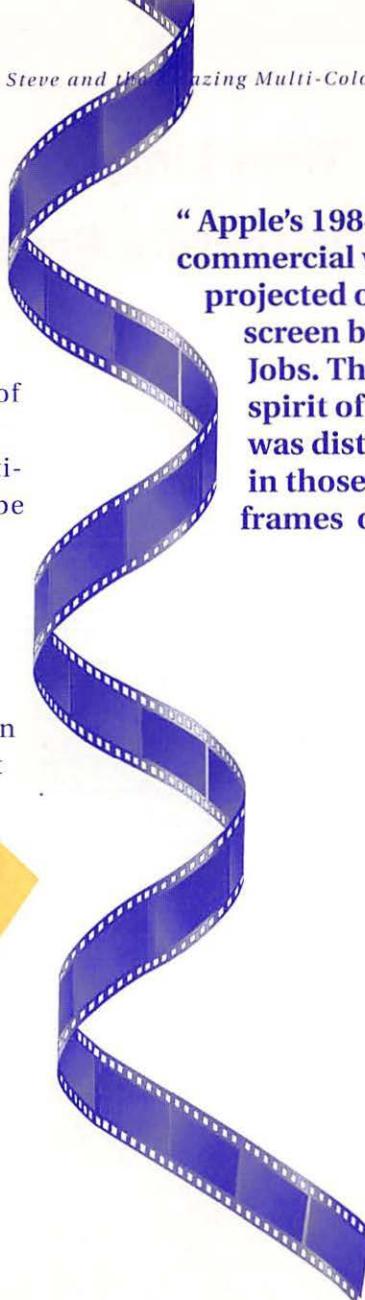
# Early Apple Time Line
# (Reality-Distortion Free)

**December, 1980:** Apple goes public. Morgan Stanley and Hambrecht & Quist handle the initial public offering of 4.6 million shares of Apple common stock at a price of $22 per share. Every available share is bought within minutes of the offering.

**January, 1981:** Apple campus security is tightened. Everyone entering any Apple building is now required to show ID badges.

**January 25, 1981:** Mike Scott fires 41 Apple employees. The day is known from then on as Black Wednesday.

**March, 1991:** Mike Scott is replaced as president by Mike Markkula. Steve Jobs is named chairman.
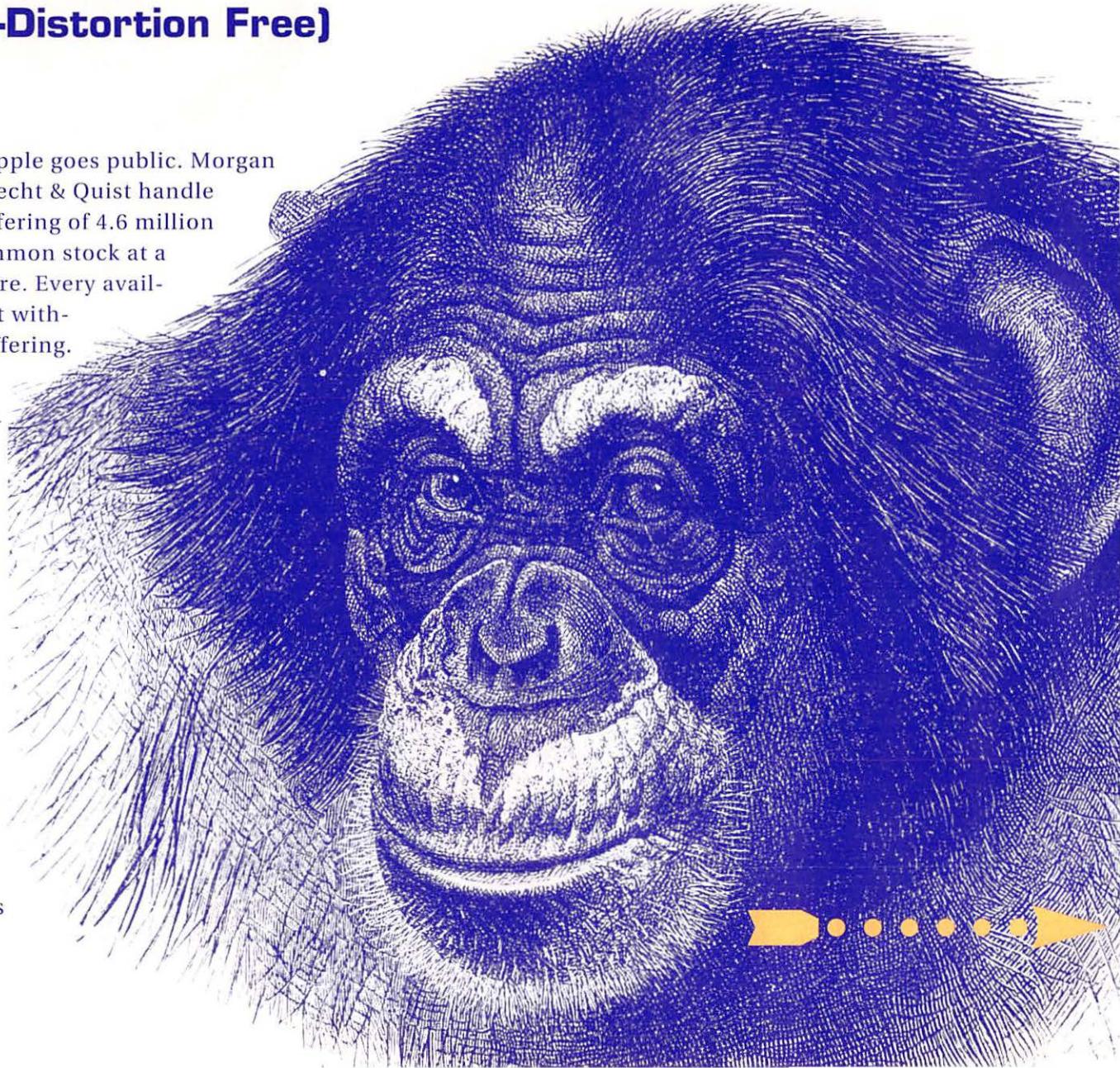
**May, 1981:** Apple completes second stock offering, 2.6 million shares are offered.

**August, 1981:** IBM introduces the IBM Personal Computer.

**November, 1981:** Apple's first annual report states that there are now about 2,500 Apple employees.

**January, 1982**: Apple's research and development budget is increased 81 percent over 1981, to $38 million.

**January, 1983**: Lisa debuts.

**February, 1983**: Rich Page and Bill Atkinson are named Apple Fellows.

**April, 1983**: John Sculley, formerly president of Pepsi Cola, is named Apple's new president and chief executive officer.
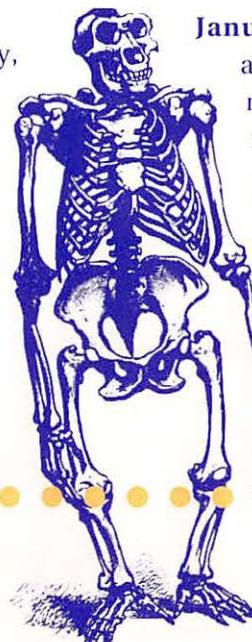
**May, 1983**: Apple is named to the Fortune 500—the youngest company ever to reach the list.

**January, 1984**: Apple runs the "1984" commercial during the fourth quarter of the Super Bowl broadcast. The commercial is only broadcast once, but it is replayed by several news shows, making it one of the most talked about advertisements in history.

**January, 1984**: Macintosh debuts at Apple's annual shareholders' meeting. The computer receives a standing ovation.

**April, 1984**: Macintosh sales reach Apple's goal of 50,000 units in less than 100 days.

**September, 1984**: Macintosh 512K, the "Fat Mac," is introduced.
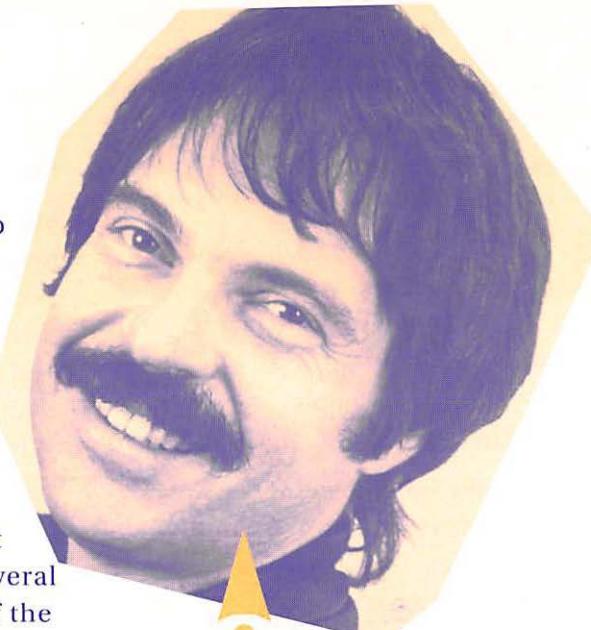


Alan Kay (Courtesy Apple Computer, Inc./Janet Fries)
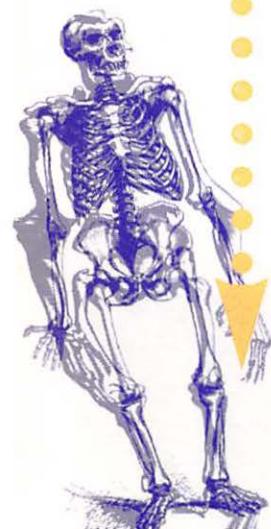
**November, 1984**: Apple launches the "Test Drive a Macintosh" promotion. Over 200,000 people take the taste test, but only a few buy a Macintosh.

**December, 1984**: Apple presents several celebrities with free Macintosh computers. Michael Jackson, Mick Jagger, and Andy Warhol all receive Macs.

**January, 1985**: Apple runs the "Lemmings" commercial during the Super Bowl broadcast.

**January, 1985**: Macintosh Office and LaserWriter debut at Apple's annual shareholders' meeting. Now you can use AppleTalk for a long printer cable. Steve Jobs declares détente with IBM, announcing a goal of Macintosh connectivity with other computer platforms.

**January, 1985**: Lisa is renamed the Macintosh XL.

**February, 1985**: Steve Wozniak resigns from Apple to start a new company.

**March, 1985**: Apple employee head count reaches 5,700; Sculley asks all employees to take one week of vacation time before the end of June. Sculley also announces that Apple's factories will shut down for a week.

**April, 1985**: Lisa (Macintosh XL) is discontinued.

**June, 1985**: Sculley announces reorganization along functional—rather than product—lines. Approximately 1,200 employees are fired, and Steve Jobs is removed as Macintosh team leader.

**July, 1985**: AppleLink goes online.

**September, 1985**: Steve Jobs resigns to form NeXT Computer, taking five core employees with him. Apple sues Jobs for "breach of fiduciary responsibilities, threatened breach of contract, and misappropriation of confidential information."

**January, 1986**: Macintosh Plus and LaserWriter Plus are introduced at the San Francisco Macworld Conference.

**January, 1986**: Apple drops legal action against Steve Jobs.

**February, 1986**: Apple purchases a Cray X-MP/48 supercomputer for about $15.5 million. The system will be used to simulate future hardware and software products.

**April, 1986**: Apple replaces the Macintosh 512K with Macintosh 512Ke. (We both purchase our first Macs, the Macintosh Plus—the last time either of us will ever own a top-of-the-line Macintosh. We paid more than $2,000 each.)

**May, 1986**: Apple introduces KanjiTalk, providing traditional Japanese alphabets.

**December, 1986**: Apple's annual report indicates profits 151 percent higher than the year before and 5,600 Apple employees.

**December, 1986**: Apple claims more than 200,000 AppleTalk networks in place. Almost all of them are still being used as long printer cables.
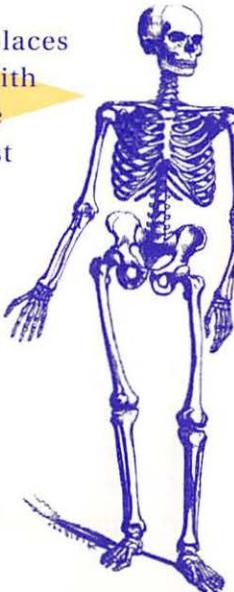
**Bob:** Ten years from now, how will John Sculley be remembered in history books? Hero or villain or a bit of each?

**Steve Bobker,** a 128K owner(with arrows in the back), has written for all the major Mac magazines except Macworld; he's also a long-time network junkie:

"A hero and deservedly so. Jobs couldn't have built what Sculley did."

**Guy Kawasaki,** one of the early and most well known Mac evange-lists, widely-published author, and product huckster:

"The salient parameter is not hero/villain, but a lot/a little. As time goes on, Jobs will be remem-bered more and more, and Sculley less and less. There are only two CEOs of Apple that count: Jobs and the current one."
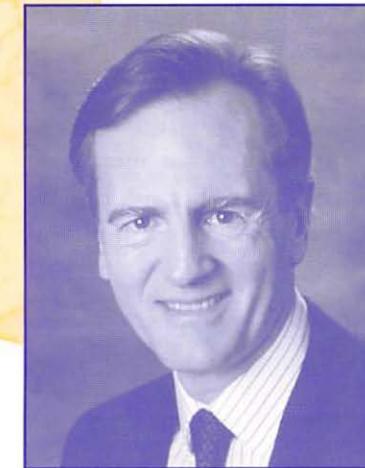
**Don Crabb,** noted Mac authority and widely-published author:

"Hero, no doubt about it. He came in and took Apple from an entre-preneur's wet dream and made it into a real company. Real, profitable, growing, and well-managed."

# Q:

## Bob: What was Steve Jobs really like?

# A:

**Don:** "Warm, cuddly, and cute, of course! Oh, and a swell dancer! Plus, the best BS'er on the planet."

**Guy:** "Every story you've ever heard about Steve is true. Working for him was the greatest experience of my life that I wouldn't want to repeat."

**Steve:** "He created the Mac for which I and many others will forever be grateful. As a boss, I wouldn't be within 10 miles of him."

**Steve Jobs (Courtesy Apple Computer, Inc.)**

# Why IBM Sucks

*We all know
IBM sucks.
Here's why.*

### Their Brains Were Small and They Died

We knew a guy once who was a song writer. He used to sing a song about dinosaurs—all the kids in the audiences used to love it when he sang this song. We don't know—dinosaurs—it must be a kid thing. Neither of us remembers much of the song except one line of the chorus that we used to sing along with: **And their brains were small and they died.** Well, that's IBM. Small brains; dead dinosaur. IBM probably died several years ago, but something called institutional inertia keeps it looking like it's still living. It's sort of like an animated dinosaur exhibit in a museum.

### Dinosaurs Also Ate Their Young

Before we tell you why IBM sucks, let us tell you why, until a few years ago, any Macintosh fanatic should have loved IBM. If it weren't for IBM, Apple Computer—and the Macintosh—probably wouldn't exist. We would all be using Windows (shudder), and everyone would think the IBM PCjr was a Pretty Good Home Computer.
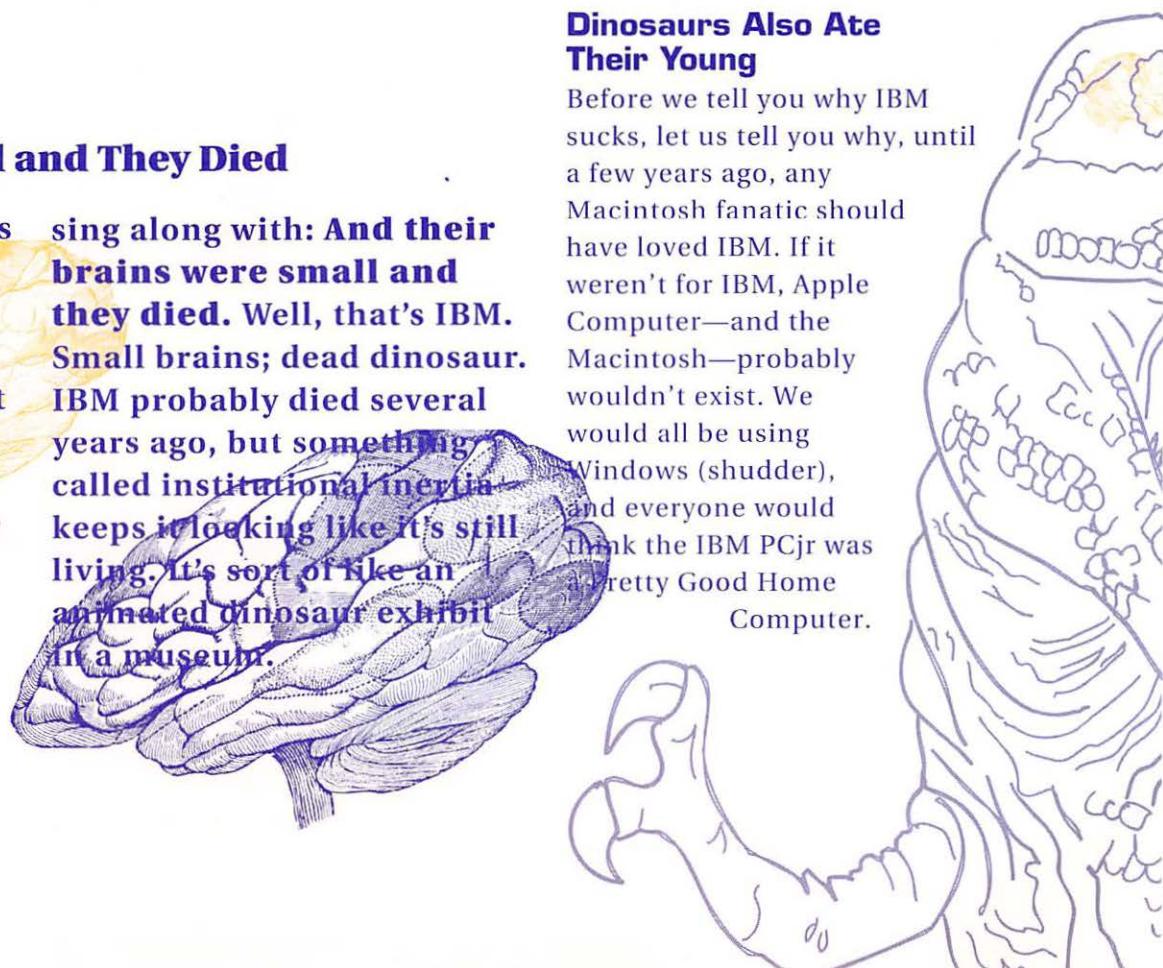
So love IBM for making the personal computer ubiquitous and for making truly awful personal computers a de facto standard. Apple couldn't have done it without them.

Back when IBM designed its System 650 mainframe (in the early 1950s), it figured it could sell about 50 of them. So IBM, being full of astute bean counters, built the cost structure assuming they would sell only 50 of the beasts. This would have allowed the company to make a profit on these paltry few units. IBM actually sold about 1,500 System 650s, pushing profit margins up to around 70

William Bradford Shockley was an American physicist who shared the 1956 Nobel Prize for physics—for inventing the transistor—with John Bardeen and Walter Brattain. Prior to that, Shockley and his team had developed a procedure that could alter semiconductor crystals so that they could detect and amplify radio waves. For all his brilliance, Shockley fell from grace in the late 1960s and in the 1970s by espousing an inflammatory and controversial theory that intelligence capacity is a genetic trait of races.

percent or so. IBM (as well as Digital Equipment Corporation and Control Data Corporation) made a lot of money by convincing people that computers were very big, very expensive, and very complex. That's not why IBM sucks.

When Bob Noyce and seven other engineers quit working for William Shockley and formed Fairchild Semiconductor, IBM didn't take notice. Semiconductors were and are terribly expensive to develop, but incredibly cheap to manufacture. Success in semiconductors comes from selling huge quantities of them at low prices rather than just a few at a Very High Price. IBM, remember, was out convincing people that computers

were big, expensive, and complex; the young dinosaur was certain that the computer market wasn't big enough to support the economies of scale required by semiconductors. Meanwhile, Noyce was selling everything Fairchild made for $1 each and their sales volume was growing rapidly. Each time Fairchild would increase production, it would lower its cost-of-goods—and selling prices—at the same time.

Noyce theorized that the cost of labor would be reduced if several individual components could be combined on the same piece of silicon. He called this idea—and it was only an idea in 1959—an "integrated circuit." Today integrated circuits hold more than a million components.

In 1964, Bob Noyce formed Intel with Gordon Moore to create complex integrated circuits.

An added benefit of integrated circuits turned out to be that higher prices could be charged for them. In 1971, Intel's Ted Hoff invented the microprocessor—a single chip that held most of the elements of an entire computer. IBM still wasn't paying attention.

Microprocessors were expensive relative to semiconductors, but still too cheap for IBM to use. If IBM was to build a computer around a microprocessor, its tenuous illusion of size, expense, and complexity would dissolve. It would be the equivalent of Toto exposing the Wizard of Oz.

IBM's central computing concept was one of data processing. Large, expensive, and complex data processing. Paper cards were punched with hundreds of holes and run through the computer by technicians. Real people didn't need computers, according to the IBM vision. But that's not why IBM sucks, either.

The Altair 8800 was the first *practical* microcomputer, but the Apple II was the first *successful* microcomputer and IBM began to take notice. IBM noticed that even though the Apple II was designed to be a home computer for hobbyists, the real market turned out to be business. Trip Hawkins, then in charge of Apple's small business strategy group, was the first to recognize that a new software program—Dan Bricklin and Bob Frankston's VisiCalc spreadsheet—would allow Apple to set the standard for microcomputers in large corporations. If IBM flinched at all, it wasn't noticeable. Sort of like how an elephant reacts to a flea.

**Paper cards were punched with hundreds of holes and run through the computer by technicians.**

# *The Dinosaur Wakes*

*Dinosaurs have very small brains relative to their mass. In 1980, IBM decided it would produce a personal computer. Breaking from its normal, glacially-slow dinosaur mode, IBM's Entry Systems Division committed to producing a computer in exactly one year. (You have to understand that this was a fraction of the normal development cycle for IBM. It ordinarily took IBM four or five years to add functions to an existing product, let alone develop a new one from scratch.) Bill Lowe and his Entry Systems Division team knew that it was impossible to create a new computer in a year. Their only option was to collect existing hardware and software from other companies and paste an IBM label on the box.*

IBM realized it needed both an operating system and a version of the BASIC language. After all, each of the other microcomputers available at that time had BASIC. Lowe took the unprecedented step of approaching a five-year-old software company about supplying the operating system and BASIC for the IBM computer. That young software company was Microsoft. (Actually, Lowe wanted to use another operating system, CP/M, developed by Gary Kildall of Design Research, but when the IBM suits arrived in California to meet with Kildall, he was out flying his plane. We cover that in more detail later.)

IBM has become famous (or infamous) for their nondisclosure agreements. Robert X. Cringely in *Accidental Empires: How the Boys of Silicon Valley Make Their Millions, Battle Foreign Competition, and Still Can't Get a Date,* describes IBM's nondisclosure agreement as "the legal equivalent of a neutron bomb, destroying only the

people, but leaving their technology intact." IBM's potential suppliers were required to sign this agreement—agreeing that whatever they told IBM was not confidential, but that whatever IBM told them *was* confidential—before any substantive meetings took place.

Microsoft's founders, Bill Gates and Paul Allen, signed IBM's nondisclosure agreement without giving it a second thought. The first Microsoft-IBM meeting consisted of IBM suits touring Microsoft's office. A few days later, IBM returned and asked Microsoft to supply a version of BASIC for IBM's personal computer that was under

development. Gates was concerned because IBM wanted to build its computer around an 8-bit processor, and he told the IBM contingent that he could supply an operating system for a 16-bit processor as well as a version of BASIC to support the better, far more powerful processor.

## IBM went for it.

At the time there were three 16-bit processor options: The Motorola 68000, National Semiconductor's 16032, and Intel's 8086/8088. The Motorola and National Semiconductor chips were powerful and elegant. The Intel 8086 was somewhat less powerful and had a bizarre memory

*Bill Gates and Paul Allen, signed IBM's nondisclosure agreement without giving it a second thought.*

architecture. The Intel 8088 was a neutered 8086, with all of the problems and even less power. IBM, in true dinosaur fashion, chose the Intel 8088 for its personal computer. Dinosaurs have small brains, remember? The 8088 was the only processor then available with finished support chips, and besides IBM didn't want its personal computer to compete with its real business: Big Computers for Big Organizations.

Bill Gates knew he could probably cobble together a version of BASIC in time to suit IBM, but the 16-bit operating system was going to be a real problem. He knew about QDOS—a 16-bit CP/M clone—developed by Seattle Computer Products, and he knew all he had to do was get it. Without telling Seattle Computer Products why he wanted it, Gates purchased the rights to QDOS for $50,000. To this day, Gary Kildall maintains that most of the QDOS code was directly copied from his CP/M. This claim has not been tested in the courts, though.

**So,** if you're keeping score, here's what that last inning looks like. IBM arouses from its sleep long enough to decide—Argh! Argh!—that it wants to get into the personal computer business. But not so much as to compete with its core business and thus decides to cobble together a machine from existing bits and pieces. IBM approaches Microsoft about writing a

# Dinosaurs

version of BASIC, for the new computer. Bill Gates smooth talks IBM into letting Microsoft pro-vide not only BASIC but an operating sys-

# eat their

tem—which Gates has bought for a song—as well. Never mind that the pedigree of the operating system that Gates wants to pass off to IBM

# young...

may be somewhat questionable. IBM took the bait and Bill Gates even retained the right to sell the operating system to other companies!

IBM's personal computer was released on August 12, 1981. It had a single disk drive and 16K of memory and was priced at $1,565. (However, a full, useful system cost more than $5,000.) Although it was at best a mediocre computer, the IBM PC was an immediate success mainly because it had the dinosaur's footprint on its label. By the end of 1981, IBM had sold 50,000 personal computers. Apple had sold only 135,000 computers during the whole year. By the end of the first quarter of 1982, IBM PCs were outselling Apple's comput-ers by a ratio of two-to-one. Today there are more than 80 million PC-compatible computers in the world with about another 12 mil-lion sold every year. But even that is not why IBM sucks!

Is IBM's success with a mediocre personal computer the reason for Macintosh users to *hate* IBM? Not a chance. Blame the bozos who *bought* all those mediocre computers, but not the people who made them. The real reason Macintosh users should hate IBM is because the dinosaur—together with Apple, a smaller dinosaur, but a dinosaur none the less—will stomp Macintosh. Dinosaurs eat their

# and

young, remember, and IBM is showing signs of hunger.

Apple has, for quite some time, been a software company. It just hasn't figured it out yet. What makes a Macintosh a Macintosh isn't

# IBM is showing

the chips or the box they're in—it's the soft-ware contained in those chips. When first introduced, Macintosh had more than 70 chips. Current models have about 30. By 1998, the Macintosh will consist of two chips.

# signs of hunger.

# On April 12, 1991, John Sculley sealed

## Apple's fate as dinosaur chow.

*That's the night that Sculley showed eight of IBM's most brilliant engineers what looked like System 7 running on an IBM PS/2 Model 70. The computer wasn't running System 7, but rather a object-oriented operating system and development environment code-named "Pink." Pink had been under development at Apple for years and was designed to run on a variety of different microprocessors, including Intel's. Object-oriented operating systems and development environments (also products of Xerox PARC) enable large software programs to be built from mix-and-match chunks of code called "objects." Software programs can be created—for virtually any computer platform— simply by clicking and dragging object icons around on the screen.*

The story goes that Sculley had an epiphany and realized that Apple would not survive as a hardware company. Apple's software crown jewels were the answer and IBM was, hopefully, the question. IBM also had pretty much figured out that it couldn't survive as a hardware company— the company was experiencing its first decline in sales since 1946— without earth-shaking software and OS/2 wasn't it. Convinced it couldn't develop its own earth-shaking software, it went out shopping for some and bought into Metaphor Computers Systems' object-oriented system, Patriot.

IBM also figured it could hedge its bet with Apple's Pink and on July 3, 1991, the two companies signed a letter of intent to form a jointly owned software company to finish development of Pink. IBM ponied up a license for its RISC processor which is the heart of its RS/6000 workstations.

Apple gave up its soul in exchange for this broken down RISC processor. Such a deal. The intention was that by the summer of 1994, both companies would be building computers around the same processor (using IBM's design, but built by Motorola) that looked and worked like the Macintosh.
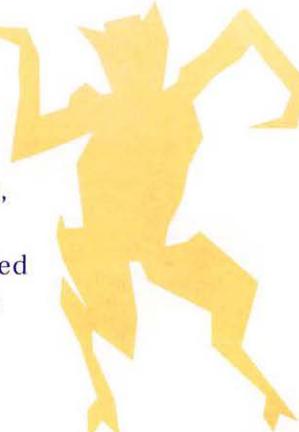
To many, the Apple-IBM marriage seemed to be almost unbelievable. Only two years before, the companies had been the fiercest of competitors. When you think about it, though, the alliance makes sense in a sick sort of way. Neither Apple nor IBM could afford to bring the next-generation computer to market by itself—or more accurately, neither was willing to bet the farm on developing a new computer. So both companies hedged their bets and formed an uncomfortable union.

This was nothing more than a marriage of convenience. Neither company liked the other much, but every other computer company's dance card was filled. It's sort of like the old saying, "the enemy of my enemy is my friend." IBM and Microsoft had a falling out over OS/2. Apple was suing Microsoft over Windows. Apple and IBM were both jealous of Microsoft's success, and a marriage seemed like a good idea at the time.

The Apple-IBM union seems like a marriage from hell and will probably produce the ugliest children you've ever seen. Neither company is likely to thrive. IBM is the dinosaur gasping its last breath as it stretches painfully for the last piece of succulent fruit. Apple is that fruit and will likely be digested and well... we all know what happens to post-digested material, don't we? And that, boys and girls, is why IBM sucks.

**Microsoft seems intent on controlling every computer on the face of the planet and has formed the Advanced Computing Environment (ACE) consortium. Built around Windows NT, ACE is an attempt to marry Microsoft's object-oriented operating system to the R-4000 RISC processor developed by MIPS Computer Systems.**

# How Multimedia Almost Killed the Macintosh

Multimedia reminds us of the three blind men and the elephant—not one of the men describes the elephant in the same way. We think the whole affair is quite simple...

### Helocars and Sexy Stars

Remember when Apple tried to convince us that Macs should be used to design and sell helocars? That ludicrous and short-lived ad campaign was Apple's first foray into the realm of multimedia. You can bet your lunch money that there will be others.

Multimedia is simply multiple media. For Macintosh users, it's a set of technologies and tools for adding media (sound, animation, true-color graphic images, and video) to the existing user interface. What's missing is intelligence and that's why multimedia is probably doomed to fail. It's also why, in our expert opinion, hypermedia is more important. Intelligence missing from the equation of presenting information is also what just about killed Macintosh. Until intelligence—in the form of expert systems and semi-autonomous agents—is added to the mix, multimedia is nothing more than bad television with better sound.

Multimedia has so much potential: to teach us, to entertain us, and to transact business for us. Unfortunately, most new media offerings are totally lame and break no new ground.

There's a new buzzword going around: repurposing. Everyone is doing it. Successful movies are repurposed into video and computer games; children's books are repurposed into CD-ROMs. Repurposing is OK, but it's not good enough. This powerful new delivery medium cries out for innovation. Forget everything you know about presenting information. Give us something we haven't seen before and something we can't see any where else.
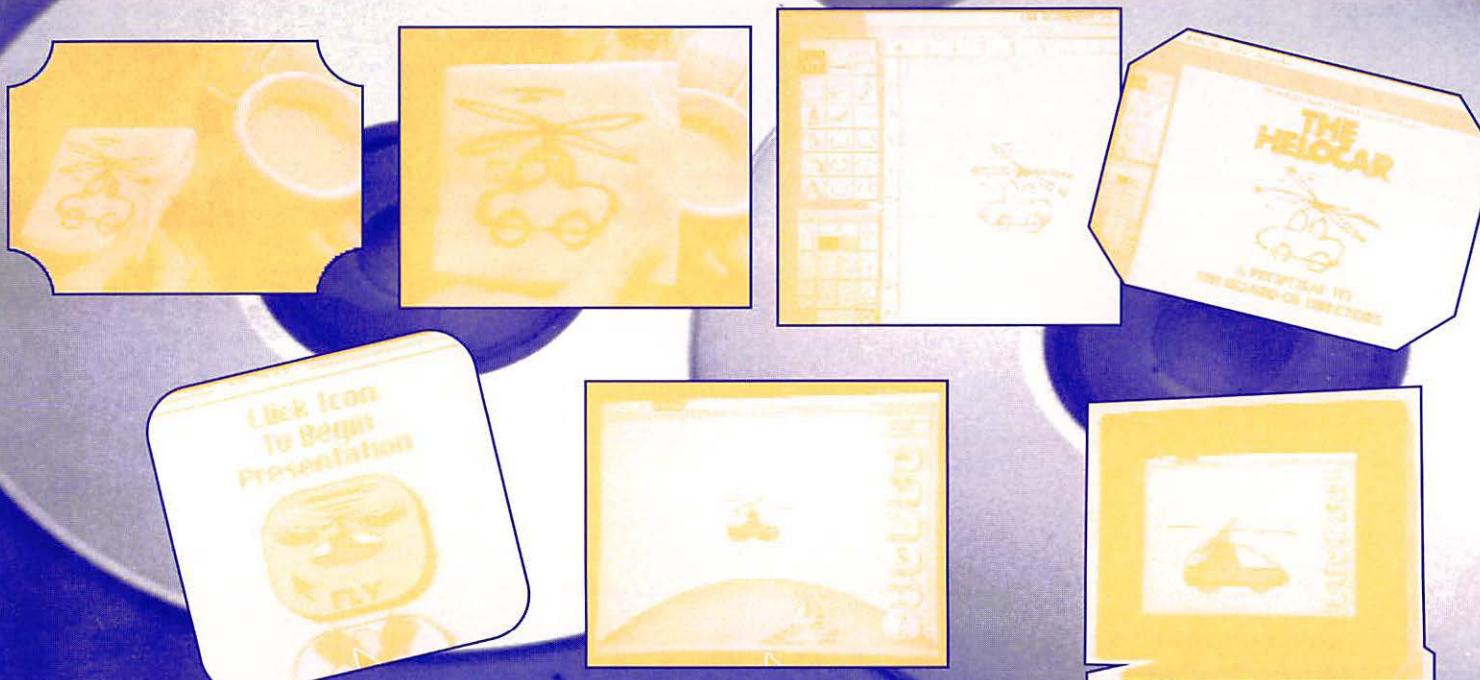
▲ **Apple's Helocar (*courtesy Apple Computer, Inc.*)**

**hypermedia hy•per•me•di•a n. Computer Science.**
A computer-based information retrieval system that enables a user to gain or provide access to texts, audio and video recordings, photographs, and computer graphics related to a particular subject. (American Heritage Dictionary ©1992)

**repurpose re•pur•pose v. Buzzword for the '90s 1. To recycle old material into new media. 2. To milk one more buck out of the same old crap. (The Dr. Macintosh Dictionary © 1993)**

Unfortunately, the movers and shakers in the computer industry—at least most of the ones in the driver's seat of their respective corporations—just don't get it. Apple's most publicized idea for using multimedia is as a tool for selling things. Microsoft's notion of multimedia is to buy up the electronic rights to art so they can glow on flat-panel displays in Bill Gates' new house.

Multimedia has two distinct markets: sex and education.

Some would argue that Mike Saenz defined state-of-the-art Macintosh multimedia with Virtual Valerie. (Puritanical readers can send their love letters to our publisher, Dave Rogelberg. You should see the graphic he wouldn't let us use!). It's a sick culture that uses sex to sell everything from soap to soda, but Virtual Valerie made just about everyone re-evaluate the power of Macintosh-based multimedia. Like it or not, Virtual Valerie was a totally unique interactive experience—impossible to duplicate on a television, movie screen, or book

**Bob:** We interrupt this chapter to bring you a bad but relevant joke.

Q: Why did Bill Gates build his new house mostly below ground?

A: He was sick of hearing about Windows.



▲ **Sample frame from Virtual Valerie**

32

page. And yes, she made some people sick. A rue and cry arose from the MacWoman community when Valerie (and her black and white predecessor) came on the scene.

Like it or hate it, Virtual Valerie was more effective in furthering Macintosh-based multimedia than the animatics of Wilfred Brimley selling oatmeal.

Of course, some will find the education and training possibilities of multimedia to be more worthwhile and interesting than selling either oatmeal or sex. As the shift to an economy that is based on information continues, the demand for effective tools for training people will continue to grow. Much of this demand will focus on computer-based training for the computer systems themselves.



▲ **Sample frame from oatmeal sales animatic**

## What's Good in Multimedia Today?

**Bob:** Lest you get the impression we're down on multimedia—we're not. We're just hoping for something better and more compelling than the stuff we've seen so far. There have been good multimedia titles, but most of them are derivative (adapted from another medium and only mildly innovative). That doesn't make them bad; we simply are hoping for more.

That said, here are my five favorite interactive titles; the ones that I like the best and use the most as of today, November 15, 1993.
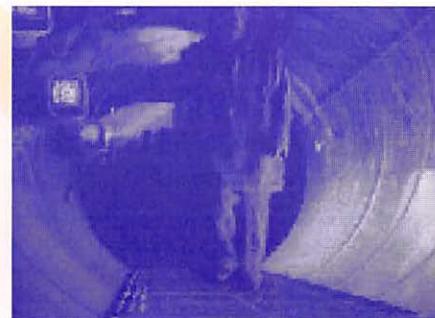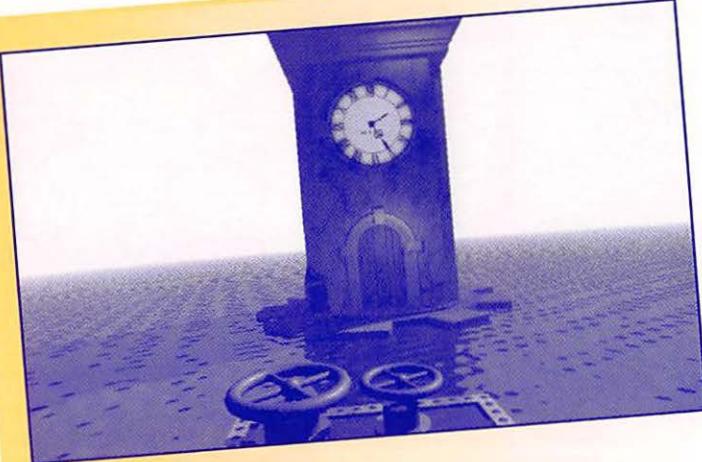
## MYST (CD-ROM from CYAN/Broderbund)

Let me start by saying that MYST is a must. If you have a CD-ROM drive, MYST is the disk to have and whip out when showing friends what CD-ROM is all about.

MYST is a stunning, bizarre, and beautiful adventure; a photorealistic, surrealistic, and interactive sci-fi movie-on-a-CD-ROM that pushes the envelope. Gorgeous photorealistic graphics, a fantastic original soundtrack, challenging puzzles, and a mystifying storyline make MYST one of the best, if not *the* best interactive entertainment yet.

Rand and Robyn Miller (and, indeed, everyone at Cyan) should be very proud. A stunning achievement.

## A Hard Day's Night (CD-ROM from Voyager Co.)

Disclaimer: I'm a Beatle fan. That said, A Hard Day's Night is one great interactive title. *MacUser* Magazine selected it as the number 1 title in their "50 Best CD-ROMs" article in November, 1993. (Of course *MacUser* editor Jim Bradbury is not only a Beatle fan, he's a *huge* Beatle fan.)

All prejudices aside, if you even like the Beatles a little, A Hard Day's Night is a treat. The QuickTime movies are beautifully transferred; the songs sound spectacular (external speakers are highly recommended); and the interface is a model of interactive design efficiency. A great example of good repurposing—with a lot of value added.

## Living Books (series of CDs from Broderbund)

Just Grandma and Me, Arthur's Teacher Trouble, The Tortoise and the Hare, and The New Kid on the Block are the first four "Living Books" from Broderbund, and are another example of repurposing done well. Each Living Book is an animated, interactive children's book adapted from children's books by popular authors such as Mercer Mayer, Marc Brown, Aesop, and Jack Prelutsky. The original material is witty and clever and so are the "Living Book" interactive translations; each is filled with colorful, beautifully drawn cartoon worlds filled with animated objects that sing, dance, speak, and much more when you click on them. Great for kids, but even grown-ups will be impressed.

⊕ This is the story of the Tortoise and the Hare. The Tortoise was a friendly fellow who moved at his own slow pace. The Hare was a busy person who was always on the move.
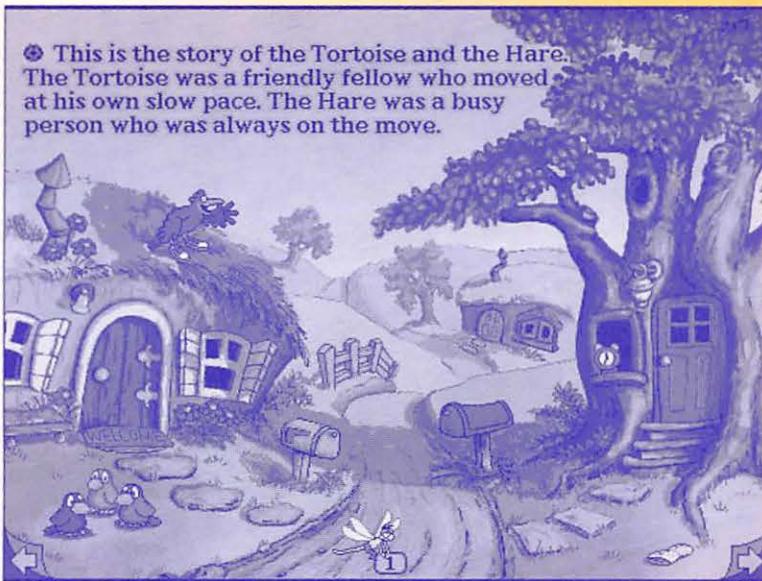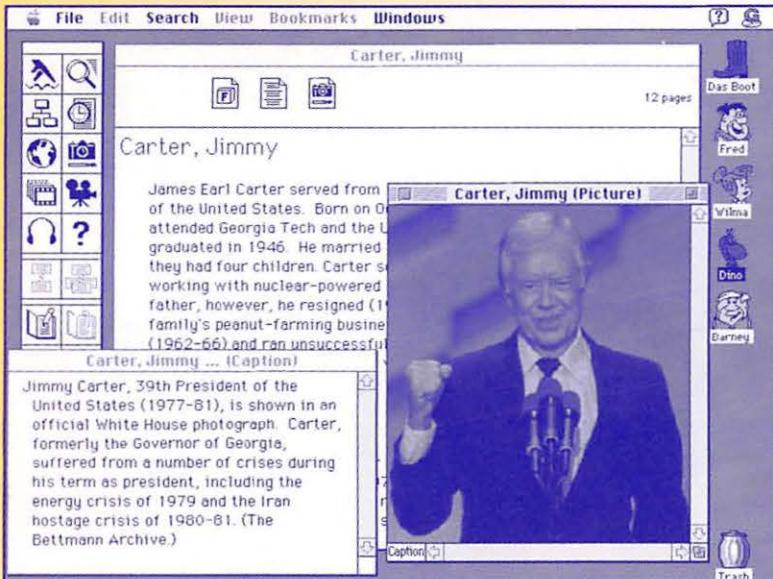
## The New Grolier Multimedia Encyclopedia (Grolier Electronic Publishing)



```
File   Edit   Search   View   Bookmarks   Windows
                          Carter, Jimmy
                                                        12 pages
Carter, Jimmy

        James Earl Carter served from
        of the United States.  Born on O
        attended Georgia Tech and the L
        graduated in 1946.  He married
        they had four children.  Carter s
        working with nuclear-powered
        father, however, he resigned (1
        family's peanut-farming busine
        (1962-66) and ran unsuccessful
Carter, Jimmy ... (Caption)

Jimmy Carter, 39th President of the
United States (1977-81), is shown in an
official White House photograph.  Carter,
formerly the Governor of Georgia,
suffered from a number of crises during
his term as president, including the
energy crisis of 1979 and the Iran
hostage crisis of 1980-81.  (The
Bettmann Archive.)

        Carter, Jimmy (Picture)

Das Boot
Fred
Wilma
Dino
Barney
Trash
Caption
```

This one is on my list not because it's a great interactive title. (It's good, but not great.) It makes my top five because I use it all the time. As you might suspect from its name, it's an entire encyclopedia: all 21 volumes of the *Academic American Encyclopedia*; that's 33,000 articles, 10 million words, and thousands of color pictures, plus a few movies and some audio tracks on a CD-ROM. Everything is searchable by keyword and the search mechanism works, though it's not particularly elegant. Still, among those 10 million words I can usually find what I'm looking for.

This is an example of repurposing done part way. In a perfect world, a multimedia encyclopedia would have much more multimedia content: more movies, slide shows, audio clips, animations, and hypertext links. On the other hand, Grolier does have some of each and that's a start. And, Grolier has a tradition of updating the encyclopedia every couple of years. (This is the third or fourth edition.) Maybe next time.... Warts and all, I use this version often.

## Sherlock Holmes Consulting Detective Volumes I, II, and III (ICOM Simulations)

I'm a sucker for Sherlock Holmes, so this series of intelligently-designed interactive whodunnits is very appealing. I have all three. These are truly interactive movies, where you direct the action. The interface is clean and near-perfect and the clues, most of which are delivered in the form of onscreen movies, feature handsomely-costumed actors and lavishly-appointed sets.

Sherlock Holmes Consulting Detective was designed from the ground up to be an interactive adventure on a CD-ROM and it shows. The interface is cleanly designed and responsive, and the video clips, which use ICOM's proprietary video system and not QuickTime, are beautiful. At the end of each case, Holmes reveals the steps *he* took to solve it. A must for serious mystery fans.

And those are my five favorites today. Tomorrow I may include The Journey-man Project, Hell Cab, Lunicus, The Madness of Roland, Iron Helix, or other innovative interactive adventures I've enjoyed. The point is that even though we feel that most interactive media isn't pushing the envelope as much as we'd like, what we have so far isn't all that bad...

## Shifts Happen

We said earlier that the Macintosh was a paradigm shift. Macintosh changed forever the way we think of computers. Never before had a machine seemed so inviting, so intimate, so nonthreatening, so much *fun*. Many Macintosh owners developed relationships with the computer that could only be called symbiotic. We gave our hard disks clever names, and, according to many studies, began to spend an inordinate amount of time with our machines.

With Apple's introduction of HyperCard in August, 1987, (described and subsequently marketed alternatively as a software and multimedia construction kit and an information manager), the company poised itself for participation in its third paradigm shift. This third paradigm shift—the move from flat, two-dimensional documents to three- and even four-dimensional electronic documents—may very well prove to be as important a shift as the introduction and acceptance of the personal computer itself. As the Apple II and, later, Macintosh changed the way we thought about what a computer is, Macintosh-specific multimedia will show us a new way of thinking about how we can *use* a computer.

But not yet. Although Apple has set the criteria for the phase shift that will precede the multimedia paradigm shift, there are parts missing. Multimedia isn't about hardware or even software. It's a communications medium—or, more accurately, a collection of communications media and nothing more.

The biggest piece of the puzzle that's missing is intelligence. Macintosh should help us deal with information by inference and pattern. The computer should be able to learn by observing our work habits.

*The revolution continues... with QuickTime. Ask me why.*

Intelligence combined with richly integrated multiple media will make us much more productive. Unfortunately, rich integration is another missing piece of the multimedia pie. Macintosh has always had lush sound capabilities, for example, and most Macs ship with microphones. But very little is being done to take advantage of its capabilities. Sure, you can make your Macintosh emit a puking sound when it ejects a disk. Big deal. That allows for a more customized work environment, but it adds absolutely no value when dealing with information.

In order for Macintosh-based multimedia to be truly paradigm-shifting, Macintosh has to disappear. Now, settle down. What we mean is that in order for multimedia to be effective, the delivery mechanism (and the media itself) must virtually disappear. As an example, consider Merle Saunders' *Blues from the Rainforest* and *Save the Earth So We'll Have Someplace to Boogie* audio CDs. Much of the sound on these projects was created using a Macintosh, but you don't hear that. What you hear is rich sound. The Macintosh, the musical

instruments, and the CD itself have virtually disappeared when you listen to the music. But that's a single medium: sound, not multimedia.

Multimedia when it's finally done right, with intelligence and seamless integration, will dissolve the barrier between you and what you're working on. Distinct software programs will dissolve and there will only be an information *environment* combining text, graphics, sounds, and movies. No longer will you need to use a text editor or word processor to work with text or a graphics program to work with graphic images. All the tools you need will be there. All at once.

One thing that sets the Macintosh apart from other computers is the sense of *modelessness*. According to the first edition of Apple's *Human*

*Interface Guidelines: The Apple Desktop Interface*:

"With few exceptions, a given action on the user's part should always have the same result, irrespective of past activities. Modes are contexts in which a user action is interpreted differently than the same action would be interpreted in another context. In other words, the same action, when completed in two different modes, results in two different reactions. A mode typically restricts the operations that the user can perform while the mode is in effect."

Software application programs are themselves modal, however. You have to launch a word processor to write a letter, for example.

Some day we will be able to work in a completely modeless computing environment and that environment will be multimedia-based, or at least non-media biased. It probably won't happen, though, until virtual reality is as widespread as computers and modems are today. When that happens, Macintosh will no longer be Macintosh.

Multimedia almost killed the Macintosh once. But when Apple—or someone else—finally gets it right, multimedia will kill the Macintosh for sure. And that will be a Very Good Thing.

**Mike:** Well, most of us do. Trici Venola is a very accomplished Macintosh graphic artist. People that work with her like to tell the story that she used to use MacPaint for every task she addressed with her Macintosh, including writing letters. Ted (the High Priest of HyperText) Nelson used MacDraw as his word processor.

Of course, those were the days when MacPaint, MacDraw, and MacWrite were virtually the only software programs available for the Macintosh. When the only tool you have is a hammer, everything starts to look like a nail.

# Choosing the Right Tool for the Job—
## or, Shopping Tips for the Macintosh Obsessed

Conventional wisdom used to dictate that you selected the software you wanted to use and then bought the hardware that ran that software. This approach is no longer applicable. Macintosh is the best personal computer currently available. Period. So your task is much simpler: just pick the right Macintosh for the job.

Actually, you can make this process even easier if you have enough money: buy the best Macintosh and expect to buy a new one every year or two.

### Where to Buy

**Mike**: I buy my computers on the open market—just like you. Since I'm a writer, and writers rarely make money, I use a modified rich-man approach to buying Macs. It's called the trickle down method. I buy the best Macintosh I can afford, knowing that I will be replacing it in a couple of years. I used to sell my old Macs—now they trickle down to my wife. The trickle down method of buying computers works about as well as the Reagan-Bush trickle down approach to economics, which is to say not very well, if at all. I just can't bear to part with a computer system that's worth a third of what I paid for it two years earlier.

**Bob**: I have the distinct advantage of almost always trying a product for several months before I decide whether it's worth buying. It's called an "editorial evaluation loan" and as Mike likes to remind me, it's nice work if you can get it. Eventually the loans expire (sigh) and I find myself buying a Mac. I do it the same way I buy my cars: late model, low mileage, and slightly used. I usually find the best deal using this method—wait for a new Mac to be introduced and then buy the model it displaced (used) from someone even more obsessed with having the latest, greatest Mac than you.

On those rare occasions when I have to buy something new, like a hard drive or monitor, I always deal with vendors who offer a 30-day no-hassle, no-questions, money-back guarantee (like APS). You should too.

Computers depreciate faster than anything else on the face of the earth. Get used to it. The computer you buy today is going to be worth half what you paid for it a year from today. Swallow hard and accept it. Technically, the computer you buy today will be *obsolete* in less than two years. Also technically, *obsolete* means that Apple will no longer be manufacturing the Macintosh you bought. When the automobile manufacturers do it, we call it planned obsolescence. When Apple does it, we call it progress.
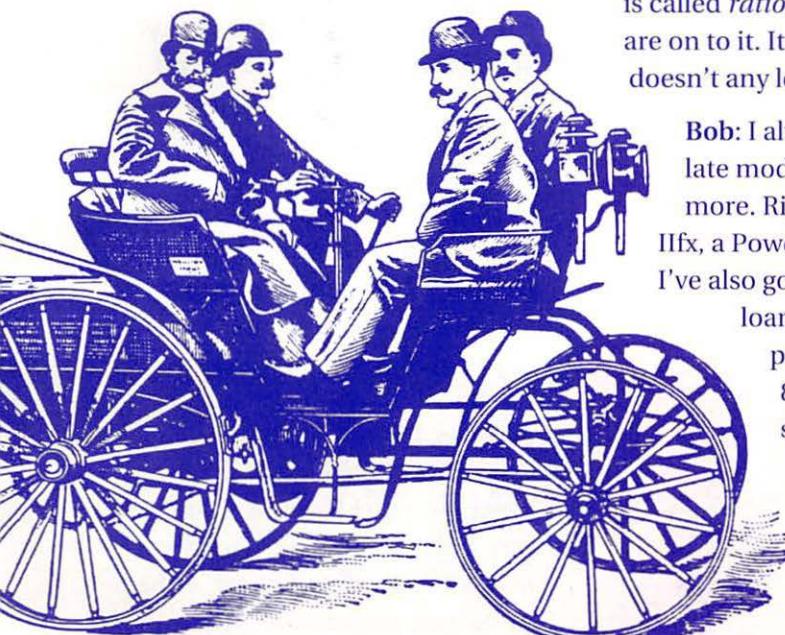
In real-world terms, though, a Macintosh is obsolete only when you can no longer use it to do what you need to do. For us, that means a Macintosh is obsolete when it is no longer capable of running software that we need to run or when it does it so slowly that it makes us unproductive. We're both suckers for new Mac models, though. When a new model is introduced, we start to think of all sorts of reasons why we *have to have one*. This is called *rationalization*, and our wives are on to it. It used to work, but it doesn't any longer.

**Bob:** I always own at least one late model Macintosh, usually more. Right now I own three: a IIfx, a PowerBook 170, and an LC. I've also got a Quadra 950 that's on loan from Apple. I've already put in loan requests for a 840AV and a PowerPC. (If someone's going to loan you a Macintosh, common sense dictates that you aim high. On the other hand, if you have to foot the bill
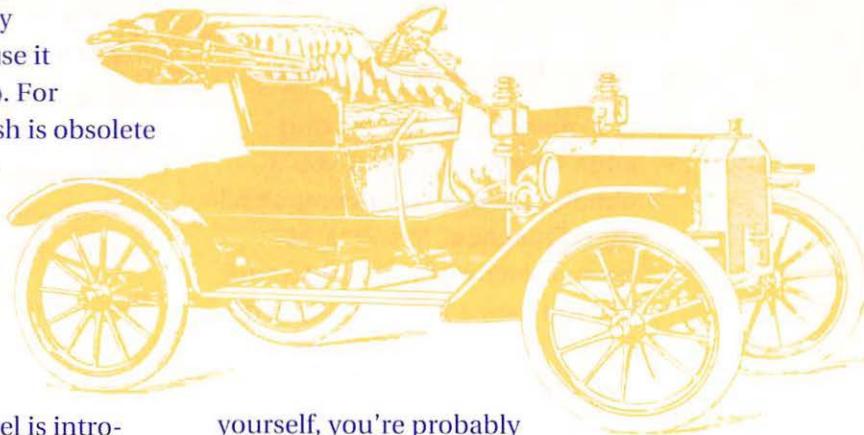
yourself, you're probably better off using Mike's approach.)

**Mike:** Since 1986, I've always been at least two steps behind the state-of-the-Macintosh-art. I'm using a Macintosh IIci to write this book.

# Computers depreciate faster than anything else on the face of the earth.

41
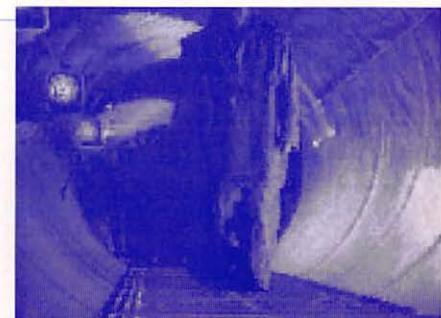
## How to Buy Hardware Without Getting Gypped

**1** Never buy the latest model.

It's almost always cutting-edge technology, and you'll almost always have compatibility headaches. It takes at least three or four months for the software to catch up with a new hardware release. Although there are often new releases of major software titles that do coincide with a new Macintosh release, it takes three or four months for the maintenance releases to hit the streets.

**2** Buy the most memory and the largest hard disk drive you can possibly afford.

Always buy at least twice what you think you need. Your information will expand to fit the amount of space that you have available.

Mike: I didn't buy a hard disk drive when I purchased my first Macintosh. In 1986, 20M was pretty much the standard. My first hard disk drive was 40M; my second 90M; and my third 170M. I currently use a 420M hard disk drive (and the 170M drive). For the first time since I've owned a Macintosh, I no longer have to spend Sunday afternoons archiving files.

Bob: I went through much the same process except my current drive is a 1.6 gigabyte Maxtor (bought from APS, of course). And I can't even begin to tell you how great 32M of RAM is. You can never have too much RAM or too much hard disk drive space.

**3** Buy the highest quality hard disk drive components from the least-expensive source you can find.

Mike is partial to CDC WREN hard disk drives, because he's never had a problem with them. (He's got one that's been running 24-hours a day, seven-days a week, for eight years without a single problem.) If we were in the market for a hard disk drive today, though, both of us would probably buy a Hewlett-Packard or Seagate Elite Barracuda drive. Don't be fooled by the marketing propaganda used by some of the vendors. A drive that you buy from a "name brand" vendor like MicroNet is almost identical to the same drive you buy from a "generic" vendor like APS. The only place either of us buy memory is Austin, Texas-based TechWorks.

*A maintenance release is the version of software that was being worked on while the new release was at the duplication house ahead of time (so it could be announced along with the new Macintosh models). Software vendors can't bear to be upgrade-less during Apple's roll-out of new Macintosh models. This should make for a very interesting spectator sport when the shift begins from Macintosh to PowerPC. Remember Paul McGraw's axiom: pioneers get the arrows; settlers get the land.*

**We buy from these companies because they sell good gear and have excellent support for what they sell. And while it's impossible to predict who will go out of business next year, we both feel that these are well-run companies, likely to be around next year if something should go wrong.**

**Bob:** I have to say that TechWorks prices have been getting higher and higher lately compared to other memory vendors. If their prices get much more out of line, I may find another place to buy my RAM chips. For now, the few bucks a chip premium I pay for TechWorks chips is worth it for their lifetime warranty and toll-free technical support.

**4**

**Buy a Macintosh with an eye toward expandability, but forget about Apple's propaganda about upgrade-ability.**

**Mike:** Apple's upgrades are overpriced, but I have to admit the best Macintosh I've owned yet is an SE/30. It was upgraded from a standard Macintosh SE, and yes, it was an Apple upgrade. In 1989, I paid $1,800 for this upgrade  (including a SuperDrive). It was the best

money I've ever spent on any Apple equipment. The SE/30 provided four times the performance of the SE. It was transportable and it was compact. I haven't purchased another Apple upgrade since— although I have toyed with the idea of upgrading my IIci to a Quadra 700. The problem is that the Quadra 700 is just as obsolete as my IIci and I don't much like the idea of giving up SIMM slots and a NuBus slot.

**Bob:** I've never upgraded a Mac. I sell the old one and buy a newer one, slightly used.

**5**

**Don't pay much attention to the adjectives in *MacWEEK*, *Macworld*, or *MacUser* product reviews.**

**When was the last time you saw a review in a Macintosh-specific publication that employed less than glowing adjectives? Ignore the superlatives. There's absolutely no information value in comments like "most elegant," "fastest," "best," "most powerful," "high-end," and "high-powered." Pay attention to the numbers and comparisons with known enti-**

ties. "Twice as fast as a IIci," for example, carries much more information content than "blazing speed." The lab tests in all three major Mac magazines are perhaps the best information you can get short of logging onto CompuServe, America Online, or the Internet and asking people who actually paid for the stuff how they like it.

**6**

**Don't buy Apple memory or hard drives—they're too expensive. You almost always can find memory and better quality hard disk drives for less money.**

**Other Apple-labeled peripherals run the gamut from excellent to avoid-at-any-cost with prices from not-too-bad to ridiculous. Apple monitors (especially the smaller sizes), for example, are usually a good value for an excellent product. Apple fax modems, on the other hand, stink**

and should be avoided at any cost. Again, the best information about what's worth buying is from people who have actually paid for the stuff you're thinking of buying. Go online to find out what the latest scoop is on recently-released Apple peripherals. There are always early adopters online and they're always willing (sometimes too willing) to share their opinions.

Buy the best computer to suit your needs, and realize that it will be headed for obsolescence before the warranty runs out.

Be realistic. Don't go out and buy a Quadra 840AV because you're an accountant and you think you may want to get into desktop video production. Buy the Macintosh you need to do your accounting for the next couple of years. By the time you get ready to try your hand at video production, there will probably be a better tool available for the job anyway.

## A Gonzo Guide to Buying a Macintosh

This is the part of the book where we alienate the Macintosh dealers. But that's OK, Apple's already alienated most of them anyway.

We know of only two computer dealers in the United States worth doing business with: North Shore Computers in Milwaukee, Wisconsin, and the ComputerWare stores in the Silicon Valley area. Neither of us have ever bought a computer from either dealer, but the good reports for years and years from their customers far outweigh the negative comments. They must be good.

There must be other good dealers out there. We just haven't met them yet.

**Mike**: I've always bought my Macs from dealers. But only because they've met the prices I demanded.

**Bob**: I usually buy mine slightly used from private parties. I do some of my used equipment shopping online (on CompuServe or America Online), and the rest of it in the classified advertising section of my local paper. The downside of this method is you sometimes have to wait weeks or months to find a particular item if you're real

picky. Still, this is the best way I know to find great deals on Mac peripherals and CPUs.

Understand that if you're going to buy a computer from a dealer, they're going to try to burn you. It's their job. It's your job to be informed so as not to get burned. There's an old joke about the difference between a computer dealer and an automobile dealer being that the automobile dealer knew when he was lying. Unfortunately this is, for the most part, probably true.

**Mike**: In 1986, I once saw a computer dealer tell a customer "of course a Macintosh could run Lotus 1-2-3." He even said it with a straight face.

Just about everyone makes the wrong decision when they buy their first Macintosh. Don't worry about it, all it will cost you is money; the fact is that you can't buy a *bad* Macintosh. Learn from your mistakes though, and use these guidelines to determine which Macintosh model best meets your immediate needs.

Begin by making a list of the top three software applications you use and the percentage of time you spend with them each day. Mike's profile is shown in the table 4.1. Bob's profile is shown in the table 4.2.

## Table 4.1

Mike's application use profile

| Application | Use |
|---|---|
| FrameMaker | 50% |
| Telecommunications | 40% |
| Canvas/Photoshop/FreeHand | 10% |

## Table 4.2

Bob's software applications use profile

| Application | Use |
|---|---|
| Microsoft Word/PageMaker | 40% |
| Telecommunications | 20% |
| QuickTime | 15% |
| Photoshop/Graphics | 15% |
| Presentations | 5% |
| Games | 5% |

**Next, determine how important the following features are to you. Remember to be realistic.**

+ Color video

+ Stereo audio

+ Expandability

+ Portability

**Mike:** Since I write mostly book-length documents, I have almost no use for color video. In fact, the only reason I have a color monitor at all is because when I bought my IIci system, Apple was running a special promotion offering a 13-inch color monitor at a price I couldn't refuse.

**Bob:** I know color costs me both dollar- and performance-wise, but I wouldn't want to live without at least one color monitor. I'll give you two reasons: QuickTime and games. Granted, color is expensive and there's a notice-able performance penalty for using it and, yes, I set my color monitor to black and white when I'm planning an extended writing session. Still, I like my color monitor. My advice: if you don't *really* need color, there are better ways to spend your money. But if you can afford it, it's nice to have.

**Mike:** Stereo audio capability is of no use to me. I've yet to see a Macintosh soft-ware program that makes appropriate use of sound.

**Bob:** Because I do a lot of training and multimedia work, I find it relatively important to have stereo. Although I don't use it very often— yet.
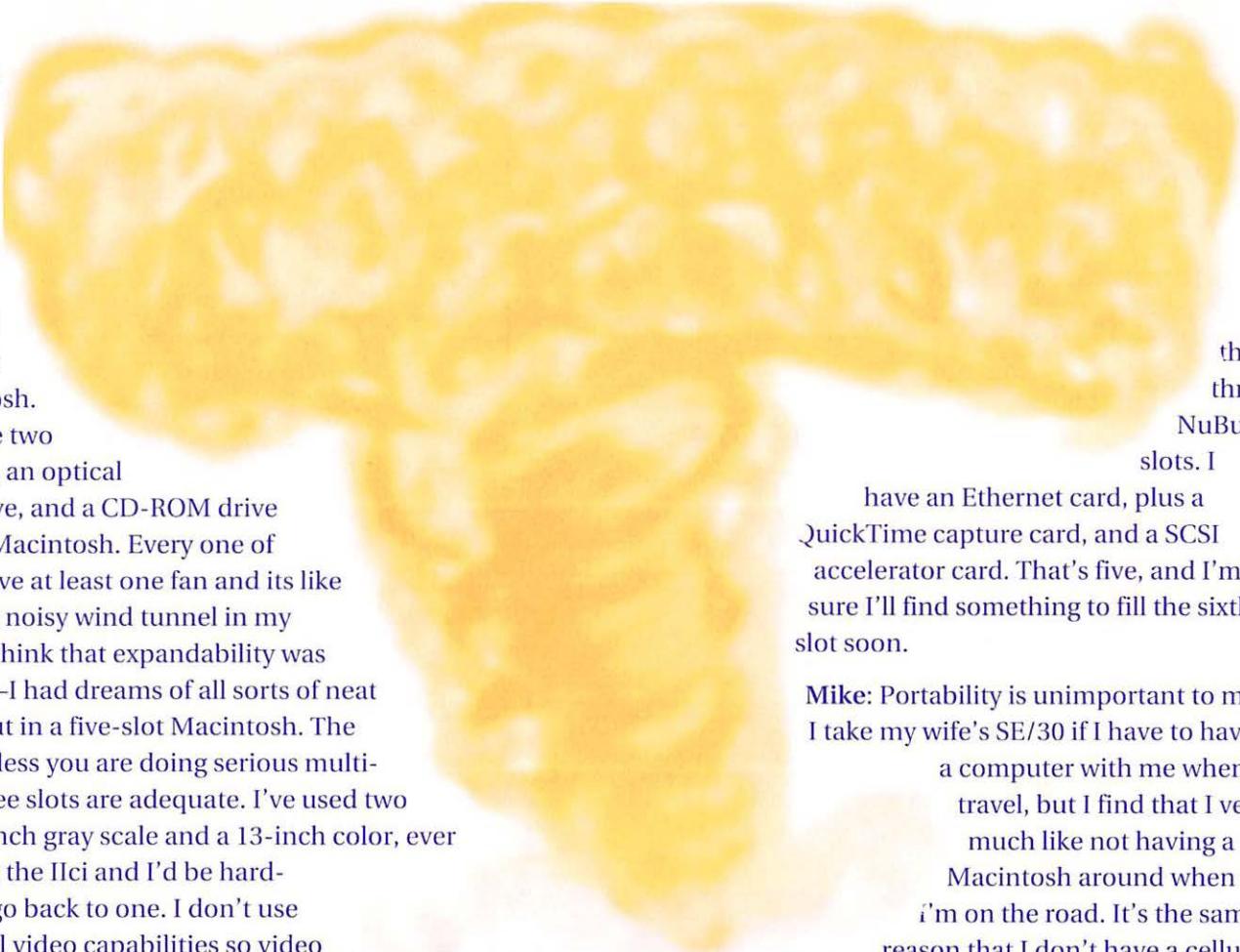
**Mike**:
Expandability is somewhat important to me, but I can live without it. I have a dream of someday being able to put all of my SCSI devices inside a Macintosh. Right now I have two hard disk drives, an optical drive, a DAT drive, and a CD-ROM drive attached to my Macintosh. Every one of these devices have at least one fan and its like working inside a noisy wind tunnel in my office. I used to think that expandability was very important—I had dreams of all sorts of neat things I could put in a five-slot Macintosh. The reality is that unless you are doing serious multimedia work, three slots are adequate. I've used two monitors, a 21-inch gray scale and a 13-inch color, ever since I moved to the IIci and I'd be hard-pressed to ever go back to one. I don't use the IIci's internal video capabilities so video display alone takes up two slots. Someday I hope to migrate from LocalTalk to Ethernet—there goes the third slot. I honestly can't think of anything I'd put in more slots.

**Bob**: I'm an expandability freak. And I agree, the two monitor setup we both have—a large gray scale and a small color—is to die for. Sure it takes up two NuBus slots (on my IIfx, at least), but it's worth it. Which means I need more than three NuBus slots. I have an Ethernet card, plus a QuickTime capture card, and a SCSI accelerator card. That's five, and I'm sure I'll find something to fill the sixth slot soon.

**Mike**: Portability is unimportant to me. I take my wife's SE/30 if I have to have a computer with me when I travel, but I find that I very much like not having a Macintosh around when i'm on the road. It's the same reason that I don't have a cellular phone.

**Bob**: I can't stand to be out of touch when I travel, so I take my entire office (or at least a good chunk of it) on the road with me. Since my IIfx won't fit in the luggage bin, I take my PowerBook 170 and stay in touch via a high-speed Global Village internal modem and a Fujitsu hand-held cellular phone. (I wonder if I can get a Newton on editorial loan?)

## Cost Plus

Finally, determine the absolute maximum you want to spend.

With this information, comb *MacWEEK, MacUser,* and *Macworld* to determine which Macintosh model best meets your needs. Then talk to people about which Macintosh they bought and if they could do it over, which Macintosh they would buy. (The Internet and online services like CompuServe and America Online are great places to ask this question.) Combine all the information you receive and arrive at the Macintosh model and configuration that is most appropriate for you.

Study the back pages of *MacWEEK, MacUser,* and *Macworld* to determine the going "street price" for the model of Macintosh you want. Remember to look for the barest bones system you can find.

Here's an example of how Mike would go about the process as of May 1993.

(Disclaimer: The figures in this section are out-of-date. They were out-of-date when we went to press and are more out-of-date today. Long lead times are one of the biggest bummers about books. In this case it's OK; the numbers aren't that important, but they do serve to illustrate the point. So ignore the prices and consider instead the thought process as Mike evaluates a new CPU.

**Mike**: The current state-of-the-art, top-of-the-line Macintosh computers are those in the Quadra line, but I know that Apple will be announcing newer, faster, better computers—code named the Cyclone and the Tempest—in a month or so. This should force Quadra prices down considerably, so I've determined not to buy anything until the new models are announced *and shipping.* I'm going to be doing some color electronic publishing work over the next year, so I've decided I need at least a Quadra class machine.

I like the size and lower price of the Quadra 800 relative to the Quadra 950, but there are some pretty significant limitations:

- The Macintosh Quadra 800 includes 512K of video memory (VRAM) relative to the Quadra 950's standard 1M.

- The Quadra 800 has 8M of memory soldered on the motherboard and only 4 SIMM slots. In addition, the Quadra 800's SIMM slots are incompatible with SIMMs for all prior Macintosh models. Thus, I'd own a lot of RAM that I couldn't use. The Quadra 950, on the other hand, has no memory soldered on the motherboard (one less thing to go wrong) and 16 ("standard") SIMM slots. That I can use my IIci's 20M of RAM in the Quadra 950, but not in the Quadra 800, is a vote for the 950.

- The Quadra 800 has three NuBus slots and a processor direct slot, one of which is disabled if the processor-direct slot (PDS) is used. The Quadra 950 has five NuBus slots and a processor direct slot, none of which conflict.

- The Quadra 950 has four 5.25-inch half-height drive bays, two of which are exposed. The Quadra 800 has one 5.25-inch half-height drive bay (for a CD-ROM drive) and two 3.5-inch half-height drive bays, one of which is exposed.

- The Quadra 950's built-in video can support up to 16-bit color or gray scale on a 21-inch monitor. The Quadra 800's built-in video is limited to supporting 8-bit color or gray scale on a 21-inch monitor.

- The Quadra 950 has both internal and external SCSI buses and can support up to 14 SCSI devices. The Quadra 800 can support only a total of seven SCSI devices.

- The bare-bones Quadra 950 carries a retail price of $5,609, although they are available used for about $3,600. There is no bare-bones Quadra 800; the lowest-priced configuration comes with a 230M hard disk drive at a retail price of $4,679. Unfortunately, I've not seen many Quadra 800s for sale on the used market. Using the MacWEEK classifieds as a gauge, I can configure either system as shown in table 4.3.

## Table 4.3

Quadra 800 vs. Quadra 950 pricing comparison

| Quadra 800 | Price | Quadra 950 | Price |
|---|---|---|---|
| Quadra 800 8/230 | $3,875 | Quadra 950 8/0 | $4,545 |
| H-P C2247 (3.5-inch 1.2 GByte) | $1,395 | H-P C2247 (3.5-inch 1.2 GByte) | $1,395 |
| (4) 72-pin SIMMs (60ns) | $608 | (4) 4 MByte SIMMs (70ns) | $596 |
| Apple Extended Keyboard | $150 | Apple Extended Keyboard | $150 |
| Sale of 30 MByte hard drive | -$300 | | |
| Total | $5,728 | Total | $6,686 |

The question is whether or not the Quadra 950 is worth $958 more than a comparably configured Quadra 800. For me the answer is probably no. I'd be better off buying an accelerated video card for my high-end color work in either configuration.

## The Bottom Line...

The final step in the process is to take your back-of-the-magazine quotes to your local dealers and see how close they can come to matching the price. When you do this make sure you're comparing apples to apples. Don't buy into a dealer's argument that he can provide you with a cheaper system price if you go with a different hard disk drive. Decide on your equipment specification and stick to it. When you start substituting items you'll only get confused. And when you get confused, you're at the mercy of the dealer. If you're the least bit freaked out by the prospect, drag a more knowledgeable friend along with you when you shop.

**When you do this make sure you're comparing apples to apples.**

## As for us...

**Mike**: I'm going to wait until the Cyclone comes out and see what its introduction does to Quadra prices. Either Quadra model offers roughly two—maybe two and a half—times the speed of my IIci. That's simply not worth the price difference at this time.

**Bob**: I'll wait and see how things shake out with the new models. If they seem to work, I'll replace my aging IIfx with a slightly used Cyclone-class machine six or eight months after they hit the market, or maybe I'll just tough it out with the IIfx until the PowerPC machines arrive.
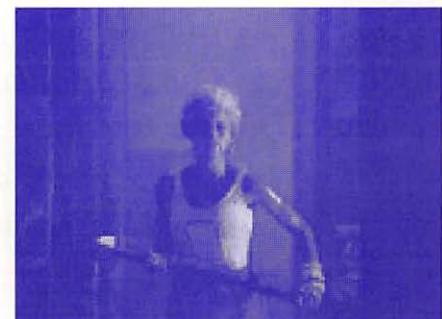
# Mondo Mac Customization

How a pair of guys with very different styles and tastes soup up their Macs.

## System 7 + Lotsa RAM = Total Computing Satisfaction

**Mike:** For me, there's only one hard and fast rule for Macintosh customization: any customization feature has to add enough value to offset any performance degradation. The best Mac customization you can make, right off the bat, is upgrading to System 7. You'll notice a significant performance hit (especially noticeable if you go back to using System 6), but the features offered by System 7 vastly outweigh the negatives.

I run pretty much bare-bones—compared to Bob. My System software partition is well under 5M, and that's with a 512K RAM cache and a 756K cache for Adobe Type Manager. I like to give my main working programs a good bit of breathing room and I still have almost 7M of memory available for other programs that I work with throughout the day.

## About This Macintosh

**Macintosh IIci**

**System Software 7.1**
© Apple Computer, Inc. 1983-1992

**Total Memory:**    20,480K    **Largest Unused Block:**    6,830K

| | | |
|---|---|---|
| DATEBOOK™ PRO | 1,024K | |
| FrameMaker | 5,000K | |
| System Software | 4,600K | |
| TCP/Connect II™ | 2,000K | |
| TOUCHBASE™ PRO | 1,024K | |
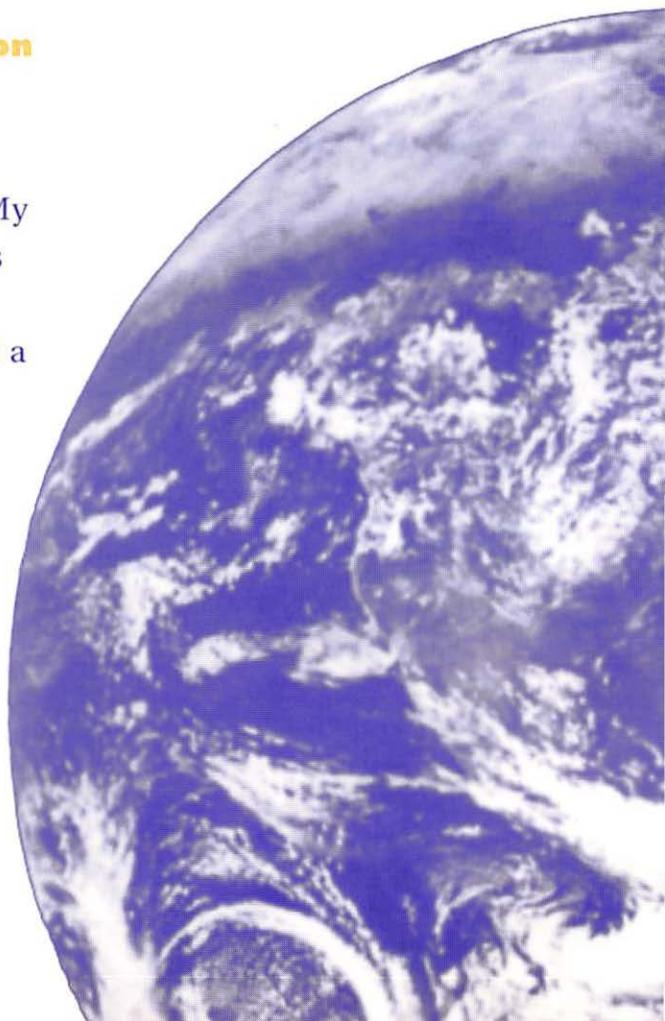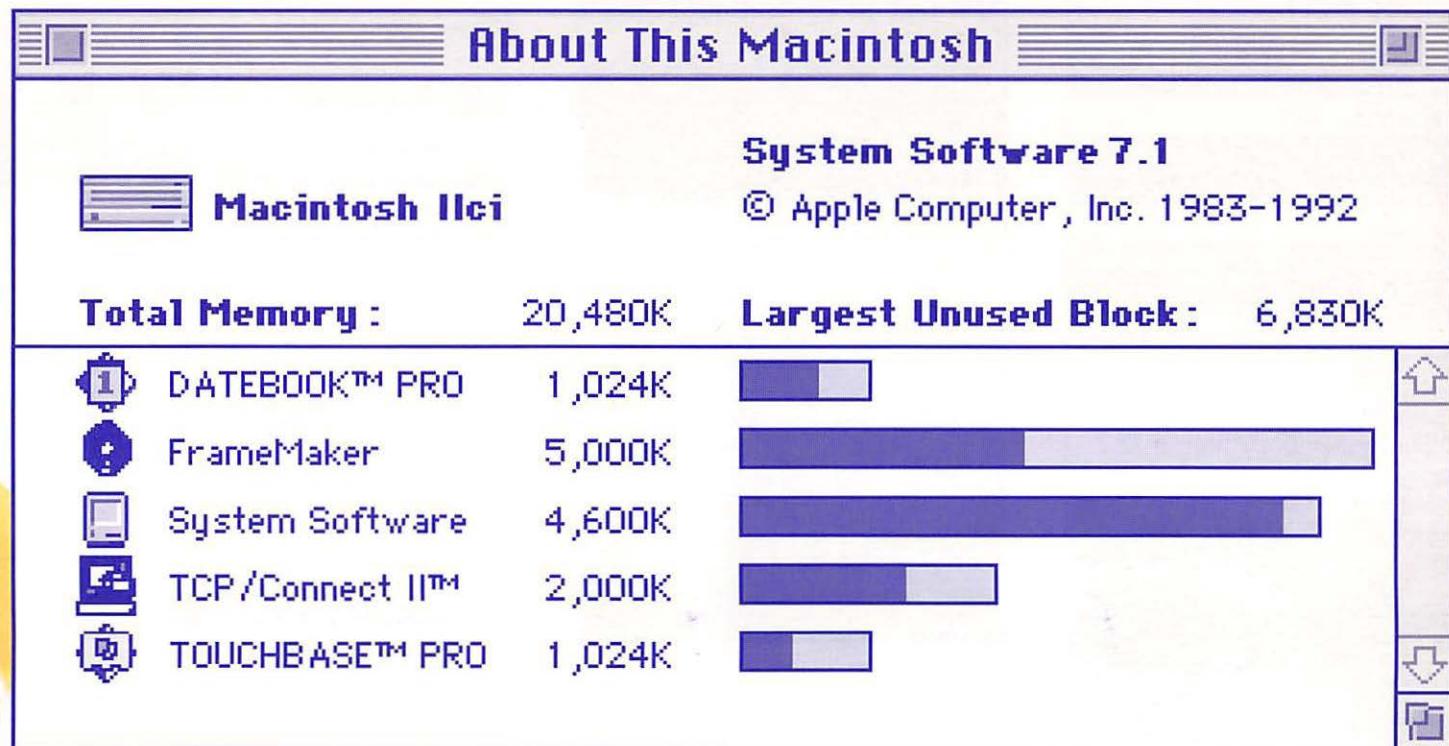
### About Mike's Mac ▲

**Bob:** I agree. System 7 is totally excellent, but forget what Apple tells you about how much memory you need. You will need at least 8M to do useful work with System 7. Sure, you can (barely) get by on a machine with 4 or 5M, but 8 or more is better. Much better. If you're anything like me, you'll need even more. My System software alone takes 6,000K; I also keep a lot of programs open.

MacsBug
 Now Toolbox
Apple CD-ROM
AppleShare
AutoFlush
CD Remote INIT
CEIAC
CEToolbox
Connect
Desktop Reset™
EtherTalk
EtherTalk Phase 2
File Sharing Extension
Foreign File Access
MacRecorder® Driver 1.0.2
MasterJuggler™
Network Extension
QuickTime™
Remote Access Aliases
Remote Only
Retro.SCSI
Retro.Startup
SAM Intercept™
SCIAC
Shared Code Manager
Sound Manager
NowMenus
Magic Menu™
Suitcase™ 2.0
Tempo II Plus 3.0
Toner Tuner™
Turbo Mouse Startup
Viewer Engine™
Webster Extension
WonderPrint 1.0
Working Watermarker™

Working Watermarker™
AppleCD Speed Switch
ApplWindows
autoboot 1.2
Capture
CD-ROM ToolKit™
CopyDoubler™
Dialer
DialogKeys™
Easy Access
Helium Pro™
Last Resort P.E.
StuffIt Engine™
Square One Extension
Memory
PowerKey™
Prevention
QuicKeys 2™
Reminder
Remote Access Setup
SCSIProbe
SpeedyFinder7
StuffIt SpaceSaver™
Super Boomerang
SuperVideo 2.49
TelePort Serial
Thunder 7™
Type From Agfa
Wallpaper™
Wild Magic
WindowShade
WYSIWYG Menus
~ATM™
●MacEKG™ 2.0.5
 Tempo Assist
 Square One alias
DarkSide alias

**About This Macintosh**

System Software 7.1

Macintosh IIfx          © Apple Computer, Inc. 1983-1992

Total Memory :      32,768K     Largest Unused Block:      8,924K

| | | |
|---|---|---|
| Adobe Photoshop... | 10,000K | |
| American Herita... | 1,024K | |
| CEIAC | 100K | |
| DarkSide | 64K | |
| FrameMaker | 2,000K | |
| Now Up-to-Date™ | 800K | |
| SCIAC | 75K | |
| Square One | 400K | |
| System Software | 5,990K | |
| TOUCHBASE™ PRO | 1,000K | |
| Word | 2,400K | |
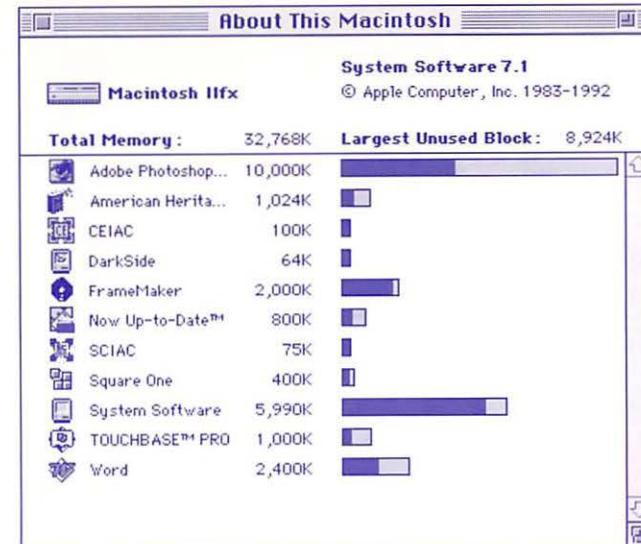
▲ **About Bob's Mac**

My extensions and control panels, all of which are *vital* to the effective operation of my Macintosh, suck up about 4,500K.

◄ **Bob's control panels and extensions**

System 7 uses the rest. Unlike Mike, as you'll soon find out, I like to soup up my Macintosh and am willing to overlook small performance penalties if the customization adds enough soup for my tastes.

**Mike:** Do you remember when Adobe Illustrator was one of the first programs that required a full megabyte of memory to run? Macintosh software programs have gotten rather slothful since then and most programs worth running are memory pigs.

**Bob:** They say you can never be too rich or too thin. I say you can never have too much RAM or too much hard disk drive space.

**Mike:** You must order a copy of Adobe's SuperATM from one of the mail-order dealers. It'll cost you about $100 or about $50 to upgrade from a previous version of Adobe Type Manager (ATM). SuperATM uses some super-whiz-bang technology called Multiple Masters to generate a substitution font when you open a document that contains fonts that you don't have installed. It works great—page breaks, line endings, column widths, and leading are identical to the original font—but it's a memory pig. Also, the "color" of a body of text may change, but it beats the hell out of Courier, Times, and Helvetica substitutions.

**Bob:** CE Software's QuicKeys is at the top of my can't-do-without list. I've often said that QuicKeys is, perhaps, the greatest Macintosh utility ever invented. I still think so even though more and more software programs have built-in keyboard customization capabilities. I still use
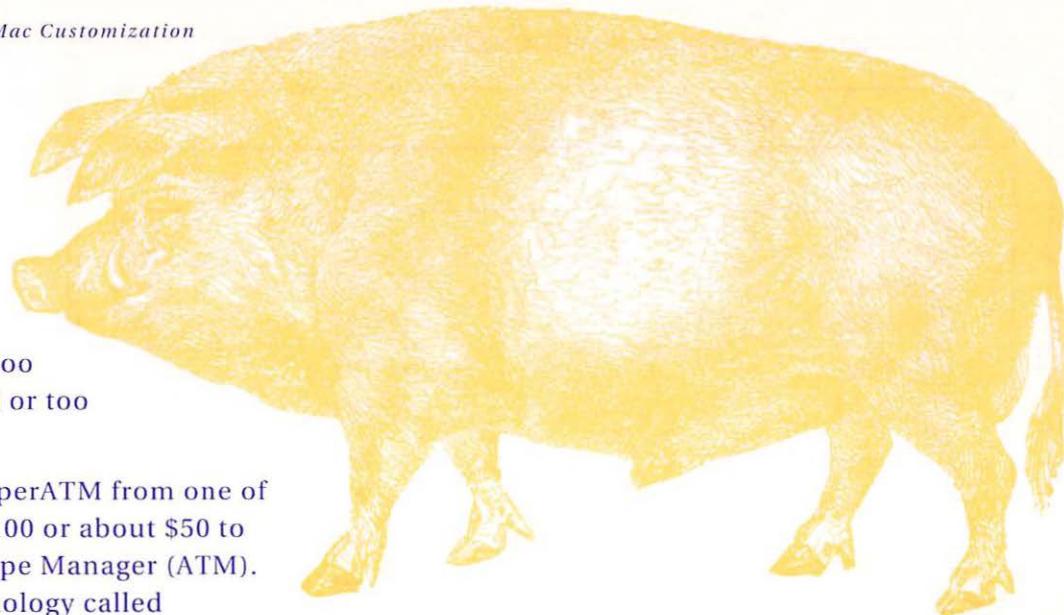
Quality is not objective, he said. It doesn't reside in the material world. Quality is not subjective, he said. It doesn't reside merely in the mind.

With SuperATM

```
Quality is not objective, he said. It
doesn't reside in the material world.
Quality is not subjective, he said. It
doesn't reside merely in the mind.
```

Without SuperATM

▲ **SuperATM Example**

# *Super-whiz-bang!*
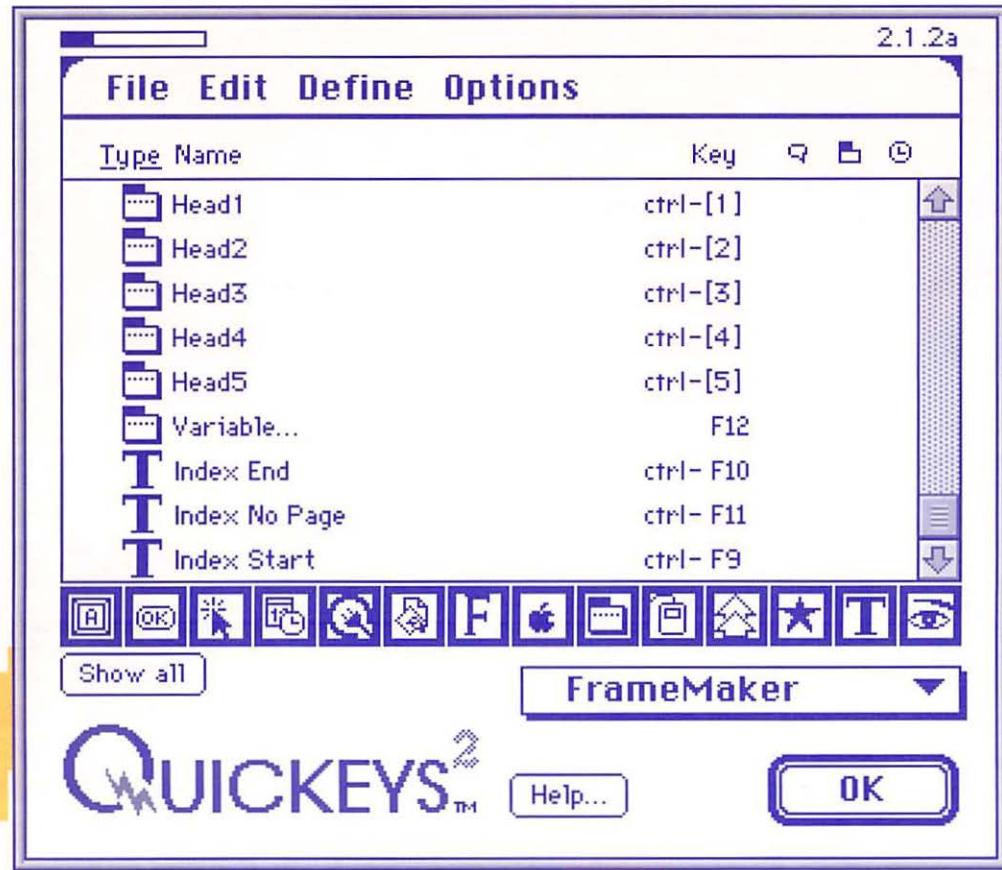
▲ **QuicKeys keyset for FrameMaker**

QuicKeys every day. Mike uses a version of QuicKeys that is a couple of releases old, because it does what he needs and the newer versions tend to take a bigger performance toll on his Macintosh. I, of course, have the latest and greatest version as well as every single QuicKeys extension. The new version is better than that rickety old version Mike uses and only requires a little more RAM. Anyway, RAM is cheap.

**Mike:** I agree. QuicKeys is great. I use FrameMaker for all of my writing and have a QuicKeys keyset that took me quite a while to put together. I use QuicKeys-controlled keyboard commands for everything: assigning heading levels, inserting index entries, establishing cross-references, and inserting variables. FrameMaker made my writing much more productive, and QuicKeys helps me work more efficiently within FrameMaker.

I also use QuicKeys to automatically mount and log-in to the two file servers in my office and to automatically launch my most used software programs from a menu.

Bob would say I'm not a power user because I don't partition my hard disk drive. Power user or not, I think QuicKeys is one of those things that should be built into the Macintosh operating system.

**File   Edit   View   Label   Special**

Left menu:

About This Macintosh...

CEToolbox
QuicKeys                    ▶

Suitcase                  ⌘K
Chooser                    ▶
Control Panels             ▶
GOfer™ 2.0
Key Caps
MacSLIP

Submenu:

QuicKeys...

QuickReference Card...
Record Sequence
Record Real Time
Stop Recording...
Cancel
Pause

Record one QuicKey

⌘ Mount Lila
⌘ Mount Savannah
🖉 Adobe Illustrator® 3.2.3
🖉 Adobe Photoshop™ 2.5
🖉 Aldus FreeHand 3.11
🖉 Canvas™ 3.0.6
🖉 DATEBOOK™ PRO
🖉 Fetch 2.1
🖉 FrameMaker
🖉 Inspiration™ 4.0
🖉 PageMaker 4.2
🖉 Quicken 4
🖉 Retrospect
🖉 TCP/Connect II™
🖉 TOUCHBASE™ PRO
🖉 TurboGopher
🖉 WAIS for Mac 1.1

Right column:

*Chapter 5: Mondo Mac Customization*

**Bob:** I only partition them because they're big. And it's not the quantity of the launch items, it's the skill of the launcher. You're just jealous. For what it's worth, I use dozens of QuicKeys macros each day. From dawn, when a macro logs on to CompuServe and scans for my E-mail to dusk when I invoke a QuicKey shortcut to Shut Down my Mac, I use QuicKeys more than any other program I own. It's without question the greatest thing since sliced bread.

**Both** (in unison): QuicKeys is one of those things that should be built into the Macintosh operating system.

◀ **QuicKeys Hierarchical menu**
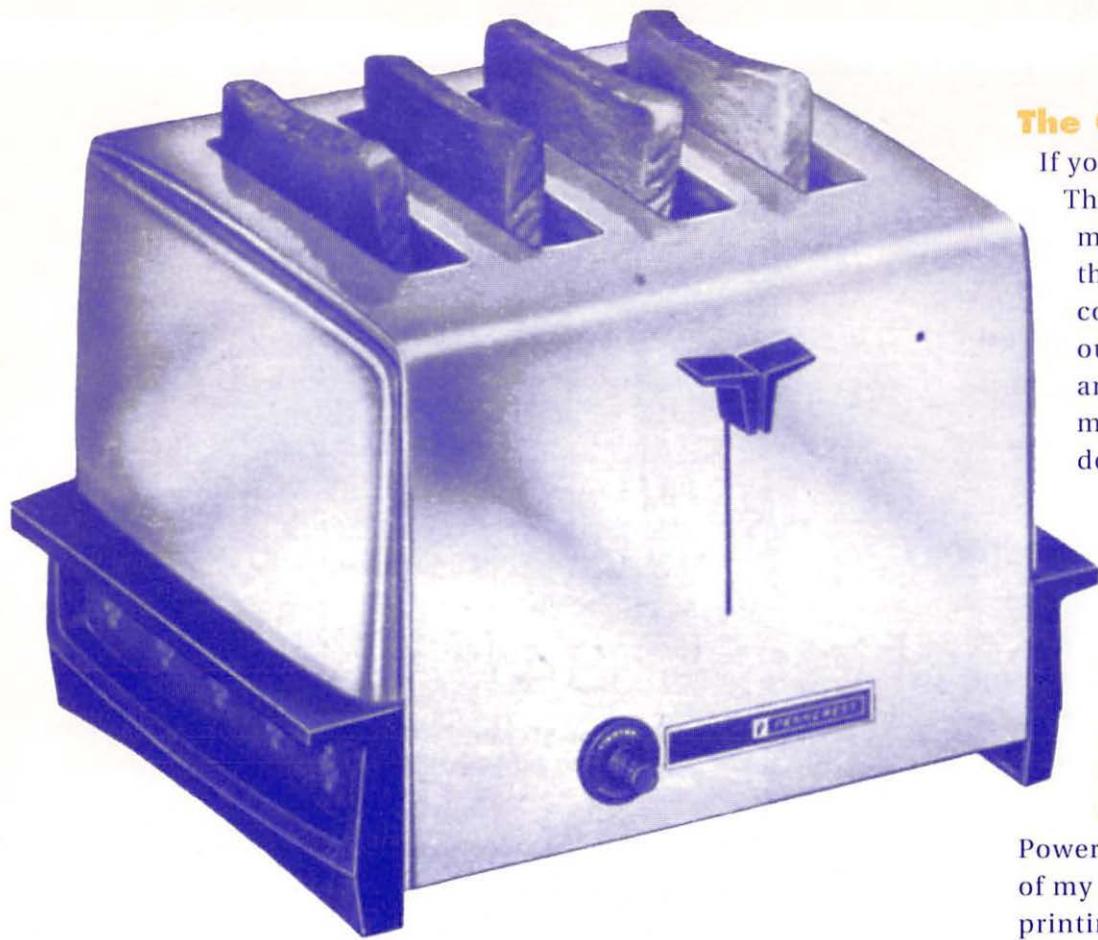
55

If you use a Macintosh, you need a screen dimmer. There are two schools of thought in this area. The minimalists (like us) want a screen dimmer that's reliable and easy on resources. The rococos (you know rococo art; it all looks like it came out of a toothpaste tube) want to watch cartoons and don't care how much memory it takes, how many conflicts it creates, or how much it slows down their computers.

**Mike:** Most people like After Dark by Berkeley Systems. I don't. I've never gotten it to run reliably and it's a resource pig. I don't care about flying toasters or the bridge of the Starship Enterprise (until I can bark, "set a course for..." and the Macintosh will know where I want to go and take me there). I use ScreenEclipse; it's part of Claris Clear Choice's Power to Go, which used to be ALSoft's Power Utilities. All it does is dim the screens of both of my monitors—reliably. It doesn't interfere with printing or high-speed file transfers, either on my local area network, by modem, or across the Internet. It's smart enough to let Retrospect do its backup business while keeping the screens black. I've never had it crap-out and not dim the screens and I've never had to update it. Seems like After Dark has a new update every time Apple releases a new computer.

**Bob:** I'm a minimalist myself. I use Darkside of the Mac, the killer freeware screen saver by folk hero and legend Tom Dowdy. I use the PictShow module to float an interesting graphic around my screen.

*I don't care about flying toasters or the bridge of the Starship Enterprise.*

56

Dr. Macintosh Sez...
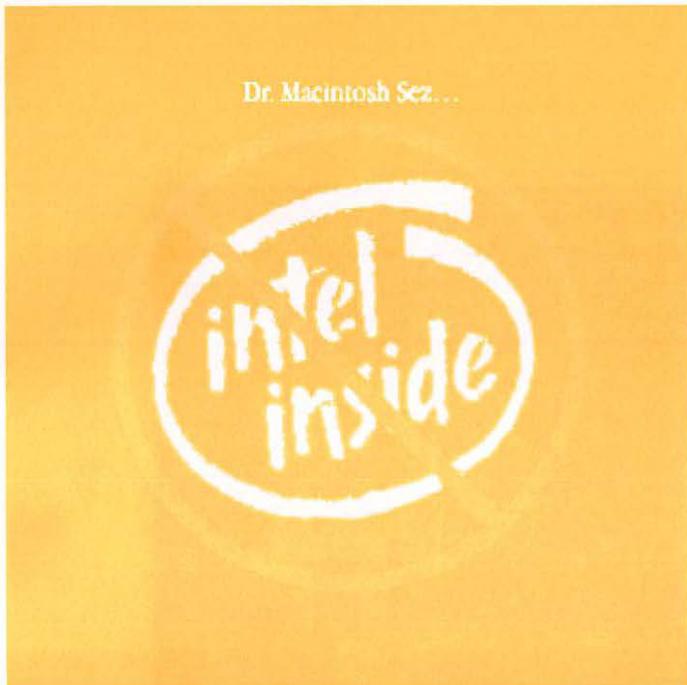
◀ **Bob's screen saver**

I like the fact that DarkSide is an application, not an extension or control panel. It never conflicts with other extensions. Best of all, it's free.

### The Sound of Arnold Barfing

**Bob:** You can modify your System beep sound without a performance hit so long as you stay with short sounds. Lots of Mac users like to add sounds for different Macintosh events using Bruce Tomlin's excellent shareware program SoundMaster, or its commercial cousin KaBoom from Nova Development. (Puking sounds for ejecting disks, Arnold sounds for shutdown, Monty Python sounds for startup, and on and on.)

**Mike:** I like to run lean and never have had much patience for these things. Besides, I work while I'm on the telephone a lot and the last thing I need is to explain to an editor what that puking sound is in the background during our conversation.

**Bob:** My editors are used to it. I love Mac sounds. I've got more than 10M, including a copy of the THX "deep note" sound allegedly smuggled out of LucasFilms by a renegade Mac fanatic employee. I've also got an incredible set of Terminator 2 sounds, recorded off laserdisc, that sound unbelievable. My Mac is connected to a set of massive subwoofer-equipped Altec-Lansing multimedia speakers, making everything that much better (and louder). When I shut down, Arnold snarls, "Hasta la vista, baby." When I restart he growls, "I'll be back." Sounds don't make me more productive, but they sure are fun.

## My beep sound is a **short-but-sweet** chime.

**Mike:** On the other hand, all that barfing noise may help make a case for a deadline extension—I can't get it done by then. I'm sick. Don't you hear that? My beep sound is that of a loon and I stole it from the NeXT I had on loan for a while.

# *Beauty* and the Desktop



▲ **Mike's favorite desktop patterns**

**Mike:** The final customization on my Macintosh is a customized background desktop pattern. I use ResEdit to install attractive patterns and it doesn't seem to effect performance noticeably. Lots of folks use Thought I Could's WallPaper or a similar utility, but I'm fairly comfortable with ResEdit. As you can see, I'm a deadhead.

If you've got enough memory to display a PICT graphic as a desktop backdrop, there are all sorts of interesting graphics you can use. My favorite is something called Cyberport. There are versions available for 13- and 19-inch monitors.

58
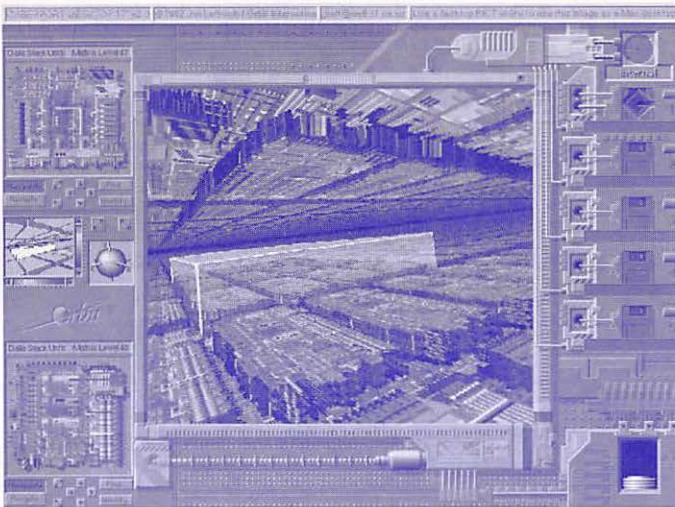
◀ **Cyberport desktop picture (13-inch monitor)**

**Bob:** I like Thought I Could's WallPaper a lot. It doesn't take much RAM and I like having it randomly select a different desktop pattern every 30 minutes.

I don't know about Mike, but I also have a custom startup screen I just love. It's a photograph from the PhotoCD that comes with Rick Smolan's gorgeous coffee-table book From Alice to Ocean. I like it so much that I sometimes use Now Software's FunPictures to display it as my desktop. I can usually spare the RAM.



◀ **Bob's favorite desktop patterns**

**Mike:** My main monitor is a 21-inch grayscale display and I don't like wasting the RAM that a background picture requires, so I'm content with using desktop patterns.

**Bob:** Booooring. One other thing I do to decorate my desktop is use a lot of custom icons. They're fun, don't require additional hardware or software, and are mostly free.

**Mike:** Needless to say, I don't use custom icons either. Since I don't partition my hard drive, each additional icon takes up 7K of real estate.

◀ **Bob's desktop/startup screen displaying a photograph found in From Alice to Ocean**

◀ **Bob's icons**

12 13 14 15 16 17
18 19 20 21 22 23
24 25 26 27 28 29
30 31 32 33 34 35
36 37 38 39 40 41
42 43 44 45 46 47
48 49 50 51 52 53
54 55 56 57 58 59
60 61 62 63 64 65
66 67 68 69 70 71
72 73 74 75 76 77

Top Disk
13 items      289.2 MB in disk      114.2 MB a

System Folder      Bookkeepingf
DATEBOOKf          Telecomf
MS Wordf
MOREf
Inspirationf
Utilitiesf
•Networkf

Intrepid
5 items      101.8 MB in d

System Folder      A
Utilitiesf          F
                    ishingf

Archive
Name                         Size   Kin
Filesf                         —

Internet Information
Name                         Size   Kin
                             —
ationf                       —
t Updatef

FrameMakerf
10 items      289.2 MB in d

FrameMaker        He
Dictionaries       Fi
Clip Art           Ma
Training           Sa
Templates          Fr

FrameMaker Files
Name                    Size   Kir
Correspondencef          —
Manus
Proje
Propo
Suppo

Manuscriptsf
Name                        Size   Kin
FrameMaker Bookf             —
Groupware Bookf              —
Karen's Filesf               —
Mac Internet Tour Guidef     —
Mac Underground Guidef       —
MRNet Manualf                —
Rapid Referencesf            —
Reviews/Articlesf            —

Intrepid
"Further

AuteMaker
Expander™
Stuff

Trash

**Mike's desktop**

## Don't Fear ResEdit

**Bob:** You can make several other modifications with ResEdit to make your Macintosh more habitable. Apple would have you believe that ResEdit is a tool only for experts, but as long as you work on a backup copy you can find out a lot about how your software works by prowl-ing around with ResEdit. You can change your Trash icon into some-thing more to your liking; you can disable the zoom rectangles that

*Real men don't fear ResEdit; neither should you.*

appear whenever you open a window; and you can change the icons used to display files and folders on your desktop. Real Mac users don't fear ResEdit; neither should you. If you're unfamiliar with ResEdit, a good place to start is *The BMUG Guide to ResEdit: Zen and the Art of Resource Editing.*

There are also third party software programs that you can buy to customize your Macintosh workspace. Unfortunately, most are implemented as extensions or control panels which are notoriously prone to conflict with other System exten-sions. The two most popular commercial collections are Dubl-Click Software's ClickChange and Now Software's NowFun and as these things go, they're pretty stable. Dubl-Click's ClickTrax sound collection—celebrity-voice-impersonated sound clips for every occasion—is hysterical.

## Noah, Build an Ark

**Mike:** Ark Technologies WorkSpace is perhaps the ultimate in Macintosh workspace customization. WorkSpace puts an overlay over the Finder. As you can see, WorkSpace extends the Finder's desktop metaphor to an entire office. And a pretty spiffy office it is. The binders along the left wall contain application programs like word processors, graphics tools, page layout programs, spreadsheets, bookkeeping programs, and so on. The implements on the desktop launch the software program associated with them. You can configure the pencil, for example, to launch FrameMaker; the compass can launch Aldus FreeHand; the paintbrush can launch Adobe Photoshop; and the calculator can launch Microsoft Excel. The center drawer enables you to create a new project portfolio. Projects that you are currently working on can be stored in the pigeon holes above the file drawers along the right wall. Completed projects can be archived in the flat drawers further along the wall.



### ▲ WorkSpace Finder overlay

The thermostat on the left wall, between the door and the binder shelves, can be used to set WorkSpace's preferences. Project management capabilities are offered by double-clicking on the wall calendar in the alcove along the right wall. WorkSpace is a very interesting working environment and it's a good example of the extendibility of the human interface popularized by Apple's Macintosh. We don't know anyone who actually uses WorkSpace, but it's a neat exercise in possibilities.

√ Finder
CE1AC
SCIAC
Square One
DarkSide
TOUCHBASE™ PRO
FrameMaker

About The Finder...
Suitcase    ⌘K
Control Panels    ▸
Applications    ▸

File
Edit
View
Label
Special
MM

Intel? Not!
07-02.tif
Austin Media Database.TBPRO
Bob's big desktop
Bob's Desktop
Bob's Screen Saver
Calendar
CD ROM
CD ROM Database.TBPRO
Mac Software Registry
Mac Underground 05
Mac Underground 06
Mac Underground 06.ar
MacUser MiniFinders
MacUser.TBPRO
MasterBase.TBPRO
StartupScreen

Mac Underground Guide !
Customizing Book:
Stuff
Templates:
CD ROM Book
FrameMaker 3.0.1

Find...

Betas
Graphics Apps
Stuff
System Folder
Telcom
Templates
Toys
Toys for Allison
Utilities
Writing

Cruella
Donald
Dumbo
Mickey
Winnie
Remote Volumes

Chooser

Alarm Clock
Battery
Calculator
Calculator +
CDT Remote™
Calendar
DialerDA
DiskTools
Fax Center
FindPro III
Image Grabber™
Key Caps
KeyFinder
miniWRITER
Note Pad
Now Scrapbook
Phone Pad
Puzzle
Remote Access
Retrieve It!
Scrapbook
Super Ruler
Tempo II
TETRIS
The Clipper™
Vantage™
Webster's Electronic

CanOpener™ 2
ClarisWorks 2.0
Common Ground™ 1.0
DeltaGraph 2.0.3
DiskFit Pro!
Dynodex 3.0 Folder
Excel 4
FileMaker Pro 2.0 Folder
FrameMaker 3.0.1
HyperCard
IM CONTROL 2.0
Inspiration™ 4.0
MacWrite Pro Folder
Nisus® 3.4 Limited Flag
Now Up-to-Date™
OrgPlus
PageMaker 4.2.1
Quicken 3.0
Remote Access
Retrospect 2.0
TeachText
TOUCHBASE PRO !
Word 5.1
WriteNow 3.0 Folder

**Better than WorkSpace: NowMenus**

**Bob:** That WorkSpace metaphor seems pretty lame to me. It works for kids (such as in KidDesk from Edmark), but it seems kind of silly for grown ups. Sorry. Give me icons and folders and productivity-enhancers like NowMenus or QuicKeys any time.

**Mike:** Geez, how do you ever find anything with all that clutter. No, wait, don't answer that. You've got a System extension that does it for you, right? I agree about NowMenus, but I get a much cleaner effect with QuicKeys. I just slam my mouse down and to the right and I've got a quick list of the ten or so programs that I use most often.

I saved the best Macintosh customization though for last. Shortly after the Macintosh was introduced in 1984, a small company in California (where else?) would paint the outside of your Macintosh case for you. Back then all Macs were beige. John Sculley reportedly had his Macintosh painted up in a sort of two-tone marble motif. There were candy-apple red Apples. And bright green ones, and Macintoshes that looked like suburban basement wall paneling. The best ones I saw looked like distressed granite. They were beautiful. Now all Macintoshes are neutered tones of either something called platinum or dark gray.

**Bob:** I remember lusting after a Mac Plus with a gorgeous faux-malachite paint job I saw at Macworld Expo in San Francisco. It was sooooo classy-looking. That was indeed the ultimate Mac customization: great looking and absolutely no impact on performance. Whatever happened to that company?

**Mike:** Dead, I think. Like so many others.

**Both:** (Sigh.) Those were the good old days. If you come across someone who refinishes Macs in faux rock or wood (and doesn't charge a king's ransom), let us know.

# MacPranks and Macpranks

Pranks are important events; pranks are nonsensical diversions. Pranks have a capital P; pranks don't. Got it?

You don't have to have a sense of humor to love the Macintosh. But it helps.

## There are Pranks and Then There are pranks!

A Prank is when Neal Cassady walked into a bar on "the wrong side of town" and saw a group of thugs ready to beat the crap out of someone. Without fully grasping the entire situation and the potential for his own bodily harm, Cassady is said to have walked up to the group of thugs, took a pack of chewing gum out of his pocket, and asked, "Hey! Anyone want a piece of gum?"

A prank is when a school-kid puts a tack on the teacher's seat.

This chapter is about both kinds.

> Neal Cassady was the
> very pulse of what
> became known as the
> **Beat Generation.**
> He inspired
> novels by Kerouac,
> stories by Kesey,
> a major part of
> Tom Wolfe's
> **The Electric
> Kool-Aid Acid Test**
> and several Nick Nolte
> roles in various films.
>
> *Michael Ventura in Whole Earth
> Review, Winter, 1988, n61, p116(3).*

## Memorable Pranks

The creation and initial marketing of Macintosh itself is perhaps the biggest Prank ever accomplished within the computer industry, maybe even within all of business. A band of renegade hobbyists set out to build a computer that they themselves wanted to use. What could be Prank-ier?

One of Apple's most misguided Pranks was the full-page advertisement the company placed in the Wall Street Journal when IBM introduced its original IBM PC. The booming title, "Welcome IBM. Seriously." was tinged with false bravado and uncertainty. It's also a good example of how Pranks can backfire. IBM went on to set the standard for—yet not get control of—the personal computer industry.

Apple's original commercial ("1984" directed by Ridley Scott), to announce the pending introduction of Macintosh was a great Prank. Stunned Super Bowl viewers across the country were hypnotized by the commercial. The commercial itself was the main topic of water-cooler conversations all across the country the following day. "1984" was a great Prank because no one was expecting it—and it worked. It solidified the positioning of something called Macintosh as anti-establishment, creative, and revolutionary in the minds of just about everyone. Never mind that virtually no one knew what the hell a Macintosh was. Was it a new car? A fruit? An amusement park? No one knew then, but they would find out soon enough.

An even better Prank would have been the "Lemmings" commercial, but Apple didn't have the gonads to stand behind the original premise. The Lemmings commercial portrayed corporate drones marching in lock-step up a cliff and flinging themselves off the precipice. It was to be interpreted as something instinctual; the corporate drones just couldn't help themselves. The premise of the Lemmings commercial was that IBM had turned everyone into a corporate drone/lemming and that our culture was headed for certain death. Only Apple could save the world through creativity and liberating the knowledge worker.

Millions of beer-addled brains across the country burped and blinked in puzzlement as the portrayal was unveiled during half-time of yet another Super Bowl. The following day, once again, Apple's latest commercial was the topic of conversation around every water cooler in the country. I don't know how the corporate worker bees responded to their portrayal as mindless vermin, but I suspect it wasn't all that positive.

Someone at Apple had an epiphany, slapping his forehead with the palm of his hand as he realized that maybe it wasn't such a good idea to portray a huge potential market as brainless weasel-cousins. From that point on, Apple's days of Pranking in its advertisements were over. Computers actually began to appear in Apple commercials and the salad days of "image" advertising were forgotten as quickly as possible. Apple had become respectable. No more pirate flags; no more hammer throwers; and no more lemmings.

It may be that the lemming portrayal got stored in some remote wrinkle in the collective corporate gray matter, or maybe corporate drones really are lemming-like. Whatever the case, Macintosh has never been wildly successful in the corporate mainstream. Macintosh has always appealed to individuals and free-thinkers. Maybe that's the best Prank of all.

## And Memorable
### pranks

There are lots of Macintosh pranks (with a lower-case "p") that you can pull or that will someday be pulled on you. Better to be the puller than the pullee. Here's one of Mike's "faves" that can even be useful for those of you on a local area network with a laser printer.

**Mike:** I write mostly long documents and that means that my LaserWriter is tied up for extended periods of time. More importantly, from a productivity standpoint, my lowly Macintosh IIci bogs down terribly while pages are printing in the background.

It's easy to get around this problem by stealing time on someone else's Macintosh for the print job. Just make sure that you have the background printing option turned on in the Chooser and that you start your print job as you ordinarily would. As soon as the Printing... dialog box disappears, open the PrintMonitor and reschedule the print job. Any time in the future will do. The spooled print files still will be held in the PrintMonitor Documents folder within your System Folder.

Make sure someone else on your local area network has System 7's file sharing option turned on and has published their entire hard disk drive for access across the network. This is the hardest part of the prank. (It was easy for me to explain to my wife that she had to publish her entire drive in order for me to update software from time to time on her machine.)

Mount the shared volume on your desktop and copy the files in your PrintMonitor Documents folder into the PrintMonitor Documents folder on the remote computer. They'll print from there and tie up that computer rather than your computer. If you want to get really fancy, you even can create an alias of the remote PrintMonitor Documents folder and login to it immediately by double-clicking on it.

```
┌─────────────────────────────────────────────────┐
│ ┌───────────────────────────────────────────┐   │
│ │   /\    Do you wish to erase the ROMs?     │   │
│ │  /!\   Warning! This operation is not      │   │
│ │ /___\  reversible!                         │   │
│ │                                            │   │
│ │ ( No, please don't )        ( I guess so. )│   │
│ └───────────────────────────────────────────┘   │
└─────────────────────────────────────────────────┘
```

▲ **Bob's stupid startup screen**

"Why is my computer running so slowly? It can't even keep up with my typing."

"I don't know, maybe you've got a virus. If it doesn't clear up in a few hours let me know."

**Bob:** That's so mean. I'll have to remember it. My favorite is an old chestnut from my *Stupid Mac Tricks* collection. You old timers remember *Stupid Mac Tricks*, don't you? *Stupid Mac Tricks* was my swan song—a book-disk collection (from another publisher) of 14 stupid programs with instructions for using them. It took the Mac community by storm way back in 1990. It spawned a mini-industry: *Stupid Mac Tricks* begat *Son of Stupid Mac Tricks, Stupid PC Tricks* (the first and stupidest PC trick, I always thought, was owning a PC...), and even *Stupid Windows Tricks*.

*It's the digital equivalent of the whoopee cushion. I still love it.*

You can easily pull the start-up screen prank yourself. Just use your favorite graphics application to save your "gift" in the appropriate format. Save it either in the startup screen or PICT-R format; name the file "StartupScreen" and drop it into the System Folder. Just "happen" to be in the area when your victim restarts their Mac. It doesn't get any better than that.

## Those were the good old days, when pranks were so popular that you could get your fix at a bookstore!

These days if it doesn't have "Dummies" or "I HATE" in the title, the bookstores don't want to touch it. As a matter of fact, we were going to call this book, I HATE MICROSOFT: The Macintosh Underground Guide for Dummies. But, their lawyers are bigger than ours.

Anyway, my favorite all-time prank is the joke StartupScreen from the original *Stupid Mac Tricks*. Just drop the StartupScreen file in your victim's System Folder, and the next time he restarts his Mac, instead of Welcome to Macintosh, they'll see something different (and do I mean different!).

Here's another prank. Download Sniff from CompuServe, America Online, or from one of the Macintosh archives on the Internet; put it in the Extensions folder (in the System Folder) on the hard drive of someone you want to prank; reboot the Macintosh. Sniff causes the Macintosh on which its running to emit sniffles, coughs, and throat clearings at random intervals. They'll like it a lot. Trust us.

You can do the same thing with MacBarf. Every time your target ejects a floppy disk, his Macintosh will make a puking sound as it spits out the disk. Cute, but not as covert as Sniff. A similar program called MacPuke can be found on the nets.

Talking Moose is one of the oldest Mac pranks. After a period of inactivity, it pops up as a cartoon moose that looks suspiciously like Bullwinkle J. Moose in the corner of the Macintosh screen and makes a pithy comment like "get back to work" or "fallen asleep already?" The commercial version of the Moose is available from Baseline Publishing and it's a classic.

73

Put an alias of any System 7 sound file in your victim's Startup Items folder (inside the System Folder). Each time he turns his Macintosh on, the sound will play as the computer starts up. An especially effective sound file is Meg Ryan's famous restaurant orgasm. (**Bob:** I get a lot of mileage out of that one!) The Macintosh hardware failure "tones of death" will also shake up a Macintosh power user. Especially if it's accompanied by a customized startup screen that's a capture of a System Error dialog box.

Bob's created a special picture resource he can use with any screen saver that can display PICT resources. Most "fancy" screen savers like Intermission, After Dark, and Pyro can display PICTs. He sneaks the picture resource into the appropriate folder and sets the screen saver to display the picture. This prank goes over especially well with MS-DOS and Windows aficionados and is said to be extremely popular inside Apple itself.

▲ **Dr. Macintosh's PICT resource**
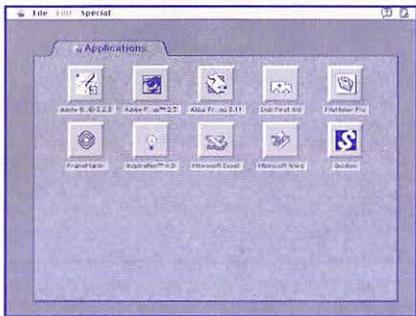
**Apple's At Ease**

*If you know someone with a compact Macintosh—any Macintosh with an internal screen—you can pull a really nasty prank by removing the screen and reinstalling it upside down. When the victim turns on his or her Macintosh, the display will appear upside down. This is reportedly a favorite stress-reliever for the technical support staff of one of the Macintosh hard drive vendors.*

*A similar hardware prank is to reverse the wiring of the mouse connections on your victim's mouse. When he drags the mouse to the left, the cursor will move to the right. When he drags the mouse up, the cursor will move down.*

*And for the unkindest Mac prank of all... (drum roll please)... install Apple's At Ease software on your victim's Macintosh. If you're mean-spirited, specify a password. If you're really mean-spirited, enter misleading hints for the password. Your victim can always regain control of her Macintosh by booting from another disk and removing the At Ease files or holding down the Shift key at startup to disable it*

# Daily News

## Apple Drops LSD Pioneer into Party, Has Bummer

*(and all other extensions and control panels).*

By Rory J. O'Connor

"They thought we were all loaded and dangerous."—Ken Kesey

Invite author Ken Kesey to take the stage at a 1960s "groove fest" party, and you might well expect the former leader of the Merry Pranksters to wind up mentioning LSD along the way.
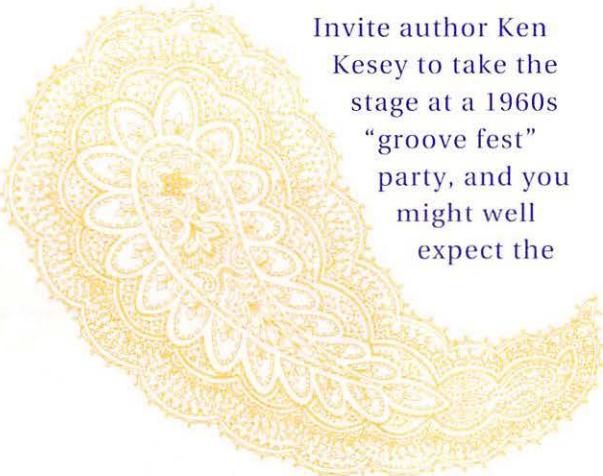
But it apparently surprised the producers of just such a party at the San Jose Convention Center Thursday night: They unceremoniously threw Kesey and his friends, including former Pranksters, off the stage, saying the outfit paying the tab couldn't abide its stage being used for "promoting drugs."

That might be expected at an American Legion fete. But what surprised Kesey was that this party was produced and paid for by Apple Computer Inc., the Cupertino company that built a counter-culture reputation for its computers in the 1970s and 1980s as strong as Kesey's Pranksters did for their causes in the 60s.

"It came as a total surprise to us. We were absolutely straight," Kesey said from his Oregon home Sunday. "But they thought we were all loaded and dangerous."

Apple hired Kesey, author of *One Flew Over the Cuckoo's Nest* and *Sometimes a Great Notion* to be part of the entertainment for the theme party, one of several the company held for 3,500 indepen-

dent programmers and Apple employees as part of its Worldwide Developers Conference last week.

Kesey, who was headed to San Jose anyway to meet with a film producer, drove to the party from his Oregon farm in a replica of "Further," the bus the Merry Pranksters drove from Kesey's home in La Honda around the country while experimenting with LSD in the mid-60s. Kesey, the Pranksters, and the bus trip were immortalized in Tom Wolfe's best selling book *The Electric Kool-Aid Acid Test.*

Kesey parked the bus in the courtyard of the convention center. Then while a band Kesey described as "dressed up like Paul Revere and the Raiders, wearing lots of paisley and day-glo" took a break, he

began "telling his warrior stories" from the 60s, a local friend of Kesey's recounted.

"I was trying to relate what was happening with computers and microtechnology and virtual reality to what was going on in the 60s, which was to use new programs instead of the same old programs," Kesey said. "I said we weren't there to join in the 'laugh-in.' I said we were going to crash this program."

But about 20 minutes into his monologue, Kesey suggested to the audience that the federal government should have dealt with the Branch Davidian standoff in Waco, Texas, by spraying the compound with LSD instead of bullets. That's when a woman helping to produce the show rushed onstage and told Kesey he was through because of the drug reference.

"Frankly, the producers weren't even born back then," said Kesey's friend, who didn't want her name used. "They didn't have a clue what

## Apple Boots Kesey for LSD Reference; speech is acid test of ill-planned event.

Kesey and his entourage then got back on their bus and started to leave—only to have the producers insist he couldn't drive it away while the party was going on. They called extra security guards, including one armed with a gun, Kesey said. But Kesey eventually got the bus out, and headed back to Oregon.

A reporter's call to Apple for comment Friday initially was answered by a secretary who asked how to spell Kesey's name—and then asked who Kesey was.

Eventually, an Apple spokeswoman returned the call and acknowledged that Kesey had attended the party at Apple's invitation. But she declined to discuss what happened, saying the event was "a private party."

Kesey said he was just as happy the producers pulled the plug on him, noting that there were no spotlights and it was hard for the audience to hear him.

"The whole thing was ill-programmed to start with," Kesey said. "They didn't want live people. It came as a surprise to them."

**Mike:** Well, that certainly boosts my self image. I was asked not to return after a keynote address I delivered at an Apple-sponsored trade show in February of 1991. I made references to software having "evolved very little since the days it was sold in baggies like drugs." I also called for the attendees to tread lightly on hackers in networked schools. I consider myself to be in fine company. If you're an alumni of being kicked out of a speaking engagement at an Apple-sponsored event, drop me a line via E-mail at mfraase@farces.com. Maybe we can start a support group or something.

# *The* GOOD, *the* BAD, AND *the* UGLY

## (SOFTWARE)

Here's a scary exercise for you. Think about all the Macintosh software that you've purchased over the years. Now, think about how much of it you still use.

## WE LONG FOR THE BAD OLD DAYS...

**Mike:** In 1986 (the same year I bought my first Macintosh), I purchased a piece of software from Knowledge Engineering called JustText. I don't have even a vague idea of what JustText was or what happened to Knowledge Engineering. I just know (from my receipts) that I paid $156 for it.

**Bob:** JustText was a primitive, but-capable first-generation PostScript typesetting program. How could you not remember it? It could do a few cool things with type, but it had no interface to speak of, wasn't WYSIWYG, and wasn't in any way interactive. It also wasn't any fun. When the interactive page-layout programs became available, Knowledge Engineering faded away.

**Mike:** The worst year for Macintosh software may well have been 1986. Some will say that 1984 was worse because there wasn't any software, but of all the years that there has been software for the Macintosh, 1986 was definitely the worst. However, there also were a few keepers released in 1986.

On the invoice that has JustText on it, I see that I also bought Solutions Inc.'s Glue for $39. Now I remember Glue fondly; Glue was a utility that allowed you to print a document to a file on disk. It was a pretty good product—as 1986 products went—and I remember Solutions Inc.'s Tom and Mary Evslin. (Last I heard, Tom went to work for Microsoft.)

**Bob:** Yeah, I remember them too. Weren't they nice? Tom programmed and Mary minded the business side. Nice people. Nice products. (They also programmed

*Corporate PR 1990 Urban Offsite*

the MCI Mail front-end Desktop Express.) I like that in a company.

**Mike:** At $39, Glue was a pretty good bargain. Seven years later it looks like Adobe's Acrobat and No Hands Software's Common Ground will duke it out for the number one print-to-disk utility. Common Ground carries a $189 price tag and the price for Acrobat is in the same ball park. I wonder if either will be worth almost five times the price of the original.

**Bob:** Seven years from now you'll look at the invoice for Acrobat (or Common Ground for that matter), with the same wistful nostalgia you're showing for Glue today. Acrobat and Common Ground will both be vague memories and you'll be using Amber or Bento, (doesn't Apple have pleasant sounding code names?) or OLE 5.0. Don't you read *MacWEEK*?

**Mike:** I'm hoping that seven years from now there won't be any applications. There will just be a totally modeless computing environment in which to work. Yeah, Bob, of course I read *MacWEEK*. That's how I know that what you're talking about won't be called Amber. There's a trademark conflict. It's now called OpenDoc.

**Bob:** Wasn't that Jean Louis Gasseé's license plate?

**Mike:** No, you goofball, that was "OpenMac." Anyway, in 1986, Boston Software's MacPublisher II was available for a street price of about $160. It offered some capabilities that PageMaker lacked, but it never sold very well. I bought a copy and used it until the next version of PageMaker came out and MacPublisher—as well as its progenitor, Boston Software—faded into memory.

**Bob:** Actually, MacPublisher hung around until MacPublisher III.
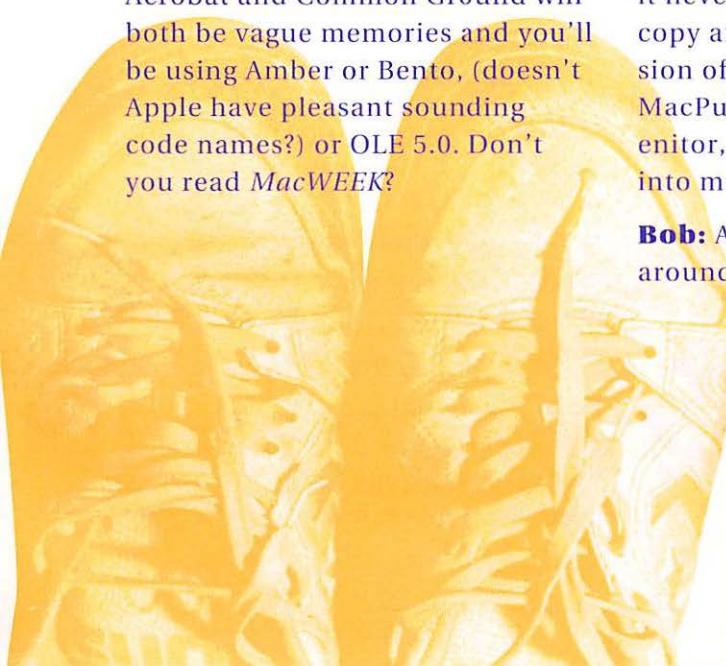
*I'm hoping that seven years from now there won't be any applications.*

But it was a "has-been" from the start. The publisher of MacPublisher, Russ McCann, has thrived though. After an ill-fated stint at Letraset, he now runs Ares Software, best known for its fine font utility, FontMonger.

**Mike:** Anyone that was trying to use Macs in a collaborative work-group environment in 1986 will remember Infosphere's MacServe. At about $300, MacServe enabled you to share a hard disk drive with other users on what was then called an AppleTalk network. MacServe was a disk server, not a file server; you could divide a central hard disk drive into user partitions, but you couldn't share information among them. It seemed like a good idea at the time, especially if you had a whopping AST-4000 hard disk drive and integral tape backup to use with it. A 40M disk server was pretty near state-of-the-art in 1986.

SuperPaint was another product I bought in 1986. It was a better alternative to MacPaint than Ann Arbor Softworks' FullPaint (which I also bought). (Incidentally, SuperPaint is still available through Silicon Beach Software [another company we loved dearly], which

was acquired by Aldus Corp. a couple of years ago.)

How about Voila!, remember that one? I bought a copy in 1986. It was Target Software's outliner in a desk accessory and it was pretty good. At least until Acta came out. Target Software had some sort of licensing problem with Deneba Software—the company that actually created Voila!—and has long since faded from the Mac scene.

**Bob:** Do I remember Voila? And Target Software? How could I forget! You must remember their page layout program-to-beat-all-page-layout-programs, Scoop. On the other hand, Target closed not long after shipping it so you might not remember it. It would certainly qualify as one of our legendary vapor products.

**Mike:** Yeah, I remember Scoop. I was trying to be polite and not bring it up.

**Bob:** Here's the story as I remember it. Target published programs developed by a little

company in Miami called Deneba Software. Their big hit was MacLightning (a spell checker now known as Spelling Coach Professional), but they also had other utilities such as Voila! and Comment. Anyway, Target wanted a bigger piece of the pie so they went out and bought a page layout program and set out to knock PageMaker and ReadySetGo! from the top of the charts. While they slaved to get it right, they virtually ignored their bread-and-butter products such as MacLightning. The problem was that their page layout program never worked quite right. They named it Scoop and dumped tons of cash into it. Ultimately they shipped it, bugs and all. It wasn't long before they too disappeared.

**Mike:** The worst thing about Scoop was its bugs. The second worst thing was the interface. It was hard to tell which there were more of: bugs or hierarchical menus.

**Bob:** Incidentally, although Deneba Software had some hard times after the Target
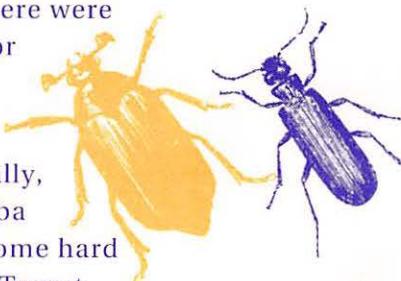
debacle, they took a deep breath and made the decision to publish their own programs from that time forward. The gamble paid off. They've grown into a substantial software company and their Swiss-army-knife-of-graphics-programs, Canvas, is extremely popular. Target Software, on the other hand, is still toast.

**Mike:** I somehow managed to finagle a copy of Turbo Pascal for the Macintosh from Borland International in 1986 at an 80 percent discount. Borland's Turbo Pascal carried a $99.95 retail price and I have an invoice showing a discount of $79.96 for a subtotal of $19.99 plus $5 shipping for a grand total of $24.99. It still was probably the worst $25 I've ever spent.

In 1986, Manhattan Graphics' ReadySetGo! v3.0 was released. It retailed for

$295 and I bought a copy for $158. This was the version that came with a worthless magazine instead of a manual. A lot of people swore by ReadySetGo! back then, but I hated it. PageMaker was so much easier to use.

**Bob:** I'll never forget ReadySetGo! It was the first real program I ever bought. I got it on sale for about $100 at Egghead and I remember being soooo excited. Finally, real live page layout software for my 1M Mac Plus. Too bad it sucked. I had such high hopes for it, but it's hard to like a program that crashes, freezes, and corrupts your documents. Not to mention the arrogant, unhelpful technical support staff. Yes, I hated it too. My only consolation was that I didn't buy MacPublisher, which was even worse. Ultimately I saved my nickels and did what I should have done in the first place: bought a

*"The worst thing about Scoop was its bugs."*
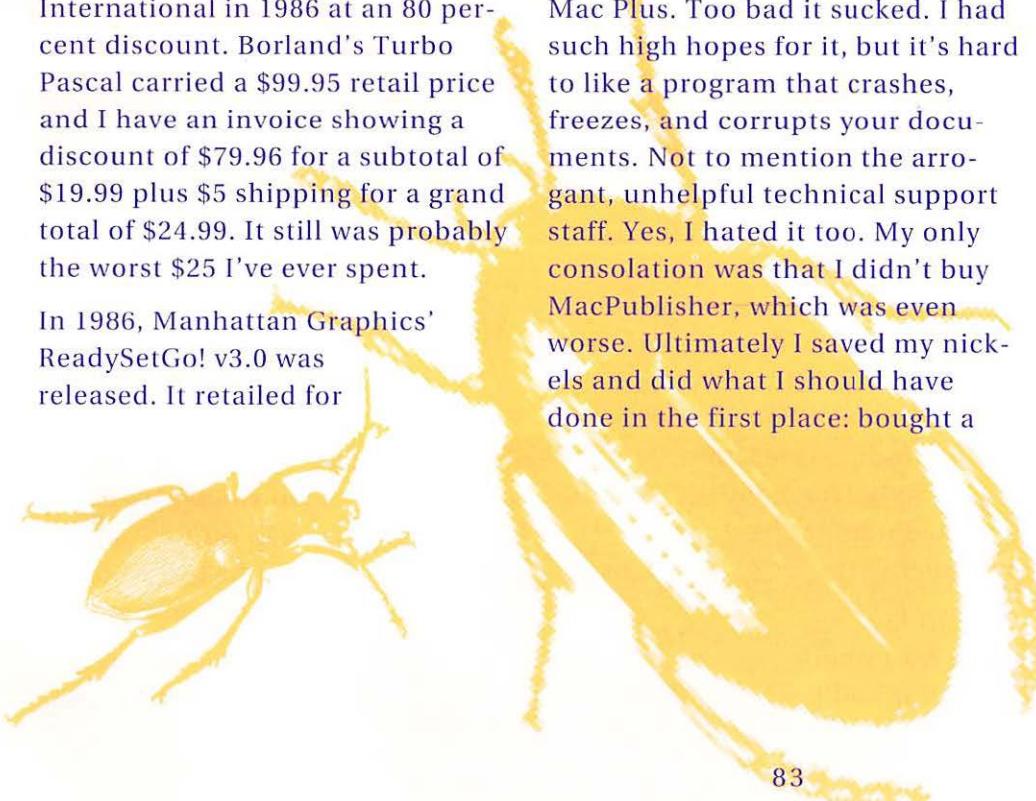
real page layout program. Although I will admit that PageMaker 1 and 2 were no picnic, they were significant orders of magnitude better than either ReadySetGo! or MacPublisher. I still use PageMaker today.

**Mike:** T/Maker's WriteNow for the Macintosh also debuted in 1986. It retailed for $175. I paid $90 for my copy. It was a great word processor compared to Microsoft Word (v1.05) which I had got when I bought my Macintosh Plus earlier that year. WriteNow was fast. Really fast. But it never was able to compete with the three heavy hitters: MacWrite, Word, and later, WordPerfect.

WriteNow is a good example of what can happen in the Macintosh software market in general. In 1986, it was the best Mac word processor money could buy. Why wasn't it able to overtake the other products on the market? Because the pundits always used feature check-off charts in their reviews and Word had more features than WriteNow. Never mind that WriteNow was simple enough for a child to use and that it ran rings

around Word for real-world writing tasks. Like lemmings, Mac users flocked to Microsoft Word because the pundits told them it had more features. And MacWrite was, well…, MacWrite was a pseudo-standard. Everybody used Word, but kept MacWrite around to open the Read Me files that came with new software.

So you see, good software doesn't always make it in the Macintosh market. Reflex is another example. Imagine a powerful, full-blown relational database for less than $100. Reflex was it. Reflex was one of the most elegant pieces of software I've ever seen. It worked; it was fast; and it was years ahead of its time in terms of capabilities. At the time, Borland International was desperate to get into the Macintosh market and it bought the moderately successful product (see Old-Timer Trivia Time) and marketed it under its own label.

I bought my copy through another one of Borland's

80 percent discount offers and paid $24.99, including shipping charges. While Borland's Turbo Pascal was probably the worst $25 I ever spent, Borland's repackaged Reflex was probably the best. Of course, Borland soon decided to get out of the Macintosh market and abandoned Reflex users were left twisting in the wind. I've never bought a Borland product since.

**Bob:** Old-Timer Trivia Time:

Q: What was Reflex called and who was the publisher before Borland bought it?

BZZZZ. Time's up.

A: It was called Interlace and the publisher was Singular Software.

**Mike:** Hey, that reminds me. Ever see Philippe Kahn (Borland's President) play the sax?

**Bob:** Yep. He's a lot better than you'd expect. He even sent me a jazz CD that he played on as a Christmas present.

**Mike:** The original version of MORE also

84

came out in 1986. Once a very powerful outlining program, MORE has evolved into a mediocre presentation program with a powerful outliner (that no one ever thinks about using). I still use MORE from time to time, but now I use Inspiration for most of my outlining tasks.

MORE was originally marketed by Living Videotext Inc., the product's creator. It was then sold to Symantec and since that time, the program pretty much has gone downhill. Forethought introduced

FileMaker Plus in 1986, one of the few independent software success stories. Even though it was less powerful than Reflex, FileMaker Plus was much easier to use for people who didn't understand the underlying database concepts. FileMaker is a flat-file database, with no relational capabilities except that it can lookup values in other databases. I still use FileMaker. It is the database of choice for me.

**Bob:** Me too. Forethought was the coolest company. They gave me a copy of FileMaker 1 for free. This was long before I had written a word about the Macintosh. I bought Forethought's learn-to-type program (what the heck was it called, anyway?) and it didn't work with my Mac Plus and its newfangled HFS filing system.

# *MacWrite was a pseudo-standard.*

Seybold Conference Fall 1991 LaserWriter IIf & IIg

Apple OneScanner

21" Color
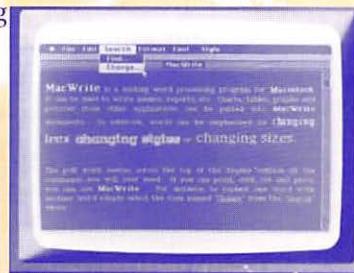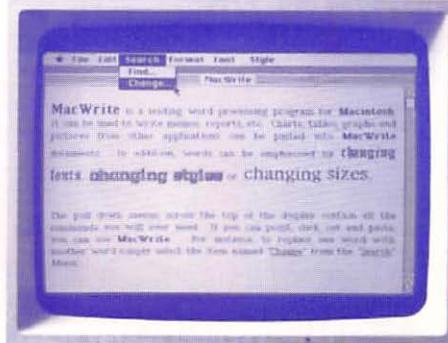
I called Forethought's tech support number where a real and sympathetic technician took my name. A few days later, a new typing program disk arrived along with a free copy of FileMaker for any inconvenience I may have suffered. I was a fan for life. Best of all, FileMaker was a great program.

Forethought also developed PowerPoint which they sold to Microsoft for kazillions of dollars a few years ago. It couldn't have happened to a nicer company. Last I heard, Forethought founder Rob Campbell was off sailing around the world.

**Mike:** ThunderWare's ThunderScan also hit the market in 1986. For about $225, you could turn your ImageWriter into a scanner. ThunderScan was one of the neatest Macintosh hacks ever produced. The best part of the product though, was the software. ThunderScan's software was written by Andy Hertzfeld, which probably explains why it was such a neat hack.

Another Andy Hertzfeld hack, Switcher, also made it to market in 1986. Switcher enabled you to divide your Macintosh's memory into partitions. You could load up to four programs into Macintosh memory— remember this was 1986 and four programs and System software could fit in 1M of RAM—and switch among them on the fly. Switcher eventually was replaced by MultiFinder and its application-switching capabilities were built into System 7.
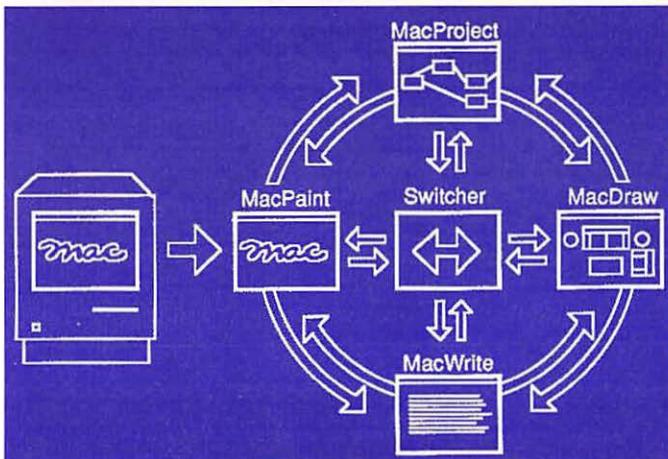
There was a piece of Mac software distributed via the underground (no one publicly claimed credit for it) that was a lot like Switcher, only better. I think I remember it being called MultiMac, but I'm not sure. My thinking at the time—and I'd probably still put money on it if I were a gambler—was that Hertzfeld came up with a better solution between the time he finished Switcher and Apple created the packaging. MultiMac—or whatever it was called—was never released commercially and remains one of the great Macintosh myths.

*Forethought was the coolest company.*

# THE BAD, THE WORSE, AND THE WORST

Remember earlier we said that if the Mac is like a bicycle, then software is like its pedals? Well, if the following software were pedals, they would be rusty, missing the rubber pads, have no reflectors, and have bad bearings. Yeah, these gems would be like pedaling a bicycle using just the "shaft" of the pedals. And do we mean shaft!

## HABADEX

Habadex reminds us of computer salesmen (and they were all men) in the early 1980s. When you would ask one of them what you could do with a computer—especially when you had your wife with you—the response was invariably that your wife could store her recipes on it. Habadex was kind of like that; you could use it to keep your address book on your computer. The problem was that it didn't work very well; it was slow when it did work, and it couldn't hold enough addresses to make it worth the trouble anyway. Besides, the product name sounded like some sort of home for wayward gerbils.

There are stories we could tell you about Haba Software and the guy that created the marketing mythology around it. But we won't. It would be ugly and lawsuits would surely result. Suffice it to say that reports were rampant of a lot of innocent people pulling their hair out trying to use Haba products, while this guy was cruising around in a Rolls Royce taking advance orders for the next Haba wonder, which was...

## HABAWORD

We don't think Habaword ever made it to market. We saw an early development version of the product; or rather, saw parts of it. The program would crash whenever you selected menu commands. Habaword was one of those products that redefined the importance of giving a good demo in the Macintosh industry. All of the Habaword demos were very impressive and the product got a lot of glowing press. To this day, some people still think the Haba demos were rigged.

Product demonstrations are a weird thing. Watergate taught us to follow the money when looking for crooks. Macworld Expos should have taught us to follow the wires, but we don't think many of us have quite gotten it yet.

**Bob**: I was there. Chas Haba took me for a tour of their offices in Van

Nuys, California. Lots of people on the phone. Big shipping department. I never got to see Habaword, although he promised I'd be using it RealSoonNow.

And yes, he really did have a Rolls.

## MACLION

MacLion was one of the first database programs for the Macintosh. For some reason, databases were always problematic programs in the early days of the Mac. MacWrite and Microsoft Word were usable word processors. MacPaint was still drawing a lot of oohs and aahs. MacDraft and MacDraw had object-oriented graphics covered. PageMaker and ReadySetGo! were pretty strong layout packages.

Microsoft's MultiPlan was a fair spreadsheet.

However, there were no database programs in those days. It was like Steve Jobs' reality-distortion field was working so well, no one even thought about needing a database. After all, Macintosh was designed for creative individuals. Writing, drawing, and layout were creative endeavors; database jockeying wasn't. Number crunching was OK, because that was something that computers just did naturally. Besides, VisiCalc had made the Apple II successful, and MultiPlan was a better VisiCalc (or so the theory went).

Enter MacLion. It was a disaster from the start, but it did have full-page, four-color ads in all the trade magazines on the much-sought-after back page.

*For some reason, databases were always problematic programs in the early days of the Mac.*
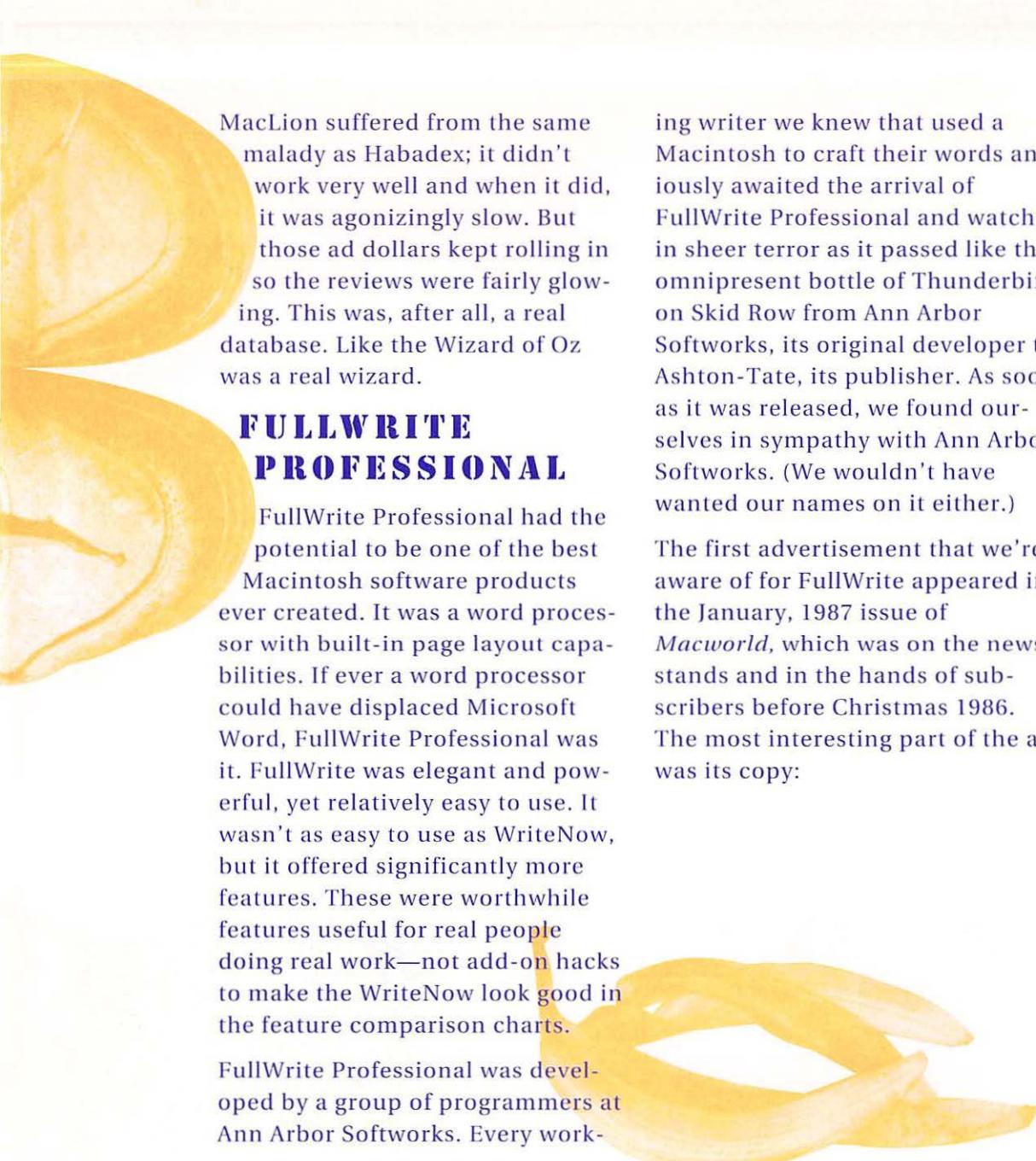
MacLion suffered from the same malady as Habadex; it didn't work very well and when it did, it was agonizingly slow. But those ad dollars kept rolling in so the reviews were fairly glowing. This was, after all, a real database. Like the Wizard of Oz was a real wizard.

## FULLWRITE PROFESSIONAL

FullWrite Professional had the potential to be one of the best Macintosh software products ever created. It was a word processor with built-in page layout capabilities. If ever a word processor could have displaced Microsoft Word, FullWrite Professional was it. FullWrite was elegant and powerful, yet relatively easy to use. It wasn't as easy to use as WriteNow, but it offered significantly more features. These were worthwhile features useful for real people doing real work—not add-on hacks to make the WriteNow look good in the feature comparison charts.

FullWrite Professional was developed by a group of programmers at Ann Arbor Softworks. Every work-

ing writer we knew that used a Macintosh to craft their words anxiously awaited the arrival of FullWrite Professional and watched in sheer terror as it passed like the omnipresent bottle of Thunderbird on Skid Row from Ann Arbor Softworks, its original developer to Ashton-Tate, its publisher. As soon as it was released, we found ourselves in sympathy with Ann Arbor Softworks. (We wouldn't have wanted our names on it either.)

The first advertisement that we're aware of for FullWrite appeared in the January, 1987 issue of *Macworld*, which was on the newsstands and in the hands of subscribers before Christmas 1986. The most interesting part of the ad was its copy:

The ad's copy had a definite tongue-in-cheek attitude and the code-name to this day almost brings tears to our eyes. (Gas just does that you know.)

A picture of the product's development team was included in the ad—one of whom was portrayed holding a clock. Is this starting to sound like those "Paul is dead because he's barefoot on the Abbey Road album cover" conspiracy theories? A 512K Macintosh keyboard also was included in the advertisement—an omen of sorts.

Then, in the April, 1987 issue of *Macworld*, Ann Arbor ran the not-so-well-received "Don't Buy Word v3.0" ad. The advertisement carried the headline, "The word processor you have waited years for is finally here. Don't buy it." The body copy of the advertisement plainly stated that the

Microsoft product was a derivation of an IBM product, and that FullWrite is "the most powerful word processor available." The key word here, obviously, being "available." The advertisement went on to state, "That's just a sample of what makes FullWrite Professional a faster and easier-to-use product than its slightly older competitor... We'll be at your store within 60 days." May came and went, and we were still waiting for the product.

In July, 1987, the August issue of *Macworld* hit the streets with yet another Ann Arbor ad for FullWrite Professional. This one also carried a series of clocks, each one showing a later time than the previous one, and carried the body copy, "If you can operate a Mac Plus, SE, or II [anyone can operate a Mac], you can use FullWrite Professional. Right away." No we couldn't.

*FullWrite Professional was nothing less than the word processor we all wanted to love.*

The product still wasn't available.

FullWrite Professional was nothing less than the word processor we all wanted to love. We bided our time with Microsoft Word, impatiently awaiting the day we could smash it against the wall—again like the bottle of Thunderbird. Spent and broken, it would shatter on impact just like it did when we tried to do anything fancy with early versions: like save a file in MacWrite format. We planned for that day—Mike went so far as to set aside his master Word disks for use as defrosting implements in his Volkswagen microbus the next winter. Another writer/visual artist we know was going to put the disks in the food processor and create objects d'art with the resulting semi-solid miasma. We all looked forward to the day we could replace the word processor we loved to hate with the one we wanted to love.

FullWrite Professional's release delays became Keystone Cop-ish and would have been hilarious if they had not been so painful. There were tales of hijacked manuals. The FBI was allegedly called in. Ann Arbor Softworks' C.E.O., Phil

Lipetz, turned the embarrassment of being publicly tarred-and-feathered in *MACazine* into a publicity opportunity.



### Phil Turns Lemons into Lemonade (*MACazine*, February, 1988)

The copy accompanying the photo read:

"Phil Lipetz, head honcho at Ann Arbor Softworks, appears here tarred and feathered after losing a bet to *MACazine*'s editor, Bob LeVitus. Lipetz bet LeVitus that the long-awaited FullWrite Professional would ship at the same time as the November issue of *MACazine*.

DATELINE: *MACazine* readers know that Phil bluffed us with an offer to send a picture of himself tarred and feathered if FullWrite didn't ship. Phil lost.

For those of you attending the Mac Expo in San Francisco, Phil has graciously agreed to autograph this exclusive picture for *MACazine* readers— you'll find him in the Ann Arbor Softworks booth."

Ann Arbor Softworks advertised FullWrite Professional for more than a year and they never shipped the product. They bailed out by selling FullWrite to Ashton-Tate.

Then a funny thing happened. The object of our collective desire was released and it didn't live up to our expectations. It was unbearably slow. (It always was slow even during beta testing, but the beta testers—including us—chalked it up to "debugging code.") It

wouldn't print properly. It was a pig for memory on every then current standard hardware configuration. It was like the fat woman too vain to buy clothes that fit and instead insisted on wearing dresses three sizes too small. (A zipper under so much strain gives new meaning to the word stress.) FullWrite was like that. You got tense just thinking about it; your teeth clenched uncontrollably; and your jaw started to make little clicking noises and you began to speak in brief, monosyllabic bursts.

Discouraged, but once again under control, we went back to using the Microsoft beast. (At least we had learned its quirks and like a pair of worn out, scuffed up shoes it was at least comfortable.)

Five years into Macintosh and we still didn't have a word processor worthy of use by a working writer. Why? What could possibly be so hard? For once we started to believe the crap spouted by the public relations flacks about pre-announcement killing existing product sales. Only it worked in reverse: the pre-announcement of FullWrite Professional and WordPerfect perhaps served to scare off other contenders.

**Mike:** Ashton-Tate, after acquiring FullWrite Professional, promised to fulfill all of the agreements originally made by the word processor's developer, Ann Arbor Softworks. I was one of the beta testers for that product and never did receive a release version of the Ashton-Tate-labeled product. Could it be that they were upset because I had to

*It was a pig for memory on every then current standard hardware configuration.*

submit the beta report using Microsoft Word?

**Bob:** A lot of people got rich on that deal. The members of the Ann Arbor Softworks team were decked out in Armani suits and Rolex watches the next time I saw them....

**Mike:** Latest word is that FullWrite Professional may be revived. Apparently it's been sold to a small startup developer who promises to upgrade it for System 7 compatibility.

**Bob:** If at first you don't succeed, sell the software to yet another publisher....

# MICROSOFT WORD V3.0

Ever heard of the axiom "the bigger they come, the harder they fall"? When Microsoft released Word v3.0, we both thought Microsoft was headed for a serious fall and would lose substantial market share in the Macintosh word processing market. Silly us. It's now evident that nothing can knock Microsoft Word out of its best selling slot. It was obvious then too,

we just didn't realize it.

Microsoft Word v3.0 was probably the most bug-ridden Macintosh software program every released. The program generated random System errors if you so much as breathed on it, and printing errors occurred just about everytime you tried to print anything. The MacWrite-format Save option was completely broken. Shortly after its release, Word v3.0 was blamed for everything from assorted crashes to hard disk drive corruption. These accusations were later born out, but Microsoft did virtually nothing other than stand by with its corporate hands in its pin-striped pockets. *InfoWorld* went so far as to establish a "complaint hotline" as a clearinghouse of problems experienced by Word v3.0 users.

Word v3.0, like its predecessors—versions 1.0 and 1.05—was not a WYSIWYG word processor. Some people like this—we didn't then and we don't now. If you want a non-WYSIWYG word

processor, use UNIX or DOS. The Macintosh interface and metaphor begs for a screen representation of what will be printed, without resorting to a page preview mode. Headers, footers, and footnotes were not displayed on the screen in Word v3.0, but had to be viewed in their respective windows.

Taking a drastic step forward (for Microsoft), Word v3.0 supported multiple columns—sort of. You could view the multiple columns on the screen, but you couldn't edit them. The columnar paragraphs were created one following the other and were preview-able only. The product still couldn't perform automatic pagination and the manual pagination supported by Word v3.0 was painfully slow.

If you used WordStar in the
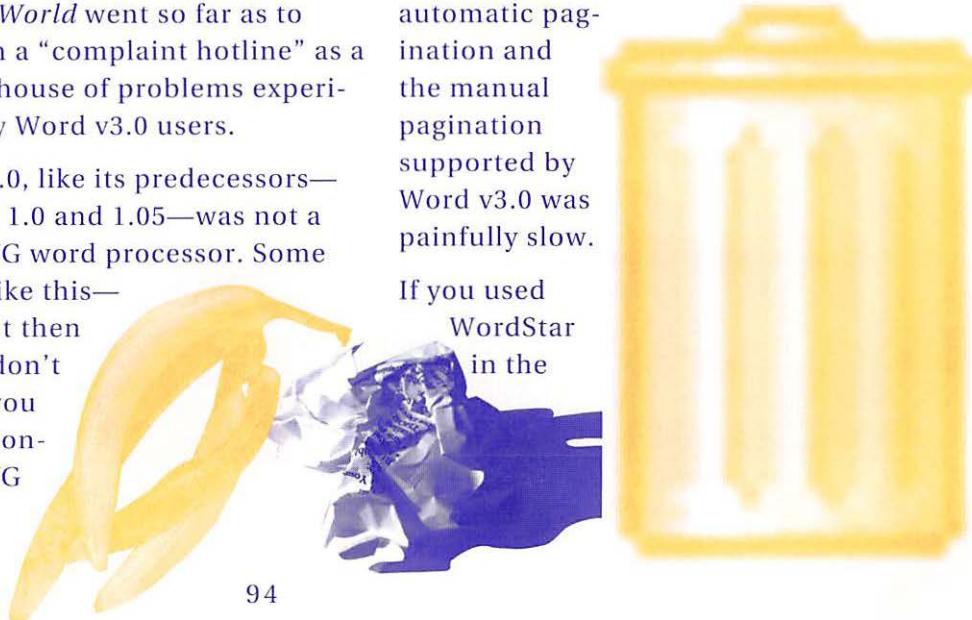
pre-Macintosh days, you knew about "dot-commands." Microsoft Word v3.0, in a drastic step backward (even for Microsoft), required the use of these "dot-commands" for its indexing and table-of-contents generation features. To issue one of these commands, you entered a period followed by the letter for the command—all from the keyboard. Microsoft even shipped cute little stickers for your keyboard keys. Doug Clapp at the time loved Microsoft Word v3.0 and called it "WordStar for the '80s." We agreed with his assessment and considered it a slam rather than a compliment.

**Who the heck was Doug Clapp anyway?**

Bob: **Doug Clapp was, in the early days of the Mac, the best-known and most popular of the MacPundits. Macintosh enthusiasts, who could care less what John Dvorak had to say, hung on Clapp's every word. Then, one day, he had a falling out with** *MacUser* **and his column was discontinued. The masses mourned. Then,** *MACazine* **offered him a column. The masses cheered.** *MACazine* **folded. The masses mourned again.**
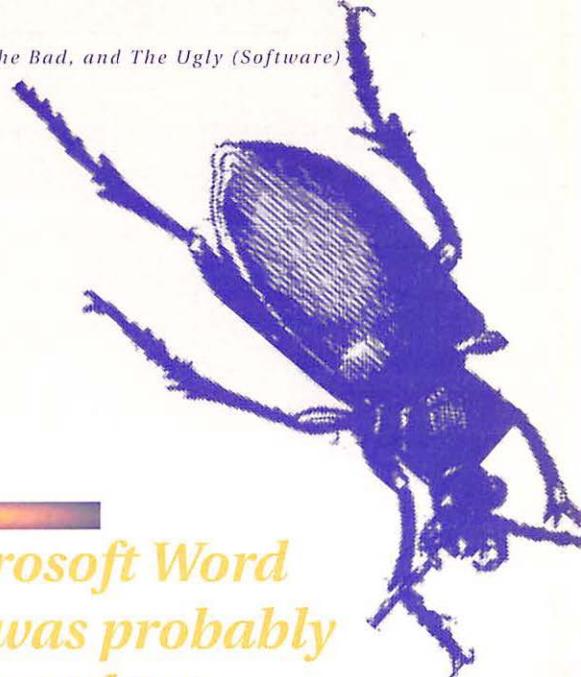
*"Microsoft Word v3.0 was probably the most bug-ridden Macintosh software program ever released."*

Ultimately, Doug found (as have Michael and I) that the writing game, while it can make you famous, doesn't make you rich. You need to develop software if you want to be rich. So Doug developed some software. His first effort, Doug Clapp's Word Tools, was for a long time, the classic piece of vaporware—announced and advertised with great fanfare for at least a year before it shipped. When it finally did ship, it didn't work. When it finally did work (well, it never worked well, but it did work better), his publisher folded.

Doug didn't despair. He went back to the drawing board and came up with Comic Strip Factory, a clever program that included tons of exceptionally cool cartoon art (mostly drawn by Trici Venola) that you could assemble into comic books of your own. (I loved the Nerd character!) Comic Strip Factory was a modest success and eventually begat a single-page advertising layout program called Creator, which he sold to MultiAd Services for a kazillion dollars. Since then he's retired and unretired and is currently a principal in VideoLabs, which makes those cute little itty-bitty video cameras used for teleconferencing and videomail on personal computers. He's working on his second kazillon now and I expect he'll retire again soon.

Nobody but Microsoft could get away with such a shoddy software release. But then, that's pretty much Microsoft's pattern—ship a product to beat everyone else to market and worry about fixing it later. Microsoft must have heard the thundering footsteps of Ann Arbor Softworks' FullWrite Professional and simply released a half-baked, untested product to position itself in the market sooner than FullWrite. Microsoft needn't have bothered.

Apple's Paul Norris summed it up pretty well in March of 1987: "It has been a real peculiarity of Macintosh that the computer that is best for desktop publishing has had a weakness in the word-processing area..." (from "The Competitive View," *Outside Apple*, March, 1987).

**Bob:** Credit where credit is due. I use Word and I like it. A lot. Word 5.1 is the best word processor I've used so far and I've tried them all.

# DBASE MAC

In mid-December 1986, Apple and Ashton-Tate executives met to discuss Apple's Silver Surfer project. Silver Surfer was the code-name of a highly touted database developed by Laurent Ribardière that was eventually released as 4th Dimension by ACI in France and ACIUS in the U. S. At the time, Silver Surfer was a project under final development at Apple. As you can imagine, the Ashton-Tate people weren't overjoyed about the potential of dBase Mac competing head-to-head with an Apple-labeled database product.

In 1986, pretty good Macintosh software existed for writing, drawing, spreadsheet, and desktop publishing tasks. The lack of a decent Macintosh database was as embarrassing as a gaping hole in the seat of Apple's corporate trousers, and Apple had decided to market its own database, Silver Surfer. In 1985, when Steve Jobs first saw Silver Surfer in France, the Macintosh wasn't selling well and Apple decided that it couldn't wait for one of the big Macintosh developers like Microsoft or Ashton-Tate to develop a Macintosh database.

According to Guy Kawasaki, one of Apple's software evangelists at the time, Bill Campbell (then Apple's executive vice president for sales and marketing) promised Ashton-Tate $500,000 in co-marketing money to finish dBase Mac. In exchange, Ashton-Tate promised to finish dBase Mac by September, 1986.

At the December, 1986 meeting with Apple, Ashton-Tate executives

*Nobody but Microsoft could get away with such a shoddy software release.*

97
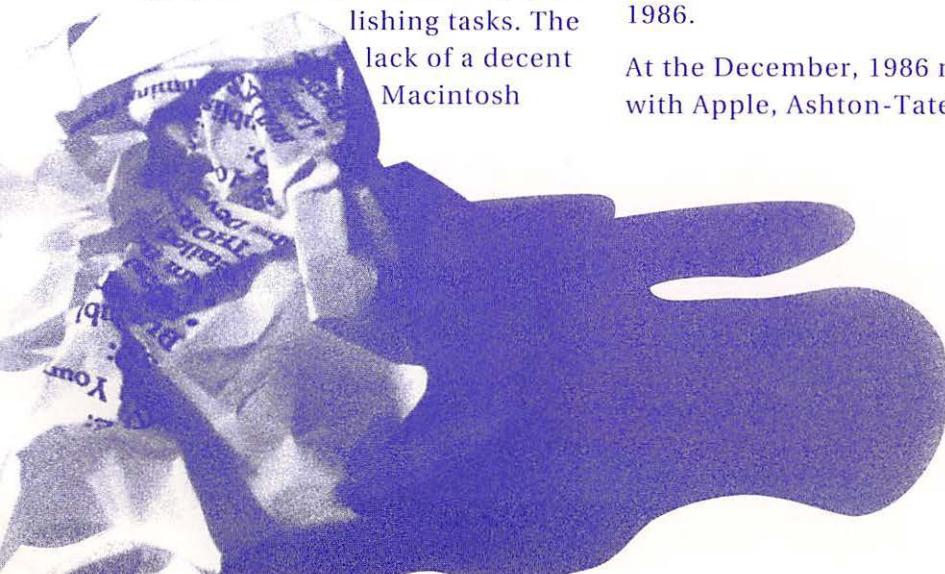
noted that although dBase Mac hadn't shipped, it was in beta test and the testers were pleased with the product, but concerned about how slow it ran. In the meeting, the Ashton-Tate executives demanded that Apple give Silver Surfer to Ashton-Tate so that the two products, Silver Surfer and dBase Mac, could be combined. Remember, Ashton-Tate was a DOS company so this sort of logic made a sort of perverted sense—at least to them. Ashton-Tate never got Silver Surfer, but in February, 1987 John Sculley told Ed Esber, head of Ashton-Tate that Apple would not compete with Ashton-Tate by publishing Silver Surfer.

Ashton-Tate's dBase Mac finally shipped in September, 1987—more than a year late—and Ashton Tate had the audacity to demand the $500,000 co-marketing money from Apple. The program stank and was slow to boot. It didn't last long.

We've already told you about two of Ashton-Tate's Mac products, but what about the third and final member of the unholy trilogy? Full Impact happened to be a pretty good spreadsheet and it was easily Ashton-Tate's best Mac product. If it had been published by someone else (almost anyone except Lotus would do) it may have had a chance. But it was from Ashton-Tate, and that was the kiss of death among Mac users in-the-know. It never sold worth a damn.

So Ashton-Tate batted 0-for-3 in the Mac market and disappeared from the face of the earth without ever having a hit Mac program. There's only one company that's done worse in Mac software and that's Lotus...

## LOTUS JAZZ

Lotus Jazz was going to be the software program that would compel people to buy a Macintosh. In 1985, Macintosh sales were dismal, and Apple was getting desperate. Apple was betting heavily on a new technology called Macintosh Office. Unfortunately, Macintosh Office consisted of little more than a LaserWriter shared in small workgroups using AppleTalk (read as long printer cables). Worse, Apple was depending on Lotus Development Corporation to have a hit with its first Macintosh software product, Jazz. Jazz was an integrated software program that combined word processing, database, charting, and spreadsheet capabilities in a single package. Apple wanted to build the idea of workgroup collaboration around Jazz and Macintosh Office. Problem was, there were no network-aware software programs that you could use on the Macintosh Office—there wasn't even an electronic mail program—and Jazz was late in coming. When finally released, Jazz was seriously plagued by performance problems. The program was slow and the information capacity of its component modules was sadly lacking. It was also copy protected.

Jazz shipped in a package that looked more like a kinky marital aid than a software program; it was black vinyl and had raised bumps all over it. There was to be a Modern Jazz, but thankfully, the product was killed.

There used to be a joke that Jazz was the first software product ever to ship gold and return platinum—even the bootleg copies got returned.

Apple, For The Education Of A Lifetime.
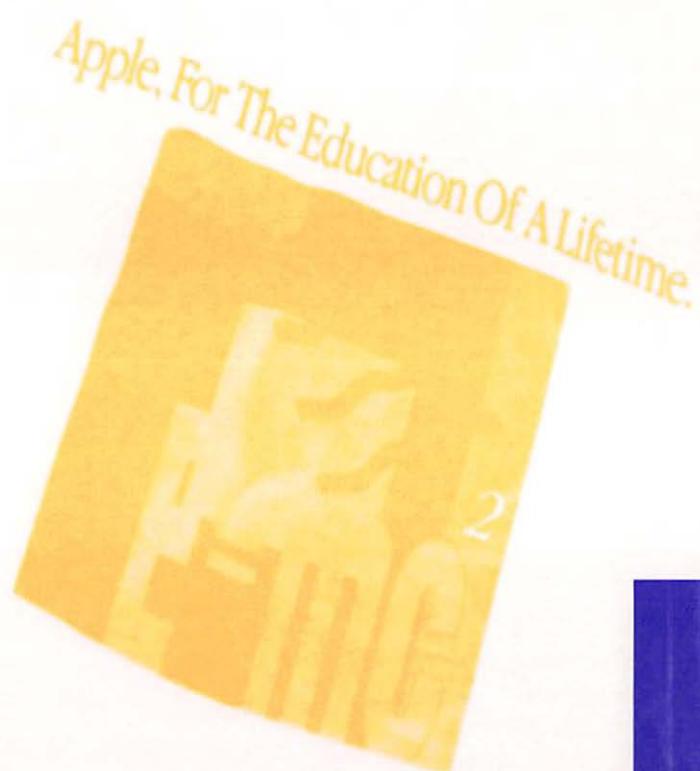
# HOW TO GET FREE SOFTWARE

### There are 4 ways we know to get free software—None of them is *Pretty*

## METHOD 1: Obvious and Very Ugly-STEALING

The most obvious way to get free software is to steal it. Think about this option for a minute though. Sure, you can do it easily enough and you'll probably never get caught. But there's not much creativity involved in stealing software.

If you listen to the software vendors, they'll tell you that piracy is killing their business. If you listen to the pirates, they'll tell you that they aren't hurting sales because they don't actually use anything they pirate—nor would they buy it. Our experience is that the latter is basically true. Pirates collect and trade software like kids collect and trade baseball cards.

In some parts of the world, software piracy has also become Big Business. It's as easy to buy a bootleg copy of a program as it is to buy a legitimate one. But that's not the kind of software piracy we're talking about here.

**Mike:** Software distribution is very much a double-bind situation. If I gave you a copy of FrameMaker—the program I used to write my part of this book—you would have a copy indistinguishable from my original; my original itself is identical to the master Frame Technology Corporation used to duplicate and distribute its software. You'd be happy because you'd have new software to explore. I'd be happy because I'd be helping a friend. Frame Technology would be unhappy because they'd think that they've lost a sale. In fact, Frame Technology wouldn't have lost anything. If you really needed FrameMaker you would buy it. From that point of view, Frame Technology may, in reality, gain a sale. Frame

Technology happens to be a relatively enlightened software vendor; they'll send you a free demo copy of FrameMaker if you ask them. Of course, Frame's not all that enlightened. They have a read-only version of FrameMaker—called FrameViewer—that they market as a separate product instead of distributing it freely.

**Bob:** Some of you may be thinking "why would a pirate buy it when he's already got it for free?" As my editor so elegantly pointed out, it's not for the manuals. Conventional book publishers (but not Hayden, of course) pump out "manual rehash" books by the ton and many of them are better than the documentation that comes with the software. Beyond the documentation issue, there are several compelling reasons why it's not good to own a bootleg copy of a program.

First and foremost, having bootleg software on your hard disk is illegal and the penalties are steep. That bootleg copy of FrameMaker could, theoretically, cost you as much as $100,000. Although it's highly unlikely the SPA (Software Publishing Association) will storm your house with a search warrant, is it worth the risk? A disgruntled employee or relative could turn you in and then what would you do?

Another reason is upgrades, bugfixes, and updates. Legitimate owners get 'em, bootleggers don't.

Finally, there's technical support. Again, bootleggers aren't entitled to it.

**Mike:** Unenlightened software companies are frightened by this simple fact: The nature of digital information is that copies are identical to the master—so they do all sorts of things to try to subvert it. They hire lawyers to create arcane licensing agreements that are much more restrictive than they need to be. They serialize the distribution media on which their programs exist, adding an unnecessary layer of complexity and frustration for users. Some even use a method of hardware protection. These attempts to protect virtual assets (often referred to as "intellectual property") are unintelligent as well as unenlightened.

# Pay-Per-Use: Wave of the Future or Price Scheme from Hell?

The wave of the future is a per-use price structure for software. We think it's a stupid idea, but we reserve the right to change our minds when it becomes a reality. Rudimentary forms of this new pricing structure do exist, and we still think it's a stupid idea. Here's an example: No Hands Software's Common Ground is an excellent print-to-disk utility. It allows you to create a document from any software program that can be opened by anyone to whom you give the document. The recipient doesn't need to have the software program that created the document; nor does he/she need the fonts used to create the document. Common Ground works the way all software should, which is to say it works transparently. By the time you read this, there will be a Windows version of Common Ground. So, not only does your recipient not need the program that you used to create the document, nor the fonts contained in the document; she doesn't even need a Macintosh.

When you buy Common Ground and open the shrink-wrapped package, you agree to abide by a licensing agreement that prevents you from distributing the documents you create with the program to more than 100 people. If you want to distribute documents to more than 100 people, you either have to buy another copy of Common Ground (that lets you distribute your documents to 100 more people) or you must negotiate another licensing agreement with No Hands Software. It's a per-use price structure and it's stupid. No Hands Software's policy is the equivalent of Frame Technology, Quark, or Aldus requiring you to pay a royalty for every document that you create using their software. (Quark will probably see that as a darn good idea.)

Here's how to get free software with panache. It's legal. It benefits everyone involved and you'll sleep better at night. Remember though, that there's no such thing as a free lunch.

# METHOD 2: Somewhat Sly and So Very Cool: Evaluation Copies

It's usually a better idea to get evaluation copies whenever you can, than to get review copies. Software evaluation is sort of like working for yourself; when you review software, you're working for someone else. The former involves almost no work and can usually be approached as playful exploration; the latter requires more hard work than you think.

Before you ask a vendor for an evaluation copy of its software product, you need a strategy; you can't just call them and ask for a copy. Well, you probably can, but you won't get any free software.

First, determine a plausible reason why you need to evaluate the software. If you're an MIS director for a large company, it's obvious. If you're associated with a college or university (other than being a student), you probably need to evaluate products from time to time for your classes or labs. If you're associated with a user group—especially one that's large or well-known—the task is relatively easy; you want to evaluate the software for presentation at a meeting. (Get permission from a user group officer before you call.)

If you're a small business person, student, or individual, this task is much more difficult and requires some creativity. Use your imagination. One strategy that's worked for Mike is to call the company and explain that you're a small business person and just can't afford the latest version of their whizz-bang product. Ask if they'd consider sending an evaluation copy in return for a fair, unbiased, and confidential product assessment. Product assessments are a lot easier to do than reviews and if you're a target user for the company's software, your opinion means a great deal to them if

they're thinking at all. Since the evaluation is confidential, the vendor doesn't worry about you saying that its software program meets every criterion for every computer virus known to Mac. Besides, smart software companies realize that they make most of their money by selling updates to existing customers. Explain this to the vendor, tactfully, if you must.

In any case, your reason for requesting an evaluation copy of any software should be totally and completely honest. Don't lie to anyone, ever. You will get caught.

After you've determined why the vendor should give you an evaluation copy, you need to figure out who, exactly, you have to talk to get the evaluation copy. This is the hardest part, especially with medium-sized companies. Start by asking to speak with the director of public relations. It will make a small company feel good because they probably won't have an individual in charge of public relations, let alone a director. Medium-sized companies will feel good because while they may have a public rela-

tions person, they probably won't have an entire department. In the case of big companies, your call will get shunted to the depths of voice mail hell and you'll be lucky to get out alive.

If you find yourself wandering around in a voice-mail wilderness or if the company you're dealing with doesn't have a public relations person, call back and ask to speak with the product manager. Make sure you say product manager, not project manager. Project managers manage software before it becomes a product. The project manager for the product you're interested in has probably gone on to other projects. Chances are your call will get shunted to a voice mail system again, but don't hang up—this is very important. Nobody records their voice mail message as "this is the whizz-bang product manager." Most everyone uses something like, "This is Peter Piper. I'm away from my desk right now...." The important thing is to get the name of the person. Then, when you call back, you can ask for that specific person.

In the case of forward-thinking soft-

ware vendors, it may be worth your while to see if the person you need to contact uses electronic mail. If she has an E-mail address, use it to request your evaluation copy. When you make a telephone call, you interrupt the person you're calling. The recipient of your E-mail, however, can read and respond whenever it's most convenient. It's also much more time efficient. Most people can read and respond to an E-mail message quicker than they can handle a call or a round or two of telephone tag.

When you get an evaluation copy of a piece of software, you can use that to leverage your position to get evaluation copies of competing software programs. You'd be a fool if you didn't evaluate all of your options—so don't hesitate to let the vendors know it.

If the vendor agrees to send you a copy of its software for evaluation, be sure to follow through on your commitment. If you promised to submit a confidential evaluation, make sure you do it in a timely fashion. There's no need for evaluations to exceed a page or two in length.

# METHOD 3: Kind of Cool, But Hard Work: Review Copies

Most of the time, it is better to leave software reviews to

trained professionals. Doing a software review is a

much more complex process than doing an evaluation

of the same piece of software.

Mike used to review many software products for

computer magazines, and Bob still does. Mike doesn't

do them anymore because they're too much work

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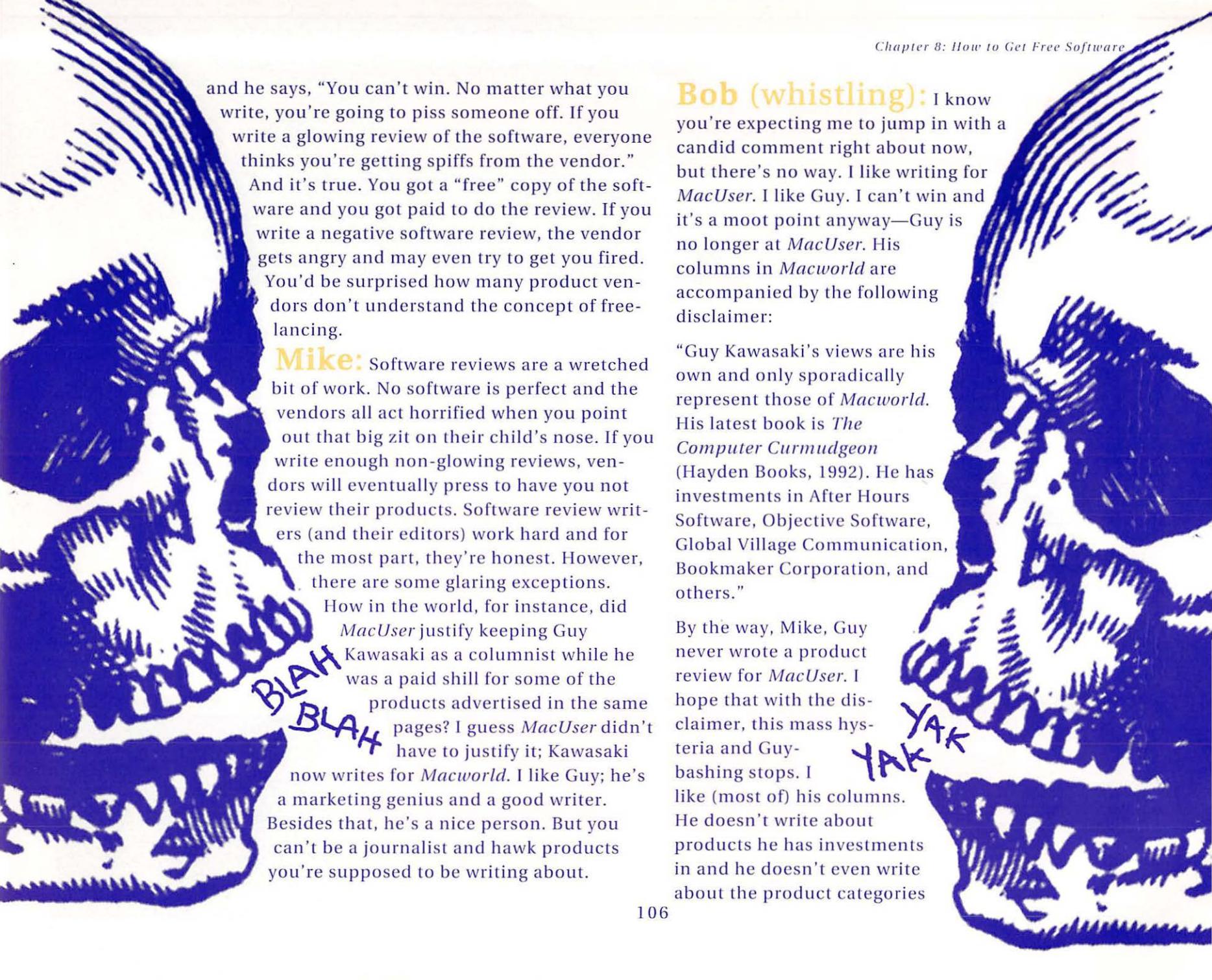
and he says, "You can't win. No matter what you write, you're going to piss someone off. If you write a glowing review of the software, everyone thinks you're getting spiffs from the vendor." And it's true. You got a "free" copy of the software and you got paid to do the review. If you write a negative software review, the vendor gets angry and may even try to get you fired. You'd be surprised how many product vendors don't understand the concept of free-lancing.

**Mike:** Software reviews are a wretched bit of work. No software is perfect and the vendors all act horrified when you point out that big zit on their child's nose. If you write enough non-glowing reviews, vendors will eventually press to have you not review their products. Software review writers (and their editors) work hard and for the most part, they're honest. However, there are some glaring exceptions. How in the world, for instance, did *MacUser* justify keeping Guy Kawasaki as a columnist while he was a paid shill for some of the products advertised in the same pages? I guess *MacUser* didn't have to justify it; Kawasaki now writes for *Macworld*. I like Guy; he's a marketing genius and a good writer. Besides that, he's a nice person. But you can't be a journalist and hawk products you're supposed to be writing about.

**Bob (whistling):** I know you're expecting me to jump in with a candid comment right about now, but there's no way. I like writing for *MacUser*. I like Guy. I can't win and it's a moot point anyway—Guy is no longer at *MacUser*. His columns in *Macworld* are accompanied by the following disclaimer:

"Guy Kawasaki's views are his own and only sporadically represent those of *Macworld*. His latest book is *The Computer Curmudgeon* (Hayden Books, 1992). He has investments in After Hours Software, Objective Software, Global Village Communication, Bookmaker Corporation, and others."

By the way, Mike, Guy never wrote a product review for *MacUser*. I hope that with the disclaimer, this mass hysteria and Guy-bashing stops. I like (most of) his columns. He doesn't write about products he has investments in and he doesn't even write about the product categories

in which he has invested. I don't see what the problem is; give the Guy a break. He's a humorist, and usually a funny one, which is the best kind.

## Mike: When I was an

independent video producer, we used to have a saying: "It doesn't have to be real, it just has to look like it's real." Appearances were everything in video production and appearances are everything in trade publishing. The appearance was that Guy had a conflict of interest. The reality of the conflict of interest isn't relevant.

## Bob: I still don't see the

conflict. Regardless of who's right, he's still usually a good read. I'd say 6 out of 10 Kawasaki columns are funny enough to be worth reading. Even if the other 4 columns stink (and they do), he's batting a respectable .600. John Dvorak, *MacUser's* (and several other computer magazines) grand old man, is barely batting .200 this year. Even former *MacUser* editor-in-chief Jon

Zilber, who's not really a humor columnist, hit .400 in his last complete season. (If you're keeping score, that makes Zilber somewhat funnier than Dvorak, but not as funny as Kawasaki.) The only columnist out-slugging Guy this season writes for a (boo! hiss!) PC magazine. Yes, that's right, Penn Jilette's column on the inside-back-cover of the otherwise uninteresting *PC Computing*, is the funniest column in computing today. He's batting an amazing .800 this season and it looks like there's no stopping him. Next time you see *PC Computing* on the newsstand, pick it up and check it out.

So, if you want to get review copies of software, you have to write reviews. No matter what you write, you're going to take heat from someone. If you write really excellent reviews, you're probably going to be taking heat from a lot of someones. You've been warned.

Begin your quest for a free review copy of the software you want by choosing the publication in which you want your review published. Contact the reviews editor for that publication and pitch the review

idea. Unless you know the editor, or even more importantly, unless she knows you and your work, you'll have to pitch yourself as well. The editor will want to know why you're the best person to write this particular review. If you're a veterinarian, don't tell the editor that you're the best person to write a review of the latest CAD software unless you also design three-story dog houses as a sideline. Think this through before you make your call.

The telephone maze within most publications works much the same as that of the software vendors, except that the editors are even busier than product managers and public relations people. Don't waste their time. If you do manage to get one on the phone, make your pitch short and to the point. Chances are you'll never get the appropriate party on the phone anyway, so this may be a good time to consider sending a letter via snail or E-mail. Use E-mail whenever you can with editors for the same reason

you would with a busy product manager. E-mail lets the editor mull over your pitch when it is the most convenient.

When you have been assigned the review, then and only then, contact the software vendor and request a review copy of the software. It's much easier to navigate the vendor's corporate maze and your editor will probably have a contact name and telephone number for you. Most major publications can obtain the software for you. This is the best option because it removes you from dealing with a marketing person within the vendor's organization. Whatever you do, don't tell a vendor that you've been assigned a review when you haven't.

As you can see, getting the software is relatively easy. The hard part is writing the review and meeting the editor's deadline. If you still think this is a good way to get free software, go outside and look up in the sky: that big bright disk is the sun. You're not getting out enough.

# METHOD 4: The Final Fontier: Beta Testing

The final way to get free software is to provide beta testing services to a software vendor. All software products have several stages of development. The alpha phase is commonly described as that stage when the software exists in anything other than a prototype form, but it's not even good enough yet to show your mother. Sometimes this software is released as version 1.0. This is usually well after the software product has been announced. The beta phase is when most of the serious bugs have been found and eliminated and the software is almost good enough to take home and show your mother. Sometimes, software at this stage of development is released as version 1.1.

During the beta phase, the software vendor distributes a limited number of copies of the software to real people trying to do real work in the real world. These unfortunates are called *beta testers*. If you like living on the edge—with the data on your hard drive in constant jeopardy—you're a great candidate for beta testing.

How you can become a beta tester varies from vendor to vendor, but the general procedure is the same.

Contact the project manager for the product you want to test. Remember the differentiation between a project manager and a product manager: project managers manage software
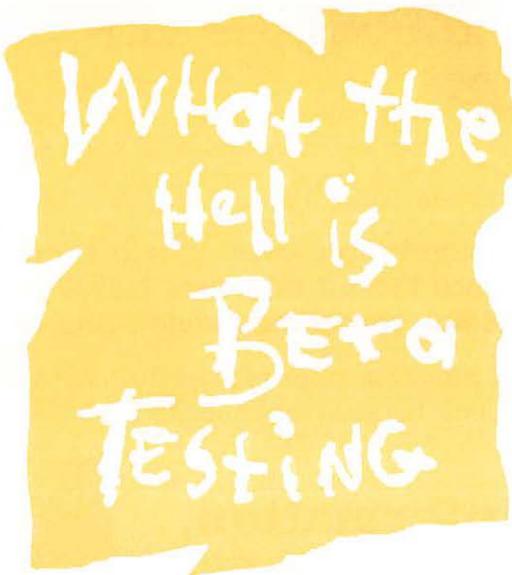
before it becomes a product. You have to demonstrate that you can provide value to the software vendor as a tester of its products. Do this by mentioning that you have a non-standard hardware configuration or expertise in the software's target market segment.

Beta testing is harder than writing software reviews and it's even less rewarding. In exchange for months of testing, you're rewarded with a free copy of the software and, occasionally, a T-shirt. Count on beta software causing serious problems for your computer system. It's rare that beta software doesn't cause spectacular system crashes, often accompanied by a loss of data. Beta testers back up frequently. And then they back up again.

Beta testers also benefit by feeling that they've contributed to the product's development process. Enlightened software companies pay attention to beta testers' reports and implement the changes they recommend. Unenlightened software companies don't. So if you have your choice, test for the good ones.

If you think that beta testing is a great way to get free software, you're a technology addict and probably a pusher. You need help. You might get it in our next book.

# Macintosh as an Information Appliance

## The Macintosh is NOT a toaster.
### Or is it ???

Macintosh was designed to be an information appliance. That concept took a back seat when Apple decided it was more lucrative to chase corporate skirts. What Apple lost sight of is that regardless of the size of the organization, it is individuals that use information. Contrary to popular belief, corporations don't work with information—individuals work with information.

Information to a Macintosh, like any other computer, is meaningless. All a Macintosh understands is whether a bit is on or off. That's all. It takes human intelligence to work with information. Humans use their intelligence to convert huge amounts of information into useful knowledge. Hence the original market for Macintosh: knowledge workers. Information is nothing without intelligence.

*Theodore Roszak is absolutely correct:*

**"Information, even when it moves at the speed of light, is no more than it has ever been: little bundles of fact, sometimes useful, sometimes trivial, and never the substance of thought."**

The time has come to draw distinctive lines, in bright (preferably florescent) colors, between the concepts of

**information,**

**ideas,**

**thought,**

**and**

**knowledge.**
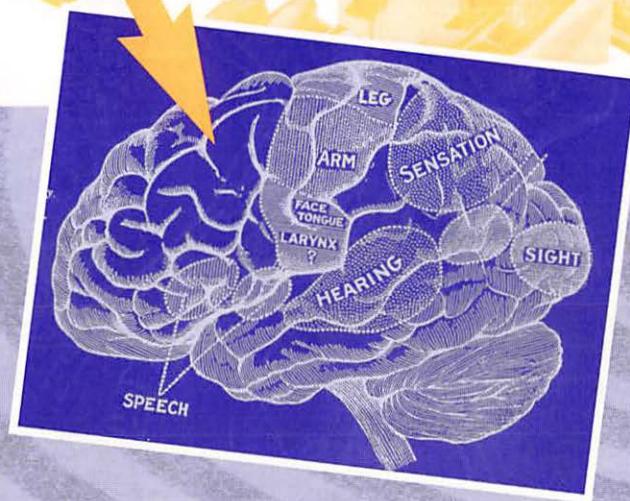
**Mike:** My background is in psychology. But not the kind of psychology with which most of us are familiar. I never ran a rat through a maze in my life, and the closest I ever got to even "soft science" was experimental exercises in a sensory deprivation tank. We're talking humanistic psychology here. You know, having a good time under the guise of self-discovery and quest for enlightenment which sometimes crossed the line of narcissism. The kind of stuff many good, god-fearing rural Georgians and college administrators sometimes had a hard time with.

If I left that experience with anything it was the ability to think.

Information has very little to do with thought. I use to think that information was the raw materials we used to think with. I was wrong. We use ideas to think with, not information. Information in the Macintosh community is readily available and easily accessible. Ideas, on the other hand, are getting fewer and further between.

Alan Kay's Vivarium project is a wonderful idea. So was Bill Atkinson's original idea for HyperCard (a software construction kit for individuals). The first few Macintosh models were much more of an idea, or set of ideas, than they were a product. Of course that changed, and now Macintosh is little more than a commoditized product.

Remember when Apple was first marketing Macintosh as a "tool for knowledge workers" and an "appliance?"

Remember when Steve Jobs—while he was still at Apple, before the palace coup—was speaking of a shift in our perception of the computer as a servant to the computer as a guide, as an agent? Those are idea-based thoughts, rather than product-based thoughts.

As the 1980s progressed, Macintosh grew up. Kind of. Apple changed its marketing strategy from the top down so to speak, getting rid of most "idea" people and replacing them with "product" people. This manifested itself in everything from Steve Jobs' departure to the termination of Chiat/Day as Apple's advertising agency of record.

# Idea, thought, and knowledge are

process-based. Information is product-based. Even Apple's slogans have exemplified this shift: "The journey is the reward" gave way to "The power to be your best." A zen koan approach was displaced by something that sounded like an Army commercial.

Apple's later Macintosh products were the fruits of the same ideas. Very little knowledge, with the notable exception of Apple's *Human Interface Guidelines*, was involved.

The first time you saw MacPaint or MacWrite you didn't need to scour documentation to understand how to use them. MacPaint and MacWrite were excellent ideas (translated into excellent products) because they were intuitive to use and worked the way you expected.
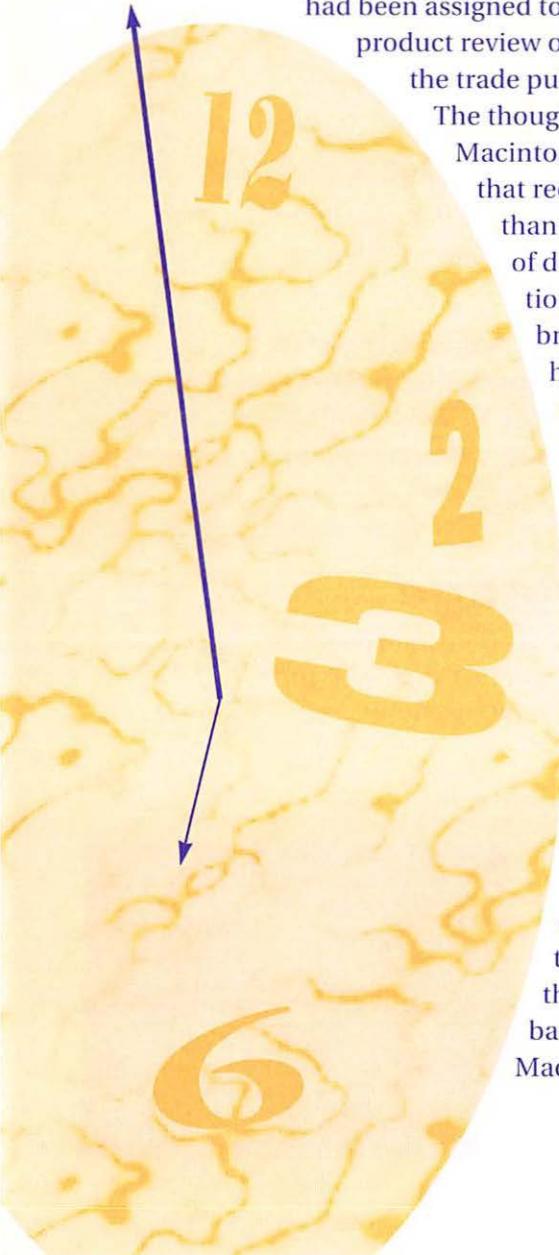
Contrast this with the first time you saw, say, 4th Dimension. The first time Mike saw this database program, he had been assigned to write a product review of it for one of the trade publications. The thought of a Macintosh program that required more than 1,000 pages of documentation took his breath away; he doubted the idea-value of software that required that much in the way of user's manuals. The very idea of a product requiring huge amounts of documentation is antithetical to the basic nature of Macintosh.

Remember when 4th Dimension was first hitting the marketplace and it was the major challenger in the database wars? Forethought still owned FileMaker and even Business Filevision was a fairly good product. Filevision was idea-productive software because it worked pretty much the way a human being would expect to work with a database. FileMaker and Borland's Reflex (which was really Interlace) were almost intuitive enough to also be used by human beings. Interestingly, Filevision, FileMaker, and Reflex received very little press attention. Both the editorial and advertising pages of the trade magazines were chock-full of material for Omnis and Helix (two of the most idea-anemic software programs ever released). Along came 4th Dimension; it too was difficult to use, idea-anemic, and got a lot of press attention and a big advertising budget.

Today, Claris owns FileMaker,

Filevision and Reflex are long gone, and Omnis and Helix may as well be. 4th Dimension remains the premier high-end relational database product for the Macintosh and continues to demand much press attention. It's still impossible for a mere human to use.

Could the nature of databases' largely idea-anemic stature possibly be related to the fact that databases mainly concern themselves with the assemblage, organization, and reformation of information—and that raw information is at least partially antithetical to idea, thought, and knowledge?

*Wait a minute. Aren't assemblage, organization, and reformation mindful of religion? Didn't Guy Kawasaki leave Apple to evangelize 4th Dimension? Is this all some sort of c o n s p i r a c y ?*

# information—

In 1979, Gregory Bateson defined **information—** especially in relation to data—as *"any difference which makes a difference."* Data, the "news of a difference" according to Bateson, isn't information until it means something or "makes a difference." While information is necessary and important, we cannot continue to place it in our hierarchy basket above idea and thought.

## Gregory Bateson

**Famous cultural anthropologist; author of *Mind and Nature* as well as other books.**

**Now dead.**

We think—and are subsequently productive—with ideas, not information. We've all had "great ideas." Some of us have even had "insanely great ideas." We receive information, sometimes even "great" information, but we do not speak of it or feel it in the same terms as we do ideas. We speak of being "struck" with ideas, especially great ideas. We speak of "giving birth" to ideas, of "having" an idea. Undesirables "have" information. We speak of information "leaks." We don't speak of "gathering" ideas as we do information as if information is merely a commodity. Idea and thought imply an active participation in the process. We passively receive information.

Nevertheless, information is important: it's the raw material of some of our best ideas.

Passive-Active, White-Black, Up-Down, Wet-Dry: it takes both parts to make the whole. When we achieve the tenuous balance between the two (which itself is a process in a constant state of change, by the way), we reach a state of synergy. Assuming that synergy is desirable and a Good Thing, what we need is an exchange of ideas along with an exchange of information. We can act as catalysts for each other, sparking ideas, priming the pump, juicing the flow.
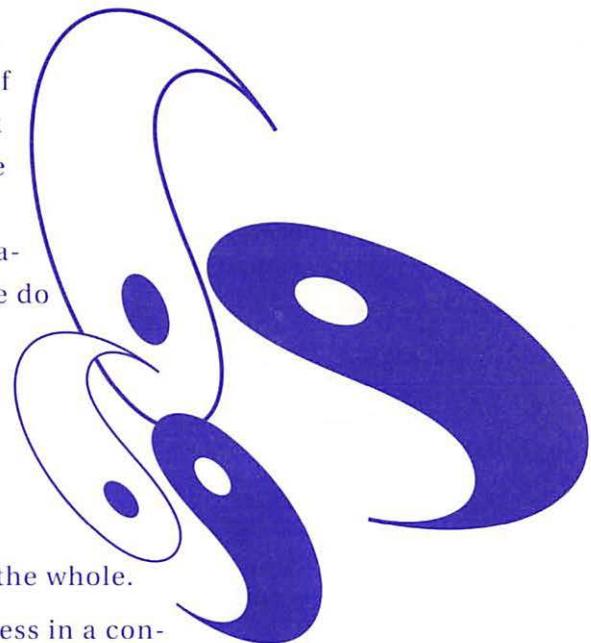
## MACINTOSH ALSO LENDS ITSELF TO THAT SYNERGISTIC PROCESS.

**Mike:** Because I live in this remote wilderness called Minnesota, I use E-mail quite a bit. I receive all of my E-mail via the Internet. Anyone and everyone can E-mail me from any computer system that's connected to the Internet, including MCI Mail, CompuServe, AppleLink, and America Online. I get a lot of E-mail every day and I needed a way to "filter" my messages. Some are junk, some are sales pitches, some are questions about my books, and some are extremely crucial to my business.

I use InterCon Systems Corporation's TCP/Connect II to manage all of my E-mail because it's the only product I know that allows me to create automatic filters and actions for my E-mail messages. TCP/Connect II's filter actions are invaluable to me and I find it hard to justify ever using an E-mail product that doesn't have them. Here are a few ideas for putting filter actions to practical use.

Most of the employees at one of my publishers use E-mail (you'd

be amazed at the number of computer book publishing houses that don't). I created filter actions for various groups at that publishing house. Messages from the marketing people got blue highlighting. I used green to highlight mail from the sales people. E-mail from my editor got an orange highlight with bold type. Messages from the publisher were highlighted in red with bold and italic type attributes. All the messages from the publishing house were refiled to a special mailbox.

or this book, correspondence from Bob was highlighted in a sort of puce color and routed to an appropriate mailbox.

I subscribe to many electronic mailing lists. All messages from a mailing list originate from the same E-mail address, even though they are written by many different people. I created a mailbox for each mailing list and created a filter action to refile each mailing list message to the appropriate mailbox.

The biggest problem with mailing lists is that some people insist on sending administrative requests (subscribe, unsubscribe, and so on) to the mailing list address rather than the administrative address. It's a simple matter to filter out these bozo messages with TCP/Connect II. Just have the program search for subscribe, unsubscribe, signoff, and the like in the message headers and have the messages automatically deleted.

One thing that I'd really like to see added to TCP/Connect II's E-mail module is the capability to automatically send out a message or file based on the results of a filter's specifications.

# ADDRESS

mailbox

*Information expands as it is used.* Stewart Brand, the founder of *Whole Earth Review*, is fond of saying "*information wants to be free* (because of the new ease of copying and reshaping and casual distribution), and *information wants to be expensive* (it's the prime economic event in an information age)."

If I gave you a copy of the manuscript for this book on a floppy disk, I would still have my original master, yet your copy would be indistinguishable from the master. This type of information, because it has value over time, expands as it is used. Some types of information—usually time-critical information like stock market reports, weather forecasts, or horse-racing tips—have little long-term value and therefore contract over time. Both types of information are available in vast quantities.

*Information, by its nature, is synergistic.* The more we have, the more we use and the more uses we find for it. Similarly, information is not scarce. Facts are abundant—probably never-ending—and because we are constantly bombarded with information, one of the crucial planning factors becomes uncertainty. (Translated: you've gotta plan for things you can't plan for.) As we earn our livings more by manipulating information, the greater the necessity of reducing our information load will become.

Stewart Brand is also fond of saying, "information wants to be free, but usually not for very long.
*Information wants to explore, always.* Smart marketers quietly follow."

*Information is compressible.* Information is most useful when it is compressed or concentrated. Compressed—or integrated—information is not resource hungry. Relative to manufacturing technologies and processes, the creation and manipulation of information is downright stingy in its use of energy and other physical resources.

*Information is transportable.* Information is more transportable than just about anything else, because it's not tangible. This intangible quality is what allows virtual communities to exist without geographic constraints. As the non-physical nature of both information and environment becomes more accepted in the business community, where you locate will become less of an issue. No longer will we be forced to relocate at the whim of someone else. As I finish my parts of this book, I fire them off via E-mail to my editor in Indiana. A perfect copy exists simultaneously in two places in the blink of an eye.

*Information wants to leak.* It's exceptionally difficult to contain information. It's like mercury and tends to be highly malleable in some ways, and very difficult to shape in others. Therefore, it's extremely difficult to monopolize information. You'll meet people who will try to monopolize information by containing it. You'll also meet others who will take it upon themselves to shatter every containment device that they can find. It all makes for very interesting interactions.

*Information wants to be shared.* In economic terms, information cannot be submitted to exchange transactions. Information wants a sharing transaction. If I sell you my computer, you have it and I don't. But if I sell you the information contained within my computer, we both have it.

# So, what good is INFORMATION?

Well, information isn't much good at all, actually. But information is needed to form knowledge, which makes it worth a great deal. Information, by nature, is continually displaced by new information; knowledge endures.

The most important development of our lifetime has been the replacement of the second-wave, industrial economy with one based on information and knowledge. Instead of creating wealth with muscle, as we did in the industrial economy, we now create wealth by manipulating symbols—by converting information into knowledge.

Most of us have held the belief that information and the knowledge distilled from that information are neutral. This was a mistake because information and knowledge are both based on underlying facts and assumptions. The facts must come from somewhere, and the assumptions can be loaded with a variety of biases.

## Welcome to the Information Age, Really

The agricultural and industrial economies were based on a set of hierarchies and control structures. Power was controlled by whoever controlled the physical resources. Influence was wielded largely through secrecy.

In an information-rich environment, the basic notion of control changes. Secrecy is abandoned simply because secrets are too hard—or too expensive—to keep. Openness becomes an economic imperative rather than a preference; many businesses are now becoming aware of this.

In previous economies based on agricultural and industrial activity, various hierarchies of class were assigned based on ownership. In an information-based society, the concept of ownership changes drastically. When an idea or other piece of information is shared, it is intangible and not subject to an exchange-based economy. The creator doesn't lose possession of the information when he shares it with the recipient. Even if you pay for the information, what you really bought was the presentation and delivery of the information, not the information itself.

For example, the publishers of the Lexis legal database maintain a copyright on the page-breaks of its information, rather than the information itself.

Since information can only be shared, rather than exchanged, the power structure will undergo significant change. Since information can be shared more equitably and is virtually infinite, benefits will spread across the populace rather than contribute to the further concentration of wealth. Further, the removal of restrictions on exchange-based transactions will lead to a greater level of diversity within the culture.

In agricultural and industrial economies, poverty was brought about by shortages. Information is plentiful and education is the key to equitability. Access to information will become one of the most politicized issues in the coming years.
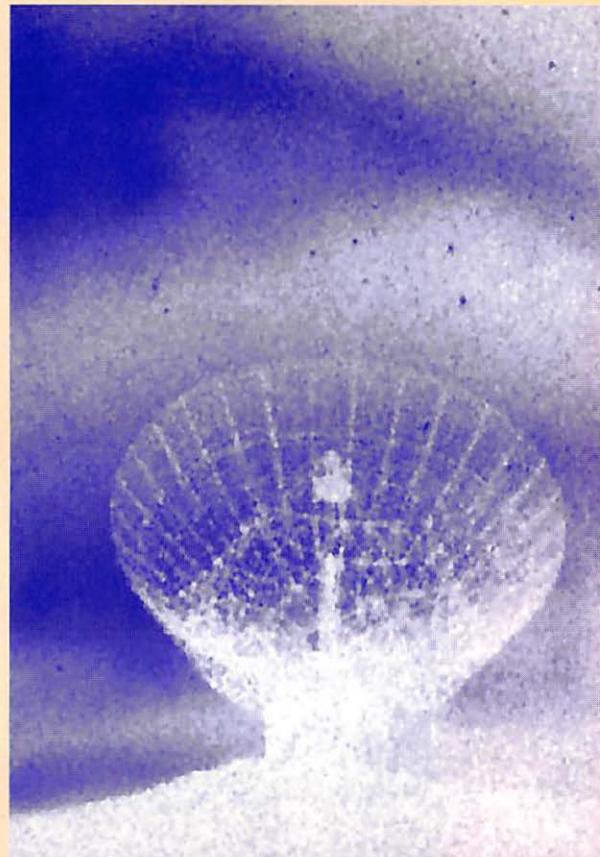
In previous agriculture and industrial economies, power was based on control. In an economy based on intangibles, relationships will become more important as control will be less easy to obtain and maintain. Pyramidal organization charts—the kind enjoyed by most corporations—are distortions of reality. The corporation of the 1990s will not look very much like the corporation of the 1980s. Corporations will become more horizontal and less vertical as it becomes more difficult to control resources (information).

World consumption of information technology exceeded $1 trillion per year in the 1980s. In the 1990s, consumption is expected to grow to $2 trillion per year. North Americans produce and consume half of this total.

Macintosh offers some of the best information management tools available.

**As Mac users, we'll all be a couple of jumps ahead.**

## Richard Saul Wurman: Information Guru for the 1990s

Richard Saul Wurman, best known as the author of *Information Anxiety, Follow the Yellow Brick Road,* and various ACCESS Guides, coined the term "information anxiety" to refer to the state of increasing discontinuity between what we understand and what we think we should understand. We are being inundated with tremendous amounts of information, most of which is useless, some of which is useful, and little of which is really important.

It's important for us to realize that the various components of what we commonly refer to as information is the raw material most of us will be working with in the near future. The task performed by most information workers is a four-phase refinement process that can be referred to, only somewhat facetiously, as the

## "GETTING OF WISDOM."
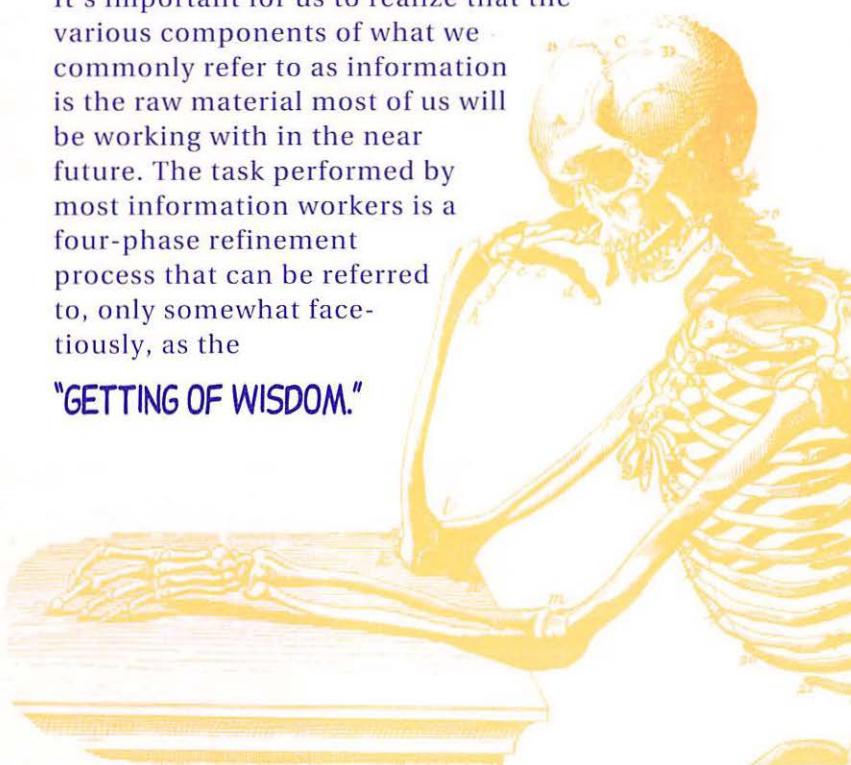
**DATA** is that body of unassimilated observations and objective facts that make up the raw materials knowledge workers form into useful information.

**INFORMATION** is nothing more (or less) than organized data. The data usually is organized by someone else, however, and maintains a patina of objectivity.

**KNOWLEDGE** is simply organized information. At this stage of the refinement process, the information is organized and internalized by the individual. Knowledge is information that you have managed to integrate with everything else you know.

**WISDOM** is fully-integrated knowledge; bits of knowledge that are even more useful because of the nature of their relationships to other bits of knowledge.

Our tools for turning the raw resource of information into knowledge haven't managed to keep up with the amount of information we are bombarded with on a daily basis. We grow anxious when we can't find what we need to know in a growing mountain of formless data. Anyone connected to a corporate E-mail system who returns from a week's vacation to find 100 urgent messages has experienced information anxiety.

The mountain is growing in geometric proportions. Imagine the repercussions of being inundated with more information on a daily basis—from a single information source—than our ancestors were in their entire lifetimes. Wurman states that, "a weekday edition of the *New York Times* contains more information than the average person was likely to come across in a lifetime in 17th-century England."

## Wurman's Five Rings of Information Immediacy

Complex information can be more easily understood when it is presented in a series of hierarchical layers: like the layers of an onion. The recipient of the information should be able to peel away layer after layer, traveling deeper and deeper into the specifics of the information. This layering helps us refocus ourselves in relation to the continual bombardment of new information.

Wurman offers a model for the appropriate layering of information. He calls his model the Five Rings; these rings are based on the degree of immediacy that various types of information have for us in our daily lives.

According to Wurman:

"the rings radiate out from the most personal information that is essential for our physical survival to the most abstract form of information that encompasses our personal myths, cultural development, and sociological perspective."

Cultural Information

News Information

Reference Information

Conversational Information

Internal Information
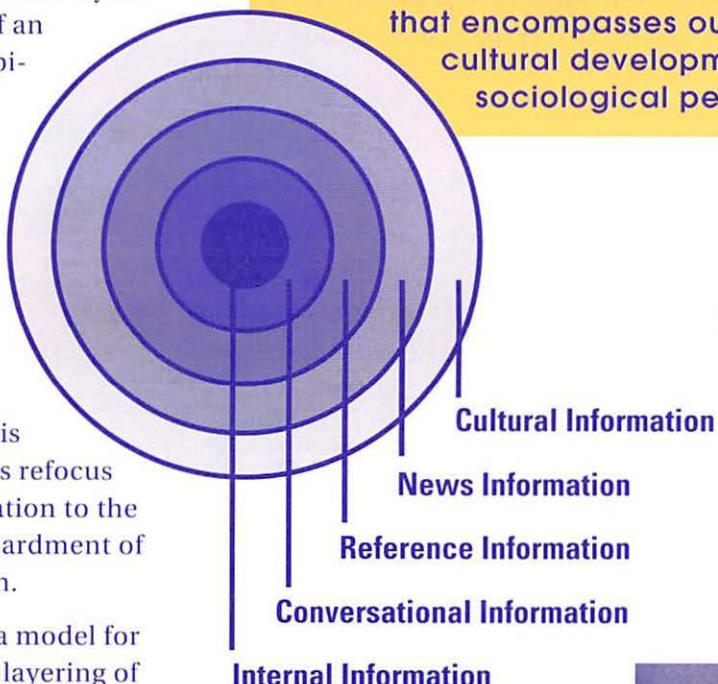
# Wurman's **5** rings of information immediacy.

*The five rings, or levels, of information are:*

### Cultural Information.

The outermost ring in Wurman's model is cultural information. This is our history, philosophy, and arts and it represents our attempts to understand our culture. This is where information accumulated from the other layers is combined to build the information set that determines our attitudes and beliefs.

### News Information.

Current events that have only a relatively minor impact on our daily lives comprise this level. Most of the information we receive from the media falls into this category. When we learn the name of the political candidates in Peru, for example, it's news information. This type of information, while not having a direct impact on our lives, influences us in more subtle ways including our individual perception of the world around us.

### Reference Information.

This layer consists of information sources including textbooks, encyclopedias, directories, and telephone books. We use reference information when we research specific information such as the year Portugal declared its independence or the phone number of a local city council member.

### Conversational Information.

Conversational information is the exchanges of information that we have with people around us. Wurman identifies this form of information as one of our main sources and also as the one that we tend to ignore most easily .

Conversational information can range from the banal ("What's your name?" or "What do you do for a living?") to the poignant ("What do you think about the proposed water referendum?"). This layer, however, is the most easily controllable. This is the layer Wurman tells us that we should most intensely focus on if we are to gain greater control over our own information spaces.

### Internal Information.

Internal information is defined as that collection of cerebral messages that enables our bodies to function. When we feel pain or hunger, for example, we are dealing with internal information. This is the type of information that we have the least control over, but which affects us the most.

# A TRUE Information Appliance

Richard Saul Wurman's computer of choice is a Macintosh, and I can't think of anyone who works with information more intensively. As far as I know, that's the best testimonial there is to the Macintosh as an information appliance. The Macintosh was, after all, designed to be a tool for working withinformation, and as we have discussed, our ability to make full use of such tools is the **KEY** to success in the future.

# Underground Guide to Macworld Expo

*The greatest show on earth isn't the circus, it's Macworld Expo. Here's an underground guide to doing it right.*

**Bob**: Mike's never been to a Macworld Expo before this year, so I'm going to have to handle this chapter alone. (Mike's afraid he'll run into someone he's said something awful about—and there are many. I say he's a wimp. I write unflattering reviews all the time and have only been assaulted at Macworld Expo once. So far.)

**Mike**: Nah, I don't go to the Macworld Expos for three reasons:

**1** *I don't like to fly.*

**2** *I don't usually have anything to sell.*

**3** *I'm usually too busy.*

I am rather selfish about my privacy, though, and that's another reason why I don't go. It keeps the witnesses guessing.

This year I went to Macworld/Boston in August because I had a book to plug, wasn't too busy, and decided it was about time to check-in on my flying phobia. It wasn't as hot as I thought it would be and, as I expected, I pissed off a lot of people with what I said in the conference session I moderated. (I'll bet that not one of the people I pissed off will be reading this, though.)

# The Greatest Show on Earth

**Bob:** Macworld Expo is a trade show, but it's more than a trade show. Macworld Expo is a conference, but it's more than a conference. If you're a Mac fan, Macworld Expo is, without question, the greatest show on earth.

**Mike:** Geez, what was it that P.T. Barnum said? Something about there being a sucker born every minute...

**Bob:** Gimmee a break! If you like your Mac even a little, you'll love Macworld Expo. What's not to like? There are hundreds of exhibitors displaying their latest wares—hardware, software, peripherals, scanners, printers, you-name-it—for you to see and touch. There's a show floor bigger than several football fields that will dazzle and delight you. And there's a star-studded conference program to entertain and educate you.
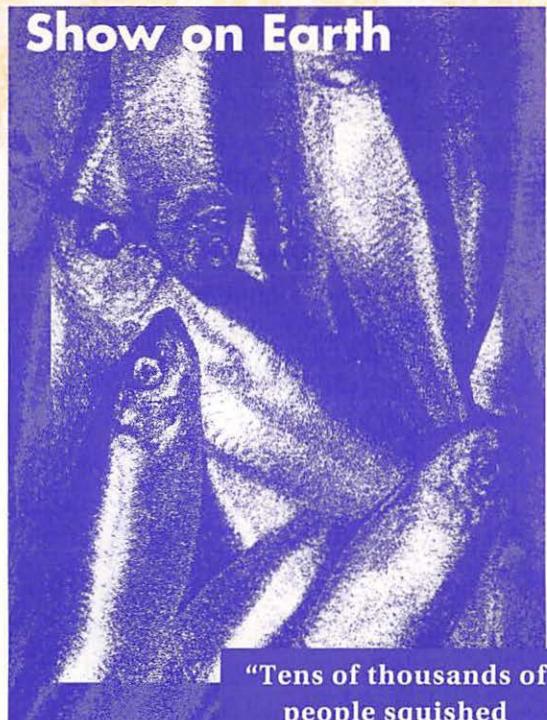
> "Tens of thousands of people squished together like raw fish on a slab."

**Mike:** What's not to like? I'll tell you what's not to like. Tens of thousands of people squished together like raw fish on a slab. In Boston. In August. Yeech. Everybody stay home.

**Bob:** Last year, I walked the two blocks from my hotel to the convention center with an obvious first-time attendee. We chatted a little, but nothing prepared me for his reaction when he got his first glimpse of the show floor. He gasped, then broke into a huge smile and said, "Oh my God." That about sums it up.

You're going to have a blast at the Macworld Expo. The show floor is humongous. Gigantic. Huge. Check out the stark contrast between the glitzy, gigantic high-tech booths the big boys (Apple, Microsoft, WordPerfect, SuperMac, and so on) favor and the quaint little 10- by 10-foot booths everyone else has. (The 10 x 10s are where you'll find the good stuff; read the "How to Survive Macworld Expo" section for details.)

In another part of the building, there's a conference program offering hundreds of presentations on topics from AppleTalk to ZModem. There are always *some* worth seeing (aside from the ones that I'm speaking on or moderating). For comic relief, see if you can catch a vendor shootout panel, where product managers of similar products (for example, Quark vs. PageMaker) duke it out. When they start laying into each other, it's more exciting (and realistic) than WWF wrestling.

Then there are the deals. Deals galore. "Show specials" abound; some are even once-in-a-lifetime opportunities. Bring your credit card, a large sum of cash, or a wealthy relative.

**Mike: Of course, after we spend the big bucks just to get there, we don't have any money to spend once we're there.**

**Bob: That's OK. You'll eat free most of the time. Just sneak into some parties. The better ones have wonderful eats. (In fact, the parties are such an important and vital part of the Macworld experience they get their own section, which starts in a few pages.)**

To sum things up, Macworld Expo is indescribable. That said, I'll try to describe it anyway: Macworld Expo is like the biggest, most high-energy, star-studded, marathon user group meeting ever, on steroids. From early in the morning to late at night, all you hear is jabber, jabber, jabber about the latest, greatest, most interesting things you can do with your favorite appliance. And everybody who is anybody is there. You might ride a shuttle bus with a high-ranking Apple exec or share a cab with the beta test manager for PageMaker. You may meet Guy Kawasaki. I'll guarantee this: You will definitely meet enthusiastic Macintosh fans. Lots of them. And that, my friend, is what Macworld Expo is all about.

If you think this Macworld Expo thing sounds like a shallow superficial experience only a nerd could love, I respectfully suggest that you skip ahead to Chapter 11 now. If, on the other hand, the opportunity to hang out with 60,000+ other rabid Macintosh enthusiasts sounds like too much fun to pass up, make your reservations now and read on.

**Bring your credit card, a large sum of cash, . . .**

## When and Where

**Bob:** There are two Macworld Expos of note: Macworld Boston, in early August, and Macworld San Francisco, in early January. There are almost 20 other Macworld Expos worldwide: Tokyo, Hong Kong, Toronto, Sydney, Paris, and they're all fun. Although I've attended many of the foreign shows, trust me, Boston and San Francisco are the best in the world. (Although I really liked the city of Hong Kong, Macworld Expo Hong Kong was modest by comparison and hardly worth having to dash halfway around the world. Tokyo was a bigger and better Expo but the cost of four days in Tokyo was unbelievable. My advice: stick to Boston and SF unless you're rich and have too much time on your hands.)

**Mike:** Um, excuse me? Does that mean that since you go to those foreign shows that you're too rich and have too much time on your hands, or is this another tax write-off for *MacUser*?

**Bob:** Nope. Macworld Expo is my life; it's worth it to me. I just don't think it'd be worth it to most other people. Now, as I was saying, if you plan to attend the Boston or San Francisco show, be sure to make your hotel reservations several months in advance. Both U.S. shows fill hotels in their respective cities to capacity and last-minute accommodations can be hard to find. Also, don't bother with a rental car unless you just can't stand the thought of being without one. Parking is expensive and rare in both Boston and San Francisco; you'll save a time, money, and aggravation if you take cabs, which are plentiful and relatively inexpensive in both cities.

There are basically two ways to attend Macworld Expo: on a budget or on OPM (other people's money). In San Francisco, if you're on a budget, try Hotel Union Square or Hotel Diva, two smaller European-style hotels within walking distance from Moscone Center (where the show takes place). If you're on OPM, choose the Four Seasons Clift or the Westin St. Francis for opulent elegance, or the ANA or Mariott for their expensive-but-convenient locations (both are less than a block away from Moscone Center).

In Boston, the Suisse Chalet in Dorchester is the budget leader with rooms well under $100. It's only a $5 cab ride from Bayside, and it's fun (during Macworld Expo, Mac fans occupy about 90 percent of the rooms). If money is no object, try one of the first-class joints, the Boston Harbor or the Bostonian. Both are close to the World Trade Center and Boston's shopping and eating capital, Fanuel Hall/Quincy Marketplace. (Macworld Boston takes place in two locations about five miles apart—Bayside Exposition Center and the World Trade Center—with free shuttle service between the two.)
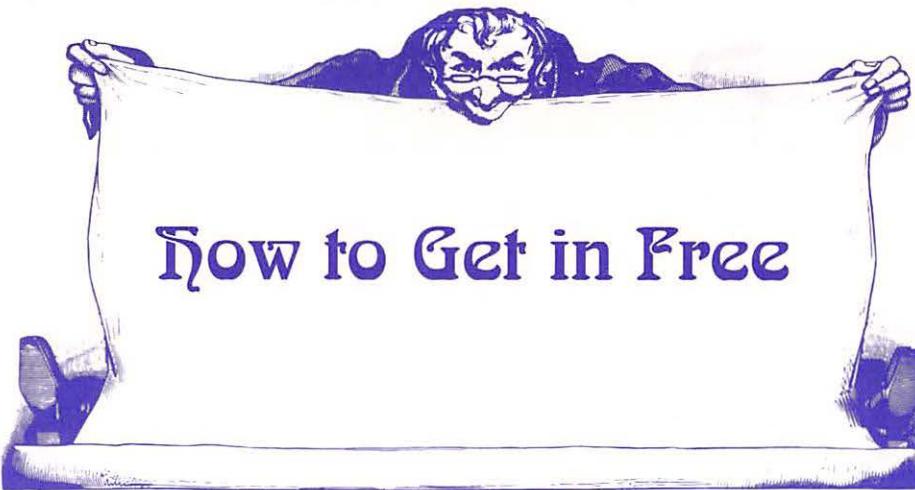
# How to Get in Free

**Bob:** The truth is, why bother? An "exhibits only" pass for all 4 days is only $30. And that's all you need. You can always attempt to sneak into any conferences you just can't miss. If you're the honest type, or aren't skilled at sneaking, the conferences will set you back about $100 for 4 days, still a small price to pay for all that wonderful knowledge.

If you're too cheap to pony up the $30 for an "exhibits only" badge, there are several scams you might try. Bear in mind that none of them is particularly ethical (and remember, if you get caught, don't mention my name).

The easiest way is to have a friend who is an exhibitor. Exhibitors get a certain number of free passes, depending on the size of their booth. Most vendors get more passes than they have people, so if you're friendly with someone who works for an exhibitor, you may be able to hustle one of their extra badges.

Another way is to storm the gate, just smash your way through hoping to melt into the crowd before Security can grab you, throw you to the ground, and stomp you senseless. For obvious reasons, this method is not recommended.
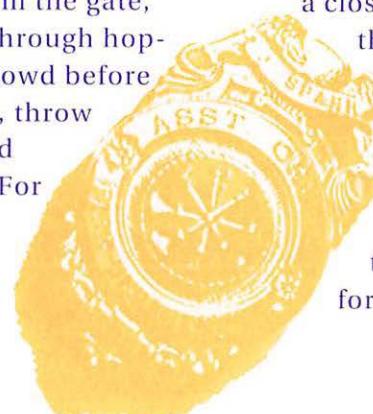
**Mike:** I don't know about you, but I'd pay a couple bucks to see Bob try that one.

**Bob:** Fat chance. I get in for free twice: once 'cause I'm a speaker and once 'cause I'm a *MacUser* contributing editor. But I digress...

A third good scam is to stand outside the doors late in the afternoon on any day but the last day of the show and ask departing attendees if they plan to return tomorrow. You're bound to eventually find one who says, "No." Ask if he'd mind giving you his badge.

In the old days, you could resort to common forgery as well. All you needed was a legitimate badge, a scanner, and a Mac. Mitch Hall (the Macworld Expo promoter and a close friend) got wise to this scam and switched to plastic credit card-like badges several years ago. They're extremely hard to forge. Another old-time scam involved forging a Press ID card,

which at one time was all you needed to secure a press badge: good for both exhibits and conferences. These days you also need to show some press clippings or a masthead from a computer magazine with your name on it (possible to forge, but hardly worth the trouble).

**Mitch Hall would just as soon toss your butt in jail.**

**If I were you, I wouldn't bother trying to get in free—it's easier and healthier to just spring for the $30. Mitch Hall isn't stupid. He's been had by all of these scams and would just as soon have your butt tossed into jail as let you get away with it. You've been warned.**

## How to Survive Macworld Expo

The first and most important thing to consider is your comfort. You'll probably spend at least two full days walking the floor—so sneakers or comfortable walking shoes are a must. You'll be surprised at how much ground you'll cover each day. Lightweight clothing is a must as well, especially in Boston in August. At both shows the exhibit hall is usually packed like a sardine can by midday and the air-conditioning isn't much help with 60,000 enthusiastic shoppers and exhibitors all talking at once. At a minimum, dress in layers.

There are two schools of thought on how to see the exhibits. Some people plan their days carefully using the show guide book (available free at the entrances) to pick out the "can't miss" booths. They then methodically visit the booths one at a time. Others just hit the floor with no plan in mind, cruising until they see something interesting. For what it's worth, I'm one of these and I recommend it highly. Many of the coolest things I've seen at Macworld were products I'd never heard of before the show.

129

When you find a booth displaying a product that interests you, don't forget the golden rule, "Caveat Emptor," Latin for, "don't be fooled by marketing weasels." There are a lot of good deals at Macworld, but there are bad deals as well. Some exhibitors are totally sleazy—most are not.

One thing you'll quickly discover is that only about half the booth personnel know the difference between System software and NutriSystem. The other half are rented from local temporary help agencies and should be avoided like the plague. Fortunately, these ersatz employees are easy to spot. If you think you're talking to a rent-a-weenie but you're not positive, here are three questions to ask:

### 1. How much RAM is in that Mac?

If they answer without hesitation and without checking, they're definitely not a rent-a-salesperson. If they choose "About this Macintosh" from the Apple menu, then tell you, they're probably not a rent-a-salesperson. Any other response is unacceptable. You should find a representative who knows what he is talking about or leave the booth.

Mike: Booth monkeys can be taught to choose "About This Macintosh" from the Apple menu. They can even be taught to switch to the Finder to find it. The people you want to look for are the ones who, if they don't know how much RAM is in the computer, will rip the lid off and count SIMMs.

Bob: Bah. They're never trained that well. OK, if they answer question 1 correctly, go to question 2...

### 2. Who is the president of your company?

Non-rental staff will answer without hesitation; rent-a-salespersons will ask you to wait while they find out.

### 3. Who is the president of Apple?

Real Mac people know; rent-a-ninnies don't.

Mike: OK, I give. Who is it this week?

Bob: Who knows what the correct answer will be by the time this book hits the bookstores.
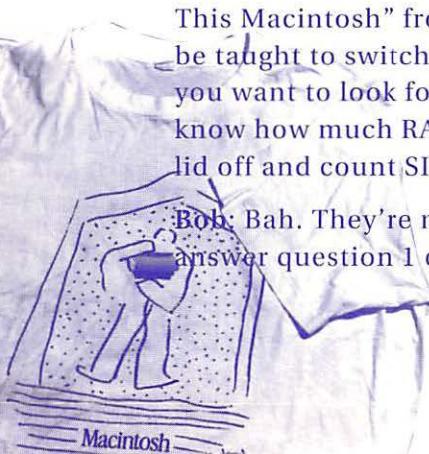
## How Not to Get Burned

Not all vendors are dishonest, but some are. There are always a few rotten apples (pun intended), so don't believe everything you hear and look carefully at everything you see. I once saw a demo where the vendor led the audience to believe two Macs were connected by modem. Both Macs were under skirted tables and hidden from view. When I crawled under the table I discovered that there were no modems to be found. Rather, a high-speed Ethernet network had been set up to connect the two machines. In another demo, I thought a product was running extremely fast considering it was being run on a relatively slow IIcx. I asked the salesperson if there was an accelerator inside. "No way," he said, "our program is optimized for speed and runs blindingly fast, even on a lowly IIcx." I popped the top off the IIcx and what do you think I found? A very fast accelerator. The salesperson acted dumbfounded, "I don't know where that came from!" Yeah, sure. The moral of the story is: don't believe everything you're told.

Look under the tables and look under the hood. Although most vendors are honest, some aren't. As Mike likes to say, "follow the wires." Forewarned is forearmed.

**There are always a few rotten apples.**

**Mike**: Yeah, follow the wires. It's the same concept we all learned during the Watergate fiasco when Woodward and Bernstein were told by their sources, again and again, "Follow the money."

**Bob**: Another tip: use your credit card, not cash. Imagine this: You buy a hard disk at the show from a company you've never heard of (let's call them "Harry's Hard Disks"). It's a great deal and everything looks perfectly kosher. You're elated. But when you get home, you discover that the drive is defective and the formatting software, manual, and cable you were promised are not in the box. You call the number on the invoice only to hear, "The number you have reached has been disconnected."

There are two lessons to be learned here. First, if you paid cash you'd be S.O.L, but if you paid by credit card, you'd probably be home free. Just write to the credit card company (don't rely on only a phone call, they're not technically official) and explain your experience with Harry's Hard Disks—they will remove the charge from your bill and send a kneecap-buster out looking for Harry. The second lesson is to inspect your purchases carefully before leaving the booth. (This is especially important on the last day of the show.) There's nothing more annoying than getting your new software home only to find that the box doesn't contain any disks!

## Macworld Expo Parties

**Bob:** Macworld Expo is an amazing amalgam of people, products, and presentations. But more than that, Macworld Expo is a party. (Actually, it's a seemingly endless stream of parties.) As much fun as the show floor is by day, the parties by night are the best part of the show.

There are parties and then there are *parties*, but only a few become legends. At the top of the legend heap are the Ingram Micro parties in both Boston and San Francisco. They are the biggest, loudest, most boisterous parties the Macintosh community has ever seen. You say you've never heard of Ingram? Well, they're the largest distributor of Macintosh products in the world. Your dealer buys his products from them. Ingram sells several zillion dollars worth of stuff each year, which is how (and why) they host a spare-no-expense party for several thousand of their closest friends, twice a year. The party is always held in a huge room—a museum, grand ballroom, or other massive space — and there's always enough free food and drink for a small army, with live entertainment galore. For many, this is the ultimate Macworld Expo party. Unfortunately for many, it's strictly by invitation, and security is usually tight.

Another legendary party is the Verbum Digital Be-In held each year at the San Francisco show and sponsored by *Verbum* magazine. Where the Ingram party is slick, huge, and free-if-you-can-find-a-ticket, the Digital Be-In is grungy, huge, and costs $15. It's worth it. For your donation, you'll see live music, product demonstrations



(virtual reality, music technology, and more), and performance artists. Verbum's Digital Be-Ins are the 1990s equivalent of the acid tests Tom Wolfe wrote of in the 1960s. Without the acid. But still fun.

The *MacUser* Editor Jam is another legendary party, yet it's only three years old. Still, it's risen to legendary status only partly because of my singing. Another San Francisco exclusive (held in a densely packed nightclub), the Editor Jam features your favorite *MacUser* editors jamming with the totally excellent System 9, a stellar band led by occasional *MacUser* contributor, Chris Breen. If you can wangle an invitation, you're likely to see Jim Bradbury cutting loose with his best John Lennon impersonation on "I Saw Her Standing There," or the usually cantankerous Henry Bortman blowing a mean blues harp. If you're really unlucky, you'll be around when I hit the stage. Last year it was Led Zeppelin's "Good Times, Bad Times;" this year I've got an even bigger treat—Meat Loaf's "Paradise by the Dashboard Light." Be there. Or not.

Another San Francisco treat (seems like most of the great and legendary parties take place in San Francisco, doesn't it?) are the super-secret Todd Rundgren parties— three so far. The first took place about five years ago in a house Todd rented in central San Francisco. The place was packed early and stayed that way until the wee hours. Well after midnight, Todd treated the hearty souls still around to a delightful piano concerto. Later that night, I was kidnapped by hackers from NASA and forced (ha!) to fly a genuine flight simulator at Moffit Field, 40 miles away. Another Macworld Expo night with zero sleep.

The second Todd party took place at his home in Sausalito. It was amazing...thousands of people descending on Todd's pastoral residence. As you would expect with thousands of people jamming a residence in a hilly neighborhood, the police closed it down early.

Todd wasn't fazed, though. His most recent party was two years ago (Todd was on tour during Macworld Expo last year) at a rented warehouse, again in San Francisco. For this one he went all-out and presented a full concert with the Nearly Human band. Totally awesome. The band played two sets, ending just before dawn. I've seen Todd at least a dozen times before and since, but this was easily one of the most memorable shows—a private party for several hundred of Todd's closest friends.

That's just the tip of the iceberg. At each show, there are at least half a dozen other parties each night, ranging from small intimate affairs to huge grand ballroom shindigs for thousands. Traditionally, one of the best of the rest has been thrown by Berkeley Systems (After Dark, More After Dark, and every other conceivable or inconceivable screen saver). They rent out a club, provide booze, band, and party favors (last year they were those glow-in-the-dark necklaces—thousands

of them), and everybody dances until they drop. Attend if you can.

## How to Get into Parties

There are thousands of tickets available for the Ingram party. The trick is to find one (or two). Since Ingram distributes invitations mostly to vendors and dealers, that's where to start. If you know a vendor or dealer, ask if they have a spare. And if you're lucky enough to know someone from Ingram (hi Barry and Dave!), suck up to them—they always have invites. If all else fails, find out where the party is being held and hang around near the entrance asking everyone who passes if they have a spare invitation.

**Mike:** Pulleeeze don't do that. I hate it when people do that at Grateful Dead concerts and I bet this is even worse. What about baseball? Fenway's one of the best ballparks in the country. If the Red Sox are in town, that's where I'll be.

**Bob:** The Verbum Digital Be-In poses no problem—Verbum usually has a booth; you can buy a ticket there. Last year, tickets were even available from Ticketron!

The *MacUser* Editor Jam is another tough cookie. There are only a few hundred invitations printed and these go mostly to *MacUser* advertisers. Use the Ingram

approach: ask, ask, and ask again. Or find out the location and stand outside looking forlorn.

The Todd Rundgren parties present the greatest challenge. To avoid the fiasco that took place at his Sausalito party, the last party was kept a secret until the day of the event. At that time, if you know someone who knew someone, you'd know the special phone number to call. That number featured a recording that told you to call a different number after 6PM for the location of the party. Even so, thousands of people found out about the warehouse and it was jam-packed. Again, the key is to ask around. If you're persistent, you should be able to discover when and where the good parties are this year.

# See you there!

# Macintosh Hypertext

From Vannevar to HyperCard, hypertext and hypermedia have always been a couple of the best reasons to own a computer.

The concept of non-linear writing and reading of information was first formalized by Vannevar Bush in the 1940s and subsequently has been elaborated upon by visionaries such as Doug Engelbart and Ted Nelson.

In the mid-1940s, most of America's efforts were focused on ending World War II. Vannevar Bush was Franklin Roosevelt's head of the Office of Scientific Research and Development. Bush was deeply concerned about the amount of information being generated by members of the scientific community on behalf of the war effort. More importantly, Bush was concerned about managing the data and making it accessible to those who needed it.

As a result, Vannevar Bush made a series of assessments and predictions—including high-resolution screen displays, fast information retrieval, and the mass storage of information—that proved to be remarkably prescient.

In 1945, Vannevar Bush wrote an article entitled "As We May Think" (*The Atlantic Monthly*, August, 1945) that changed forever the way we look at the organization, storage, and retrieval of large amounts of information. Bush was aware that the human mind operates largely by association and that—by extension—people work best using associative properties of thought. He speculated that an associative selection process could be mechanized and that such a process,

while significantly slower in performance than the human mind, would be permanent rather than transitory (as are human associative thought processes). Any specific bit of data could be accessible by entering a code and the document would be displayed on the screen. Margin notes and comments could be added at virtually any point and associations could be freely drawn between any two documents and displayed on adjacent screens.

The "memex" was the machine that Vannevar Bush visualized as being capable of providing this associative mechanical thought. The memex was based on the then state-of-the-art technology of the microfilm reader coupled with navigational levers. Although the memex machine was never manufactured, another of Vannevar Bush's concepts, the Bush Rapid Selector, was developed and marketed by Kodak and others. We now know the Bush Rapid Selector as the microfilm reader with index strips along the side of each film. Bush's concept of trails or marks and sequencing cues are now known as paths, tours, and webs in hypermedia.

# Ted Nelson *and Universal Hypertext*

No discussion of hypermedia or interactive multimedia would be complete without mentioning Ted Nelson, one of the most brilliant minds of our time and originator of the term **"HYPERTEXT."**

Ted Nelson, influenced by the work of Vannevar Bush and Douglas Engelbart, first used the term hypertext in the mid-1960s to describe a form of non-sequential writing. His written works, most notably *Computer Lib/Dream Machines* and *Literary Machines*, have served to influence the current generation of hypermedia pioneers more than any other works.
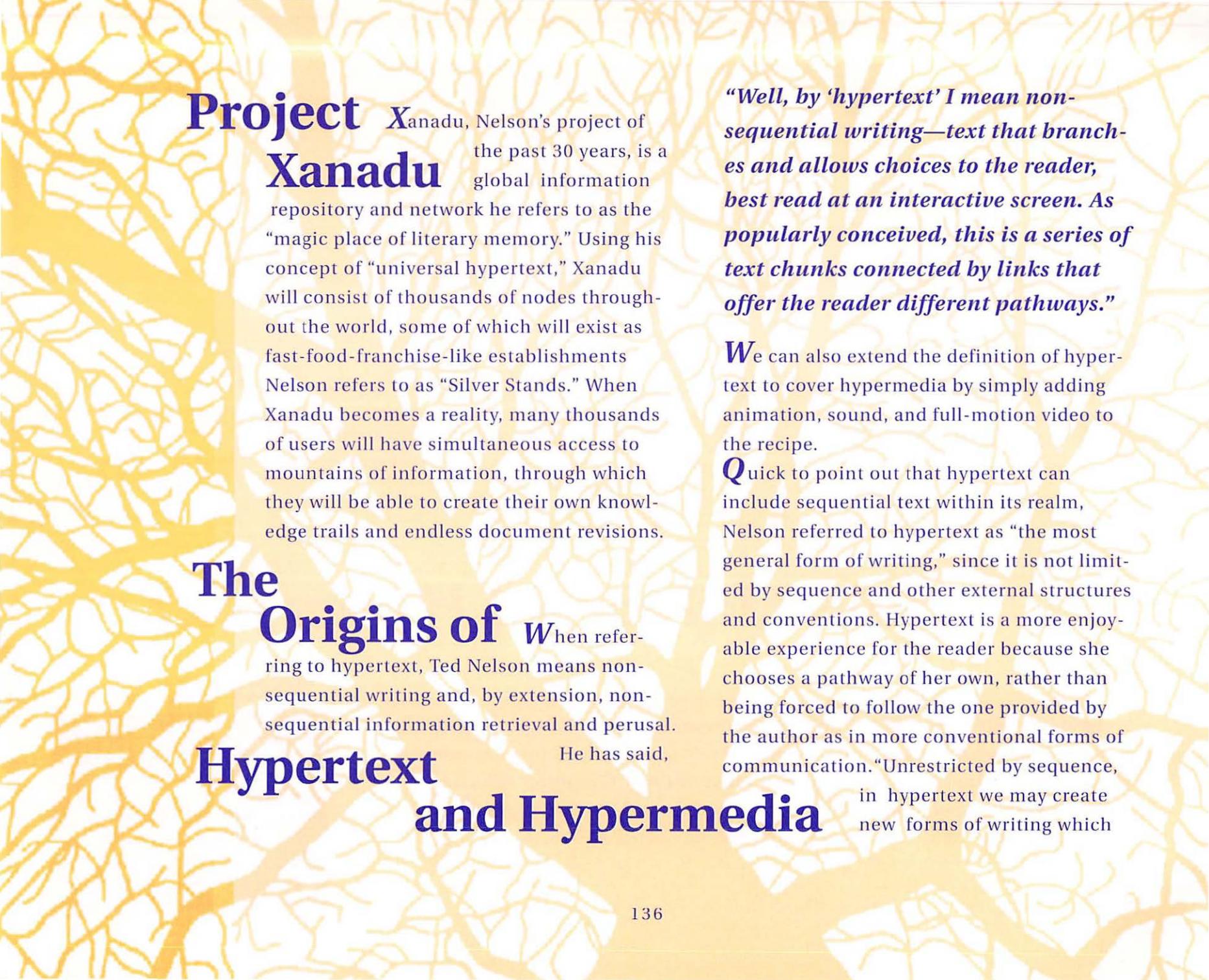
# Project Xanadu

Xanadu, Nelson's project of the past 30 years, is a global information repository and network he refers to as the "magic place of literary memory." Using his concept of "universal hypertext," Xanadu will consist of thousands of nodes throughout the world, some of which will exist as fast-food-franchise-like establishments Nelson refers to as "Silver Stands." When Xanadu becomes a reality, many thousands of users will have simultaneous access to mountains of information, through which they will be able to create their own knowledge trails and endless document revisions.

# The Origins of Hypertext and Hypermedia

When referring to hypertext, Ted Nelson means non-sequential writing and, by extension, non-sequential information retrieval and perusal. He has said,

*"Well, by 'hypertext' I mean non-sequential writing—text that branches and allows choices to the reader, best read at an interactive screen. As popularly conceived, this is a series of text chunks connected by links that offer the reader different pathways."*

We can also extend the definition of hypertext to cover hypermedia by simply adding animation, sound, and full-motion video to the recipe.

Quick to point out that hypertext can include sequential text within its realm, Nelson referred to hypertext as "the most general form of writing," since it is not limited by sequence and other external structures and conventions. Hypertext is a more enjoyable experience for the reader because she chooses a pathway of her own, rather than being forced to follow the one provided by the author as in more conventional forms of communication. "Unrestricted by sequence, in hypertext we may create new forms of writing which

better reflect the structure of what we are writing about," wrote Nelson, "and readers, choosing a pathway, may follow their interests or current line of thought in a way heretofore considered impossible."

**M**ost writings—and most multi-media presentations—are sequential, according to Ted Nelson, because they grow out of speech-making (as opposed to conversation) and because books are easier to read in a sequential manner. He also says, however, that the structure of ideas is not sequential at all, but more like a jumble of coat hangers (showing the interconnectedness of our ideas). He also credits the concept of the footnote as a break from the sequential, but says it is not hypertext because it cannot be extended.

**S**imilarly, non-sequential presentation enables the viewer to form impressions and bounce around, trying different tacks until finding the one that's most interesting or the most germane to her immediate interests. Hypermedia allows for an arbitrary information structure, thereby opening many doors rather than just one.

**T**ed Nelson foresaw that once we were liberated from the pestilent confines of the printed page, our writing and presentations would flow in a naturally interconnected manner. In addition, a body of text can be written without regard to a target market or "average" reader. Any level of detail can be achieved without concern for violating the supposed rules of general interest. Documents can be modeled after an onion rather than a potato. Layers of detail can be peeled back and readers can immerse themselves deeper and deeper into the work. Again, Nelson waxes eloquent:

*"I wanted everyone to see that we were going to the extended, generalized form of writing: no longer held to the conve- nient sizes by printing and marketing considerations, no longer restricted to a single expository stream, no longer breaking the true interconnec- tions of a subject to make a sequence (like branches snapped into sticks and put into a row)."*

# COMPUTER LITERACY

As much as Ted Nelson saw computers—especially personal computers—as appropriate hypermedia tools, he continually decried the concept of "computer literacy" as detrimental because the issues taught to the non-computer-literate often are veiled in layers of unnecessary complication. He is quite adamant on this point:

"Nearly everything has to be fitted into oppressive and inane hierarchical structure and coded into other people's conceptual frameworks, often seeming rigid and highly inappropriate to the user's own concerns."

Nelson also took a firm stand against the traditional structure of the computer "file," voicing a strong distaste for the "tyranny of the file" as illustrated by the file's detachment from relationships and history that subsequently result in more confusion, not less.



PET SURVEY
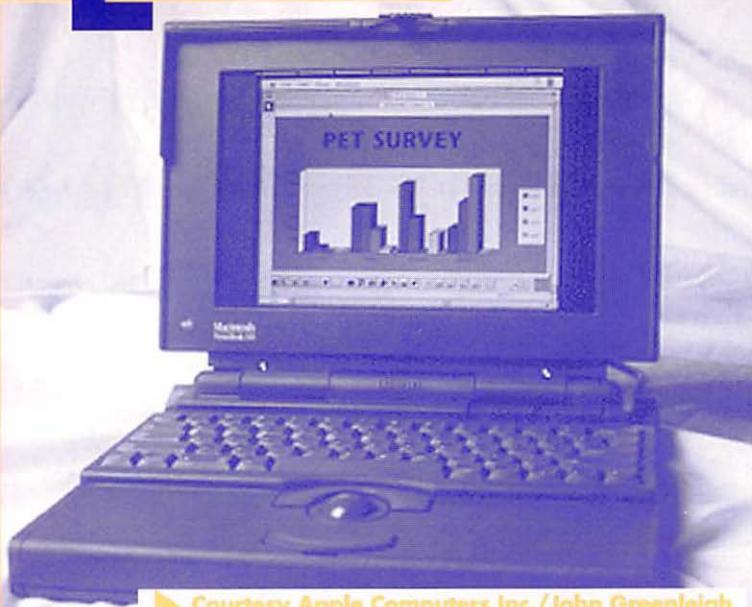
Courtesy Apple Computers Inc./John Greenleigh

# COMPUTER-AIDED INSTRUCTION

A particularly common target of Ted Nelson's venom was the early form of computer-aided instruction (CAI) that began to develop in the early 1960s. Nelson saw CAI, at its best, as an attempted paternalism by the schools and at its worst, fascism. "Though the student was implicitly, at some position, in branching text, he or she would have no way to see it whole, no way to choose," wrote Nelson in 1988. "The student's only option was to answer questions, and these answers would implicitly make the next choice in a manner unseen." The entire concept of CAI rested on the attempt to control and restrict users, which was in direct opposition to Nelson's position of the promise inherent in freeing people to pursue their own interests, cross-references, and linkages. Always the pluralist, Nelson was adamant: "This was not the tradition of literature. This was not the tradition of free speech. It was the tradition of the most oppressive aspects of the bureaucratic educational system, dandied up to look scientific."

# A FRAMEWORK OF
# REUNIFICATION

Nelson's broad-based goal, then, was a form of pluralistically general hypermedia, although he recognized that as the bandwidth of the component media grew, so did the potential for confusing disorder. Video, animation, and sound—drastically increasing the bandwidth of the medium—raised the potential for confusion and greater incompatibility. His proposed solution was elegantly simple:

"To unify and organize in the right way, so as to clarify and simplify our computer and working lives, and indeed to bring literature, science, art, and civilization to new heights of understanding, through hypertext."

Ted Nelson perceived hypertext, and subsequently hypermedia, to be a "framework of unification" rather than another obscure structure.

In proposing two styles for the organization of material within a hypertext document, Ted Nelson also demonstrated succinctly how hypertext would be much more useful for the reader than standard sequential forms of reading. He pointed out that when we read a work of non-fiction, we generally hop around from section to section to get the most information relevant to our current needs in the shortest possible amount of time.

*He duly noted Doug Engelbart's initial concept that hypertext be one piece, not haphazardly scattered about with bits here, there, and everywhere.*

## PRESENTATION AND EFFECT HYPERMEDIA

Nelson referred to the style of hypertext organization that concerned itself with its effect on the reader as manifesting itself in a series of interconnected "planned presentations" the reader would navigate: the "presentation and effect" style. At the core of presentation and effect style of hypermedia, sequences would be designed for their look and feel and how they would communicate their ideas to the reader.

## LINES OF STRUCTURE HYPERMEDIA

The alternate hypermedia style that Nelson identified as "lines of structure" simply represented the organizational pattern of the subject matter. The effect of the material on the reader, while taken into consideration, was not a major factor. The "lines of structure" style is easier to implement, "since the author is only concerned with analyzing and representing what the structure really is, and the reader is exploring the structure as he or she explores the text."

# Reader Orientation

Nelson was also cognizant of possible reader orientation problems within a hypermedia document. He pointed out that in traditional paper media, the reader is given "incidental cues" as to his location in the material: "The thickness of a book, the recalled position of a paragraph on the left or right page, and whether it was at the bottom or top." Nelson went on to say that new "hypermedia" cues must be developed that are functionally equivalent to the incidental cues in "standard media."

Firmly believing that hypermedia—with its capability to present complex ideas and their interconnections in the same document—would advance the state of writing and learning, Nelson was aware of hypermedia's potential to address complex problems. However, Nelson envisioned taking hypermedia a step further, to include the pluralistic interconnections of many authors in a "many-to-many" relationship. He said, "Hypertext can represent all the interconnections an author can think of; and compound hypertext can represent all the interconnections many authors can think of…"

Ted Nelson, in the tradition of Doug Engelbart and Vannevar Bush, perceived our planet's greatest problem as involving "thinking and the visualization of complexity." Similar in scope to Engelbart's concept of "augmentation of the intellect," Nelson's idea of thinkertoys is more specific and includes, for example, a computer system designed to help "envision complex alternatives."

# THINKERTOYS and the Ten Minute System

The crux of any thinkertoy is the capability to compare and understand varying levels of complexity by way of their interconnections. Nelson gives very specific instances in which such devices would prove beneficial: ranging from alternative designs and theories to successive drafts of documents to comparisons of courtroom testimony. For example, it is easier to understand the structure of a geodesic dome when each of its connecting nodes is examined in relation to the other nodes.

The underlying concept of the thinkertoy is that although the interconnections between vastly different problems appear themselves to be vastly different, in reality, they are more similar than dissimilar.

Significant differences between types of problems remain, however, leading Nelson to propose general approaches to problem solving including a technique he referred to as "collateration."

To Nelson, the guiding principle of any computer system, regardless of its intended function—but extremely important in the case of a thinkertoy—is that any such system must be inherently, even disquietingly, easy to use. "If it is desirable that computer systems for simple-minded purposes be easy to use," he said, "it is absolutely necessary that computer systems for complicated purposes be simple to use."

Patently obvious, yes, but exceptionally difficult to implement and therein lies what many consider to be Ted Nelson's greatest acumen. Power and apparent simplicity are not mutually exclusive in the eyes of Nelson and he's always aimed at (and consistently achieved) the demystification of the various hypermedia technologies.

Nelson aims for simplicity to such an extent as to admonish systems as almost useless that are more complicated than what he calls a "ten-minute system." A ten-minute system is one that a novice can learn and put to use in less than ten minutes. "I believe that interaction with computers can be at least ten times easier," Nelson states, "Ten times more powerful, ten times more vivid; and that these are issues not of hardware but of virtuality design."

**T**ed Nelson's formulated linguistics is seen by many as camouflage to cover for the weakness inherent in his ideas. Nothing could be further from the truth. (Although we're sure Nelson would have no problem being called a vaudevillian.) Nelson as vaudevillian is exemplified best by his concept of fantics. In Nelson-speak, fantics is simply the showmanship of ideas, "I derive 'fantics' from the Greek words 'phainein' (show) and its derivative 'phantastein' (present to the eye or mind)."

Nelson's concept of fantic antics to get ideas expressed and comprehended is right on the money. Contrary to popular belief, the new media will not require increasingly technical specialization, but less.

All computer hardware and software systems have an inherent learning curve (meaning the time required to learn how to use the system). New approaches to any problem have learning curves: automatic teller machines, new cars, food processors, and computers. The beauty of the original Macintosh was its small learning curve. Anyone could do something useful on the machine in less than half an hour. Macintosh formed a new paradigm for powerful computing machinery. Software designed to run on Macintosh helped solidify this paradigm and cries of "once you master any Macintosh program you have a great headstart on most others" were heard throughout the land. How did this happen? Aside from excellent design and the then-novel idea of "evangelizing" the system itself, it had to do with fantics. People actually enjoyed working with the computer. So it's not for nothing that Ted Nelson tells us, "I think that when the real media of the future arrive, the smallest child will know it right away (and perhaps first)."

# DOUG ENGELBART AND THE AUGMENTATION OF THE INTELLECT

**Macintosh Graphics Products**

D ouglas C. Engelbart was the first of the second-generation hyper-visionaries to follow in Vannevar Bush's footsteps. Engelbart realized that while hypermedia was going to revolutionize our access to information, some sort of framework would be needed to structure the capabilities we were going to gain. His concept of the "augmentation of the human intellect" sprang directly from these concerns and provided the framework for not only the budding hypermedia discipline, but most of the personal computer industry as well.

Doug Engelbart received Department of Defense funding in the 1960s through the Advanced Research Projects Agency (ARPA) to realize his augmentation theories. Many important ideas, familiar to many computer

users, were born at Engelbart's Augmentation Research Laboratory at the Stanford Research Institute (SRI), including the mouse, windows, electronic mail, and outlining. Engelbart's augmentation system for the knowledge worker, however, has not been implemented in a manner he considers acceptable.

If Vannevar Bush was the cerebral intellectual of the underlying concepts of hypermedia, Doug Engelbart was the task master: the visionary who dug in and got his hands dirty and got the job on track. Engelbart read Bush's "As We May Think" piece while he was a radar technician in the Philippines during World War II. The ideas proposed by Bush festered in Engelbart until he was 25. Engelbart found himself living in the California of the 1950s and decided to address the most pressing problems facing society that were growing faster than the tools used to solve them. Engelbart envisioned a tool that would give a small group of people, working together, a better chance of solving problems of increasing complexity.

Engelbart understood that what was needed was not a new way to expand knowledge, but new ways of discovering where to look for specific answers; answers that were already stored somewhere. He also perceived a great need for better communications tools between individuals working together on complex problems. Although Engelbart's augmentation system and attend-ant tools remain in process, the underlying framework came to him in a flash:

"When I first heard about computers, I understood from my radar experience during the war that if these machines can show you information on print-outs, they could show that information on a screen. When I saw the connection between a television-like screen, an information processor, and a medium for representing symbols to a person it all tumbled together in about half an hour. I went home and sketched a system in which computers would draw symbols on the screen and I could steer through different information spaces with knobs and levers and look at words and data and graphics in different ways. I imagined ways you could expand it to a theater-like environment where you could sit with colleagues and exchange information on many levels simultaneously. God! Think of how that would let you cut loose in solving problems!"

# NLS AND AUGMENT

T he notion of hypertext as bits of documents linked to other bits of information that were easily retrievable by a non-expert was only part of a bigger picture in Engelbart's mind. Engelbart first proposed his system in a 29-page paper in 1962, "A Conceptual Framework for the Augmentation of Man's Intellect."

Six years later, in 1968, a working system was up and running under Engelbart's specification. The system, called NLS (for oN Line System) included advanced features such as electronic mail, computer conferencing, multiple windows on screen, and a mouse. NLS was designed to allow anyone to read material written by anyone else and make comments and link other documents from any terminal connected to the system. NLS, in basically its original form, is still offered today as Augment by McDonnell-Douglas and is used primarily by the Air Force, although it is accessible via Tymshare.

Douglas Engelbart went on to form the Bootstrap Institute in Palo Alto, California with seed money provided by an anonymous benefactor from within the computer industry.

# THE KNOWLEDGE WORKSHOP

C oncepts from both Augment and NLS comprised what was loosely referred to as the "Knowledge Workshop" envisioned by Doug Engelbart. Within the Workshop, any user could log onto the system via any connected display terminal. Once you logged into the Workshop, all owned files as well as any files that were shared among a group of users would immediately be accessible. Files could be read. New files could be created. Shared files could be annotated. In addition, messages that were not connected to any document could be sent—immediately—to other Knowledge Workshop users. Documents were transferred easily to other members simply by "releasing" them. No paper changed hands. Documents could be released to others for their comments and annotations and the Workshop user would have common access to other members' documents that were specified as "shared" documents.

If all of this sounds vaguely familiar to you as a modern Macintosh user connected to a local area network, it should. The basic concept of file service or using a file server is identical. One of the new buzzwords in the Macintosh community is "groupware." As you can see, this concept also comes from Engelbart's very seminal work.

What separates Engelbart's Knowledge Workshop vision from current workgroup practice is the absence of paper and its

attendant paper handling. Paper is eliminated at all levels. If you wrote—especially if you wrote a lot—this meant the end of lost notes that you scribbled several days earlier on napkins, matchbooks, or other scraps of paper. Within the Knowledge Workshop, all your writings were available immediately. Cross-references, footnotes, sidebars, and annotations were instant and painless. The Workshop promised an end to the time-consuming paper chase and looking for that scrap of paper containing last night's brilliant thoughts that "just has to be here somewhere."

Interpersonal computing, in the form of workgroup collaboration, was also a concept firmly embodied within Engelbart's Knowledge Workshop. Individuals, who could be connected via a telephone link, could work together on a common document: changes made by one person on her screen were immediately reflected on the other person's screen. No longer were geographically dispersed workgroup members subjected to the time delays of revision-by-mail. All revisions could take place in real time, or at least a reasonable facsimile thereof.

# AUGMENTATION

Doug Engelbart defined augmentation as:

"Increasing the capability of a man to approach a complex problem situation, gain comprehension to suit his particular needs, and to derive solutions to problems. Increased capability in this respect is taken to mean a mixture of the following: that comprehension can be gained more quickly; that better comprehension can be gained; that a useful degree of comprehension can be gained where previously the situation was too complex; that solutions can be produced more quickly; that better solutions can be produced; that solutions can be found where previously the human could find none."

Not only was Engelbart's intention to define and create new tools, but to define new ways of working with those new tools.

An appropriate example of Engelbart's notion of augmentation is the concept of writing. Before human beings knew how to write, they could only transmit ideas by talking to each other. Today, this oral tradition survives in many cultures and even as part of our own culture. Once humans learned to write, they could communicate their ideas among themselves and have a permanent storage archive of their ideas. Writing enabled the culture to become more informed because the writer could reach more than one audience at a time. Computer screens take the tradition one step further; no longer confined to ink marks on paper, ideas contained as light elements on a display screen and stored as patterns on magnetic or optical media can reach audiences more vast and at the same time enhance our individual "reachability."

**Not only was Engelbart's intention to define and create new tools, but to define new ways of working with those new tools**

Central to Doug Engelbart's idea of augmentation of intellect was a redefinition of what we recognize as a concept. For Engelbart, a concept became something that, like thinking itself, evolved. Outmoded concepts could be readily replaced with other concepts. In addition, he felt that human thought processes and what he called "concept structures" could not only be monitored and studied, but amplified as well. To quote from his original paper:

"We view a concept to be a tool that can be grasped and used by the natural mental substances and processes. The grasping and processing done by these mechanisms can often be accomplished more easily if the concept is explicitly represented by a symbol."

This realization—that the human is aided in the grasping of concepts if the concept is represented by a symbol—led directly to the notion of a handheld tool used as a pointing device for manipulating representative symbols on a computer screen; what we recognize today as the mouse- and icon-based graphical user interfaces.

Engelbart also recognized that a concept structure most often evolved on a cultural basis, either on a widespread or individual basis, and that it was also—although with less frequency—something that could be "designed or modified." Further, through appropriate modifications, these structures would improve your ability to understand the most complex problems confronting you and subsequently you would be able to reach more insightful solutions to these problems.

# AUGMENTATION MEANS

The "conceptual framework" upon which Engelbart based his work was a plan for his own augmentation research and he found that the basic principles applied to both individual and wider societal levels of experience. Engelbart proposed that a synergy would result by designing appropriate hypermedia systems to work in accord with human thought processes. Aware that the human mind is capable of only small steps and that each successive step relies on and builds upon previous steps, Engelbart felt that the resulting synergy was not capable of producing any larger steps, only more sure-footed ones.

Engelbart referred to the extension of human capabilities within his system as "augmentation means." He further defined the augmentation means into a group of four basic classes: artifacts, language, methodology, and training.
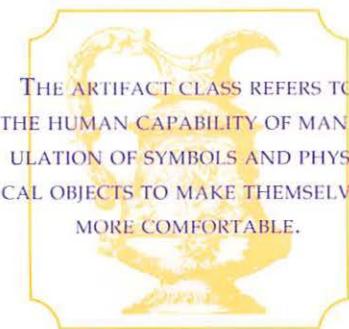
THE ARTIFACT CLASS REFERS TO THE HUMAN CAPABILITY OF MANIPULATION OF SYMBOLS AND PHYSICAL OBJECTS TO MAKE THEMSELVES MORE COMFORTABLE.
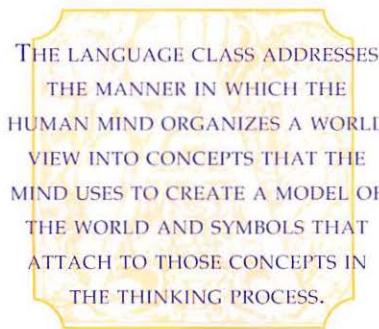
THE LANGUAGE CLASS ADDRESSES THE MANNER IN WHICH THE HUMAN MIND ORGANIZES A WORLD VIEW INTO CONCEPTS THAT THE MIND USES TO CREATE A MODEL OF THE WORLD AND SYMBOLS THAT ATTACH TO THOSE CONCEPTS IN THE THINKING PROCESS.
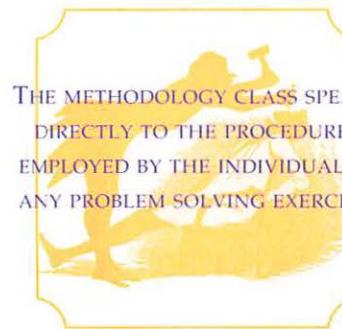
THE METHODOLOGY CLASS SPEAKS DIRECTLY TO THE PROCEDURES EMPLOYED BY THE INDIVIDUAL IN ANY PROBLEM SOLVING EXERCISE.
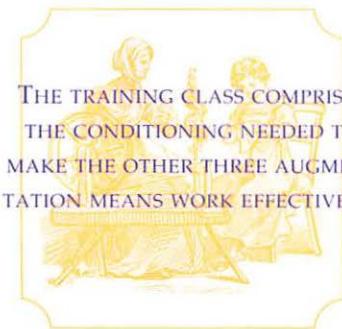
THE TRAINING CLASS COMPRISES THE CONDITIONING NEEDED TO MAKE THE OTHER THREE AUGMENTATION MEANS WORK EFFECTIVELY.

# PROCESS HIERARCHIES

Based upon his concept of augmentation means, Engelbart further observed that augmentation means served to break up large, complex problems into more manageable chunks, enabling the individual to approach the problem as a series of small steps. He called the structure of the small steps "process hierarchies." Although he recognized that each small step—each sub-process—was in itself a process, Engelbart also realized that the human being never uses a "completely unique process every time he performs a new task."

Each time we are confronted with a new problem, we don't reinvent the wheel; rather, we build upon what we already know using what we already have learned. To Engelbart, it was clear that we have a finite number of "tools" with which to fashion new solutions, but that the finite number of tools in no way bore upon the solutions to complex problems that could be found.

As one of our generation's mythical heroes, Mr. Natural, proposed, we have to use the right tool for the job. Even with a finite number of tools at our collective disposal, few of us ever become proficient with more than a handful of them; we continue to re-use tools that have worked in the past when confronted with new problems. The down side of this is that many of us tend to look at every problem as a nail if the only tool we're proficient with is a hammer.

# hyper

One of the things Steve Jobs said to John Sculley to get him to quit Pepsi and lead the much smaller Apple was, *"Do you want to be selling sugar water for the rest of your life when you could be changing the world?"*

Apple has always held that its mission is to change the world and when HyperCard was first introduced in August of 1987, the company seemed to be well on its way.

**HyperCard** defied descriptions like graphics application, database, word processor; yet it contained significant elements of all those plus hypertext functions. Apple itself seemed hard pressed to supply a catch phrase for **HyperCard**, referring to it in the original user's manual as, "a new kind of application—a unique information environment.... Use it to look for and store information— words, charts, pictures, digitized photographs—about any subject that suits you. Any piece of information in **HyperCard** can connect to any other piece of information, so you can find out what you want to know in as much or as little detail as you need."

Apple initially defined **HyperCard** as system software and bundled the product with every Macintosh sold. **HyperCard** was offered to the installed base of Macintosh owners cheaply and an entire stack-ware industry quickly formed.

Apple took an incredible amount of heat from the third-party developers who felt that HyperCard unfairly competed with their products. The company probably would have backed down a lot sooner if HyperCard's creator, Bill Atkinson, hadn't insisted on it being given away with all new Macs. Bill has left and Apple has reneged a bit. Macs now come with a player application that can be used to view stacks, but not to create them. Sort of defeats the whole idea.

Developers insisted that Apple's bundling of HyperCard and making it easily available amounted to product dumping. The fact is that HyperCard sold a lot of Macs and Apple is, after all, in the business of selling Macs. More Macs sold meant a larger market for third-party developers, but most of them took the short-term view that HyperCard was going to kill them and their products.

At the time of HyperCard's introduction, John Sculley said,

"HyperCard is arriving just when technology has put more information on a desktop computer than

the largest mainframe computer managed only a decade ago. We believe that users need a way to find valuable information quickly as well as customize it in a way that makes sense to them. HyperCard is intended to do just that."

## Welcome to HyperCard

[ What is HyperCard? ]

[ Go back ]

**HyperCard's initial "About" screen**

Apple's initial press release for the product went on to say,

*"HyperCard lets users organize and use information the way they think—by association and context as well as hierarchy. Its unique navigational method lets users browse and search quickly through large bodies of information, making it a vital tool with the advent of mass storage optical media technologies.*

"Just as Apple opened up the hardware of the Macintosh personal computer to allow new uses and customization, HyperCard opens up the Macintosh software architecture so that users can write programs, organize, and use information in their own way," Sculley said. "It is a continuation of the driving philosophy behind the Macintosh—that powerful technology should be made accessible to people. And that includes

developing applications. Our goal is to make creating applications as easy as using the Macintosh. HyperCard is the first step toward that goal. With HyperCard, virtually anyone can become an information provider.

"It is the foundation for what we believe will be, in a very short time, a thriving new HyperCard applications industry, built on the expertise of both commercial developers and subject matter experts who will create, organize, and publish information."

**MIKE:** When HyperCard was initially introduced, I was overjoyed with the possibilities of migrating my electronic publication to this wonderful new medium. The migration never happened. Mostly because it was more trouble than it was worth to do the things I wanted in HyperCard. As an end-user, I was filled with great anticipation over the prospect of what amounted to a standard electronic publishing system. A standard, in this case, meant that everyone would have it, and I wouldn't have to worry about my readership being limited to those with a specific product.

HyperCard was, after all, system software. Everyone would have it.

Moreover, everyone would be doing productive things with it. At the time I thought there would be an entire group of Macintosh owners who would use HyperCard exclusively. So, apparently, did Bob. He started a software company based on producing and marketing HyperCard stackware.

**BOB:** STAX! Our motto was "more than just stacks." We thought we could do really great things with this wonderful new hyper-linkable publishing medium. And we did. The Macintosh Bible STAX! Edition had the full text of *The Macintosh Bible*, extensively cross-referenced with a wonderful interface by Jerry Daniels and Mary Jane Mara. A killer program, but ahead of its time.

Unlike the desktop publishing fiasco that pretty much jumped up and bit Apple, the computer maker appeared to be prepared for the burgeoning market for HyperCard and its associated stackware. Apple initiated a co-marketing program for third-party developers and a very intensive advertising campaign.

Desktop publishing enabled a relatively large group of Macintosh users (those who needed to communicate ideas to others on paper) to be more productive. Apple had no idea how big a market desktop publishing would be and most of the potential market was "created" by Apple's collateral material and image advertising, rather than by the company providing a solution to a recognizable need.

HyperCard did promise to change the way most individuals worked. Because it was easily extensible, opportunities existed for the development of various "engines" for use inside of the product.

Unfortunately, Apple dropped the ball, passing HyperCard off to Claris who quickly did just about everything it could to kill it.

Don't count HyperCard out just yet. Responsibility for HyperCard has been transferred back to Apple from Claris, so we're in a "wait-and-see" mode. Apple hasn't done anything with it in the year since they have had it back, but a major revision is said to be in the works. We'll see.

HyperCard is a very good authoring environment for digital media: easy to learn, relatively powerful, and extensible, with a huge installed base. It'll be a shame if Apple lets it go to waste.
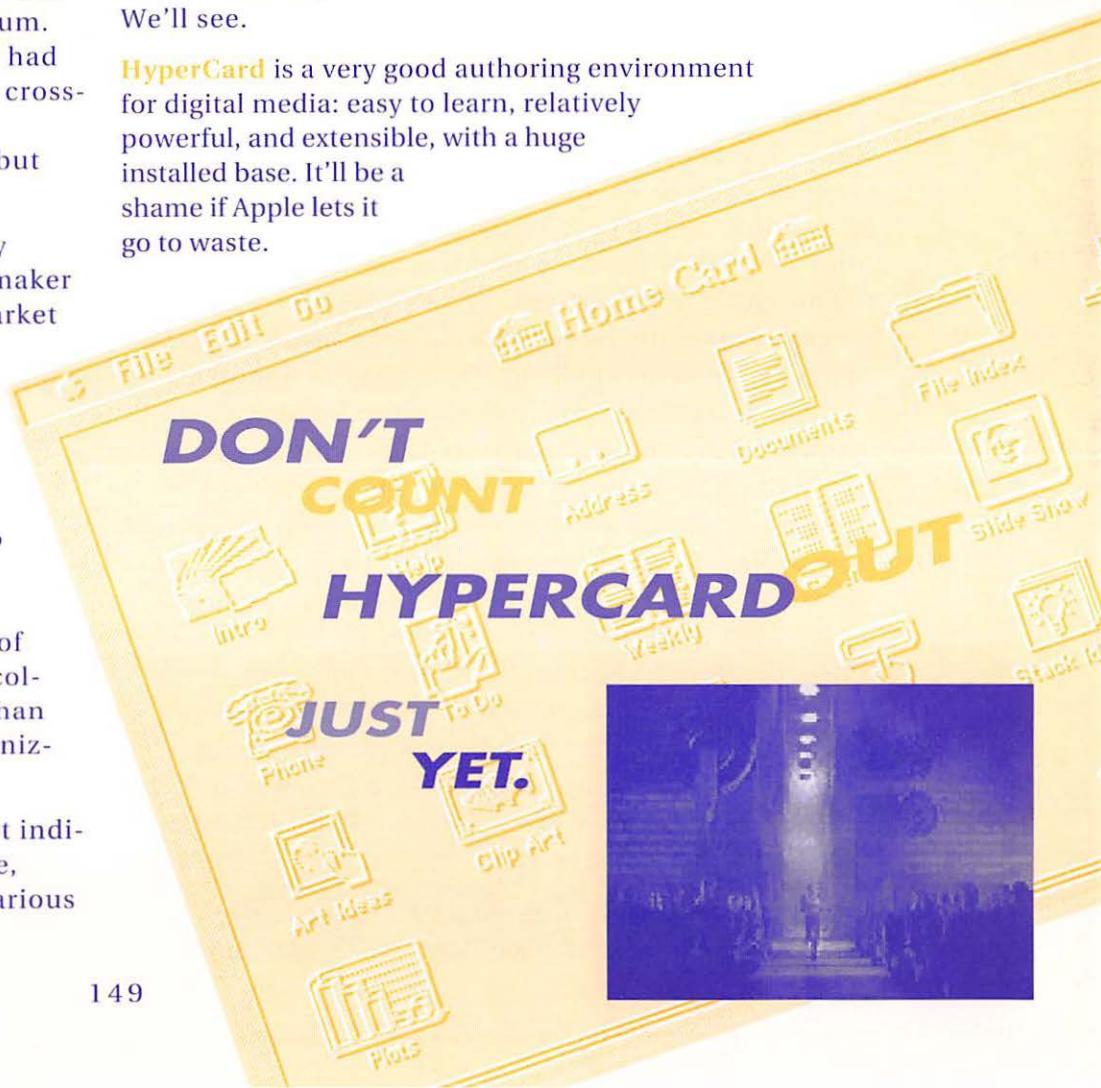
# GUIDE: The one that got away

HyperCard creator Bill Atkinson is quoted in Danny Goodman's *Complete HyperCard Handbook* as saying,

"I went to John Sculley and said, 'I'm leaving. I have to leave Apple at this point because I want to write a really great program for Macintosh. I can do Apple a lot of good, but I want to make sure that it gets out.' John was very supportive, and was enthusiastic about the potential of HyperCard. He talked it over with the executive staff and let me give a presentation. I said, 'What I want is to bundle it. If you want to bundle it, I'll write it for Apple. You can have the exclusive property rights and all that stuff, but if you don't want to bundle it then it's time for me to graduate from Apple and go on and be an independent developer myself. I'm going to get this out to people whether I give it away or whether I get Apple to give it away.' To this day, Apple is not required to bundle it. They only have an option that if they choose to accept it, then they have to bundle it. They could say no to me right now, but at least then its ownership reverts to me so that I can give it away, which I would do. You see, I want it to be given away so that it can be a base for people to share."

The lines were drawn from the start. Apple had to bundle HyperCard with every Macintosh sold and make it available to its installed user base at a ruthlessly low price or risk losing the product and its creator.

Unfortunately, this didn't sit well with an Apple contingent or with some third-party developers, most notably the commercial hypertext pioneer OWL International Inc. In the September 1, 1987 issue of *MacWEEK*, then OWL president Alan Boyd was quoted as saying,

"Guide (OWL's Macintosh hypertext system) was the first product to create a bridge between hierarchial structured information and random associative links. Hypercard was second."

In the same article, Dan Winkler, a member of the HyperCard development team and the person primarily responsible for HyperCard's scripting language HyperTalk, says,

"If there's some similarities, it's a coincidence. We feel the card metaphor provides a lot of power and simplicity."

Earlier in the article, Winkler claimed to have no knowledge of the Xerox Palo Alto Research Center (PARC) product, Notecards. He went on to say, that HyperCard had "... no relation to Notecards. HyperCard was frozen by the time we had a look at Notecards." According to Winkler, HyperCard had no relation, inbred or otherwise, to anything other than the Smalltalk programming language.

150

Smalltalk had its origins at Xerox PARC. So did Macintosh. OWL's Guide had been on the market for more than a year before HyperCard was introduced and Atkinson's team had been working on HyperCard for more than two years. Do your own arithmetic and draw your own conclusions. Us? We don't believe for a minute that the HyperCard development team didn't know about Guide.

Hot on the heels of Apple's introduction of HyperCard, OWL announced its intention to significantly update its version of Guide for IBM PCs and compatibles, under the publicly announced code-name of William Tell. William Tell would be compatible with HyperCard on both Macintosh and DOS platforms. Dave Coffman, OWL's then-head of technical support, said,

"We aim to make Guide the hypertext standard across all machines and we've got a full year lead on HyperCard. The gap Apple claims HyperCard put

between the Mac and the IBM lasted three weeks. We just closed the window."

At first glance, OWL's attitude seemed at the time to be sour grapes. But remember that all Apple developers (we were called certified developers at the time) had to submit a business plan to Apple before they were accepted. OWL claimed to have submitted the business plan for the publishing and marketing of Guide before they were able to avail themselves of Apple's technical support program. Further, OWL claimed that Apple never told them anything about a potentially competing product "until two weeks before the HyperCard announcement when Alan [Boyd] flew down to Cupertino and signed the non-disclosure agreement."

The sad part is that Guide was a much better hypertext tool than HyperCard is even now.

**"I'm leaving. I have to leave Apple at this point because I want to write a really great program for Macintosh. I can do Apple a lot of good, but I want to make sure that it gets out."**

**"Guide**
*(OWL's Macintosh hypertext system)*
was the first product to create a bridge between hierarchiac structured information & ramdom associative links.
Hypercard was 2nd"

# PostScript

Guide may be dead, and HyperCard may or may not be down for the count, but hypermedia appears to be here to stay. Here's a small sample of some of the neat stuff available at press time (yeah, we mentioned some of this before, but hey, it's so good it bears repeating):

## The New Grolier Multimedia Encyclopedia

It's not as hyper as we'd like, and there's not enough of the good stuff—movies, sounds, and pictures. Still, it is the full text of an entire encyclopedia on disk. You can search by keyword or phrase. Plus, it has some movies, pictures, animations, maps, and an interactive timeline. Much better than hard copy.
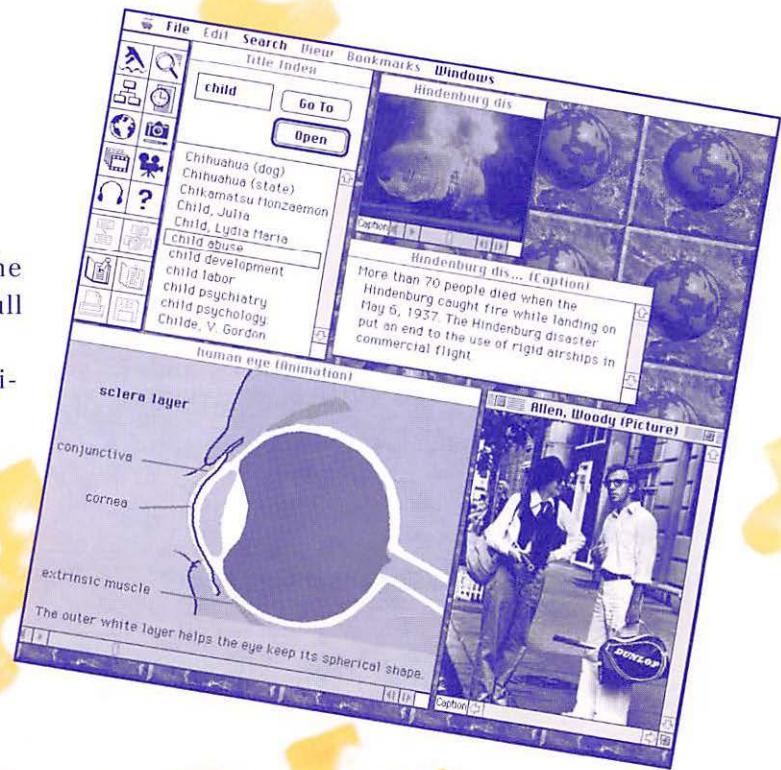


**The New Grolier Multimedia Encyclopedia**

# Spaceship Warlock

The first and still the best interactive sci-fi cartoon movie on disk is Spaceship Warlock. Others, like Iron Helix and The Journeyman Project, come close but neither captures the essence of the interactive cinema experience quite as perfectly as the quintessential Spaceship Warlock.



**DEATH IN STAMBUL**
Your brain was removed and sent to the Stambulian Medical Research Institute where mystified scientists puzzled over its remarkably tiny size!

▲ **Scene from Reactor's Spaceship Warlock**
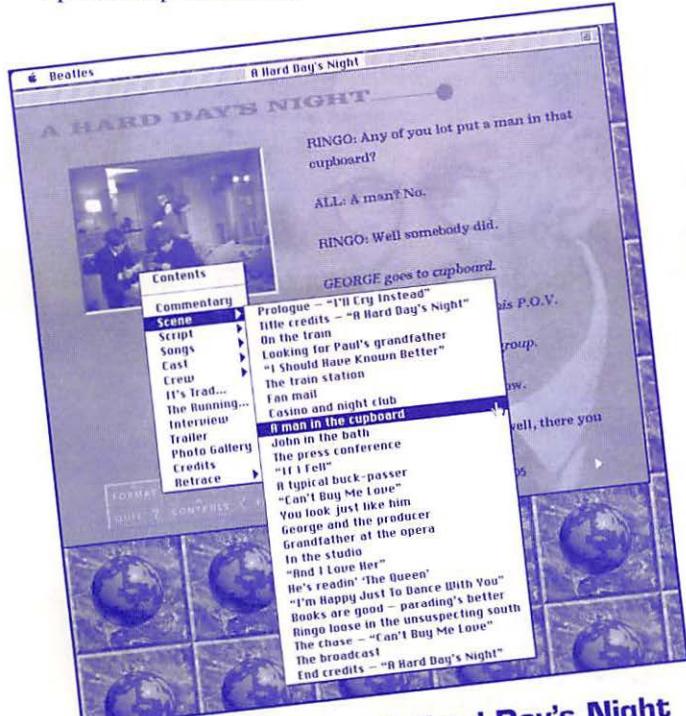


▲ **Interface from A Hard Day's Night**

# A Hard Day's Night

If you even like the Beatles a little bit, you'll flip for this CD, which includes the script, the theatrical trailer, and much more. Watch the movie and read the script at the same time or navigate directly to your favorite song or sequence. The QuickTime movie transfers are first rate; hook up a good set of stereo speakers for maximum effectiveness.

So, if you haven't had the pleasure of interactive multimedia on your computer screen, these are three excellent introductions to the medium. Enjoy. (Special thanks to Vannevar Bush, Doug Engelbart, and Ted Nelson, for getting the ball rolling.)

# Macintosh Electronic Publishing

Digital documents are all the rage. Again. Here's our thrill-packed retrospective of electronic publishing: then and now.

Until relatively recently, electronic publishing was one of those areas that set Macintosh apart from the competition. Electronic publishing is the creation and distribution of materials designed for viewing on a computer screen. Electronic publishing is *not* an upscale term for desktop publishing, no matter how badly some people would like to usurp its use.

## ▶ Famous First-Generation Electronic Publishing Tools

*Here is some of the early software that was supposed to make electronic publishing the Thing To Do.*

### Not Ready for the Glue Factory

First there was Glue from Solutions, Inc. Glue consisted of an ImageSaver printing resource that added a "print to disk" capability to most applications. The user simply chose the icon that looked like a camera from the Chooser desk accessory. What would have been printed to a printer was, instead, printed to disk in a specially formatted file. This file was readable by the companion Viewer application; the icon of which looked strangely similar to the Viewmasters we all had as kids.



**Viewer Classic**

Glue enabled a user to distribute documents created with virtually any application to recipients without worrying about whether or not they owned the application that created the document, so long as they owned Glue. Glue was and is a useful product for those who need to distribute documents from a variety of applications. Unfortunately, Glue never really caught on. Solutions sold it to Portfolio Systems a few years ago, but it still hasn't been updated, improved, or promoted.

# HYPERTEXTURES

Following Glue came OWL International's Guide, the community's first hypertext system. And it ran only on a Macintosh. The product was superb for non-linear information, but uninitiated readers complained about "feeling like I'm missing something" with hypertext documents.
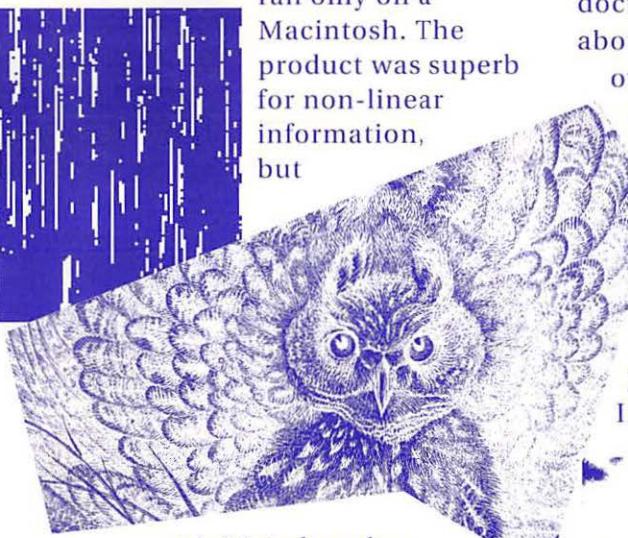
OWL quickly followed with a companion to Guide called, appropriately enough, Envelope. Envelope was billed as a Hypertext Application Construction Kit and it enabled the user to turn Guide documents into stand-alone hypertext applications that did not require the use of Guide for reading. These applications were called—surprise, surprise—Envelopes. An Envelope could hold up to 32 linked Guide documents. The product added about 60-not-inconsiderable-K of overhead to each stand-alone document. The resulting Envelope application could then be distributed with no licensing fee, but the product was limited to producing 1,000 Envelopes at which time a new license had to be purchased from OWL International.

Envelope enabled Guide users to create and distribute documents called Postcards. Postcards were similar to Envelopes in that they could contain up to 32 Guide documents each. The main difference was that Postcards did not carry the 60K overhead that the Envelopes carried. But they had to reside on the same disk as an Envelope, as the Postcard "borrowed" the reader portion of an existing Envelope. This was a distinct benefit for electronically distributed electronic publications.

Guide, with its Envelopes and Postcards, never really caught on either.

## Who is Jerry Daniels and why was he doing these strange things?

Next came Buck, Wheat, & Associates' MicroFilm Compiler and Reader. The MicroFilm concept was designed by Jerry Daniels; a character who also founded something called The Macintosh Underground, a virtual "club" (now defunct) that provided information, entertainment, and discount products for its members. Earlier electronic publishing solutions required that the recipient own either the application used to create the document or a companion product. Glue could use virtually any

Macintosh application to create the document, but required the recipient to own the Viewer application. Guide required that the recipient own Guide. The MicroFilm Compiler required the recipient to own its companion MicroFilm Reader. Buck, Wheat, & Associates, however, distributed the MicroFilm Reader free of charge to anyone who wanted it. It also was made available on all the national information services and most BBSs.

MicroFilms created with Buck, Wheat, & Associates' MicroFilm Compiler could also be distributed without licensing fees, which was a major breakthrough. Further, there was no limitation on the number of MicroFilms that could be created. MicroFilms also carried another advantage for those authors who distributed their works electronically—the product did a very good job of compressing the data contained in the MicroFilm.

MicroFilm Compiler was a compiler in the true sense of the word which lead to another distinct advantage. MicroFilms, because

they were compiled, could not be altered by the recipient. In fact, MicroFilm frames couldn't even be copied or cut to the Clipboard.

Each MicroFilm Compiler had the licensee's name and other information embedded in it; this information was readily viewable by clicking on the name in the bot-

tom right corner. This was a very good solution to the piracy problem. (No one was going to give out a product with their name embedded in it that would show up in every created document. And, it caused no problems for legitimate users.)

The MicroFilm Compiler and Reader never really caught on either. (Are you beginning to detect a trend here?)

## The Electronic Pony Express

Desktop Express was the product of a joint venture between Apple, Dow Jones, MCI Mail, and Solutions, Inc. The software was created by Solutions and incorporated Glue exquisitely.

This product is best described as "Enhanced AppleLink for the Rest of Us." Desktop Express promised to change the way Macintosh users telecommunicated; we found it to be very innovative for its time. (There's still not a decent Macintosh interface for MCI Mail.) We figured it would become essential for all Macintosh telecommunicators within a year of its release.

# IT DIDN'T.

Desktop Express included a version of Glue and an MCI Mail account, and cost approximately $150. If the person you were corresponding with had a Mac, you could simply send him a copy of your document in Glue format and he could print it out on his LaserWriter. For communicating with non-Macintosh people, MCI Mail installed LaserWriters in various locations throughout the country. You could route the Glue document to one of these printing stations for same day delivery. For $150, plus per document charges, you could have a fax machine replacement. No additional hardware required. And for a tenth of the cost of a fax at the time. Not only that, but your document was printed at 300 dot-per-inch LaserWriter quality rather than the 216 dot-per-inch quality of fax machines.

Desktop Express hasn't had an upgrade in years and only works sporadically with System 7. Needless to say, although it may have caught if it had been supported, it didn't and it isn't.

## *Next Generation Digital Documents*

So do you get the feeling that this digital document thing has been tried before and never really caught on? You're right. Electronic documents are a kind of digital holy grail. The "paperless office" is always just a shout away; the perfect technology is always just around the corner.

This time they may have finally Got It Right. There are two contenders; both introduced in the summer of 1993. The first to ship was No Hands Software's Common Ground. It was followed closely to market by page-description language champion Adobe Systems' Acrobat. Both have interesting features that may breathe new life into electronic document creation and distribution.

No Hands' Common Ground for the Macintosh shipped a few weeks before rival Adobe's Acrobat. Common Ground is an elegant electronic document system. Documents created with Common Ground, called "DigitalPaper" files, are font and application independent. They look swell and print perfectly. You can select and

search the text. DigitalPaper documents can have a mini-viewer (which takes up about 60K) embedded in them so the recipient doesn't need any other software to view the document. You also can view DigitalPaper documents with the Common Ground application. A free-to-distribute viewer is promised and a Windows version is expected later this year. Version 1.0 has some rough edges.

Adobe Acrobat is still in its infancy; although we have it, neither of us uses it much. It depends on Adobe's Multiple Masters technology to simulate fonts. Acrobat seems to work better with PostScript images than Common Ground, but Common Ground displays text more accurately. Both have an advantage over first-generation products like Glue and MicroFilm. The text in their documents is "live" and can be searched and copied.

Will these new products catch on? Will the paperless office become a reality? Will the much smaller No Hands be able to compete with the proverbial 900-pound gorilla, Adobe? Don't ask us.
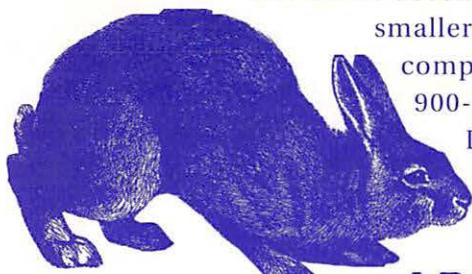
## A Paperless Future

The concept of electronic publishing is nothing new. Individuals involved in telecommunications have been practicing the art for years. Recently, however, electronic publishing—the creation of documents specifically designed to be read on a computer screen—has begun to be more accepted and the growth of the technology is accelerating.

Hypermedia can be described as a three-dimensional, non-linear document that is published electronically. Apple Computer's introduction of HyperCard in 1987 was the event
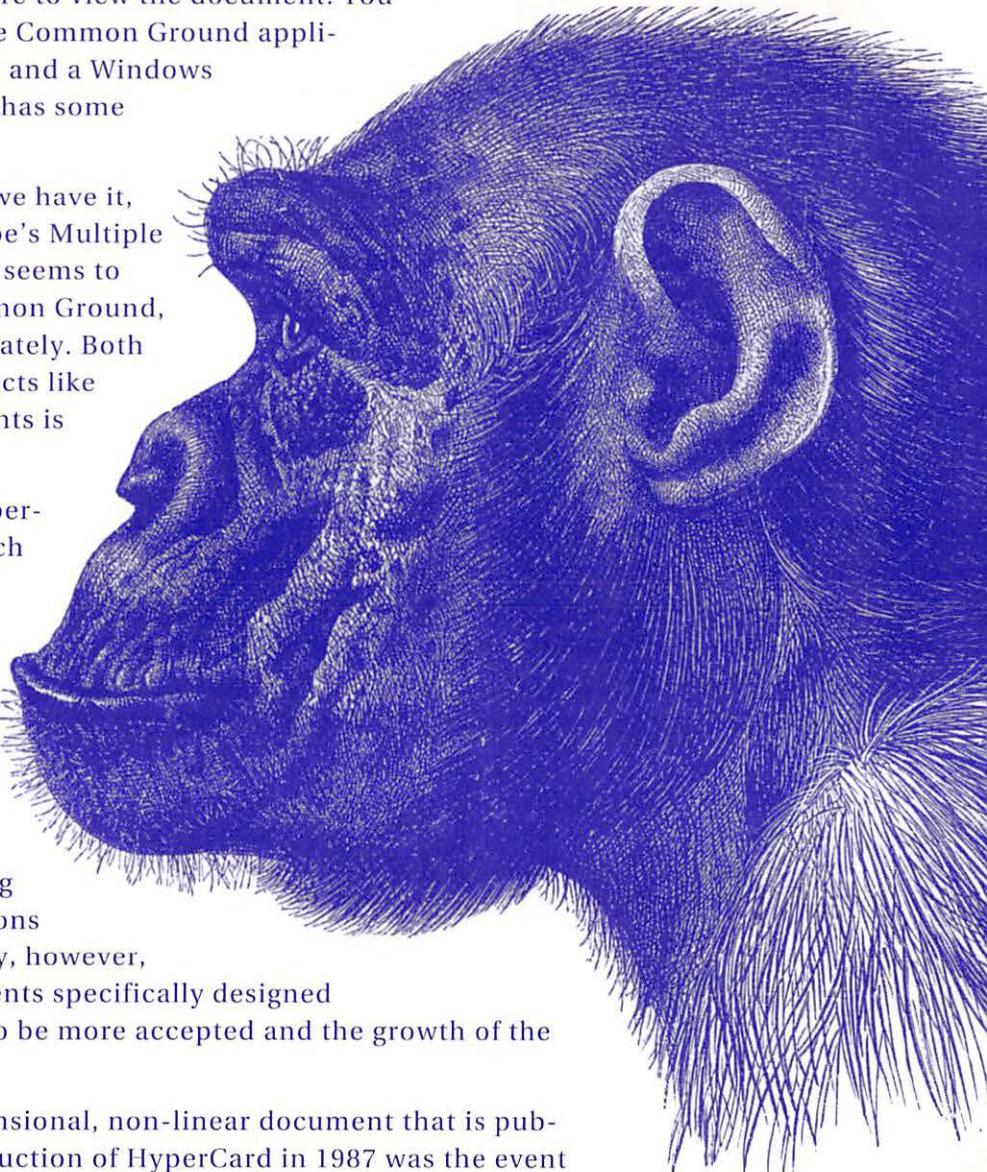
that triggered the paradigm shift that will, eventually, replace paper publishing (and paper emulators) with electronic publishing. HyperCard wasn't the first and, undoubtedly, will not be the last; it was, however, the phase shifter required to set the wheels in motion. With the arrival of HyperCard, OWL International's Guide, Solutions Inc.'s Glue, Brainpower's ArchiText, and Buck, Wheat & Associates' MicroFilm Compiler, we witnessed the beginnings of nothing short of a paradigm shift in the way we deal with data, information, and knowledge. No longer are we constrained to the limitations of a two-dimensional paper medium.

When we pair these electronic publishing tools with advanced storage and delivery mechanisms such as the newer optical media products, we have an almost-complete solution. What most overlook, however, is the importance of the telecommunications services. For example, the telecommunications pro John Edwards, writing in *MacWEEK*, went so far as to predict that CD-ROM would ring the death knell of the telecommunications services in 1988. Nothing could be further from the truth.

## ONE OF THE PRIME BENEFITS OF ELECTRONIC PUBLISHING IS ITS IMMEDIACY.

No longer bound by traditional publication lead times, the electronic publisher is empowered to produce and distribute material on a very short production cycle. Take *MacWEEK*, the excellent Macintosh-specific print weekly, as an example. The *MacWEEK* production cycle has a Thursday morning deadline in order to get the publication out by the following Monday (best case scenario). Events that occur on Friday through the following Wednesday are up to 12 days old before they appear in print. (Of course, the Players have come to realize this and plan their product announcements accordingly.) Contrast this with the electronic publisher who may have the same Thursday morning deadline, but can have a finished publication by Thursday evening. If the publication is distributed online or on the Internet, it also can be distributed the same day that it is published. Many of Monday's stories are posted on ZiffNet/Mac (*MacWEEK's* online service, available via CompuServe) on the Friday before. In other words, you can see them electronically three or four days before you can see them on paper; the paper version of *MacWEEK* is usually delivered on Monday or Tuesday.

Getting our information in real-time becomes increasingly plausible, as does the mass-customization of information. This allows the electronic publisher to reshape the way individuals work with what would be overwhelming amounts of data and information and, in turn, refine that raw data and information into useful knowledge tools.

***P.S.*** *One of the most disturbing trends we have discerned as our society moves to an economy of intangibles—an information economy—is that information providers are not being adequately compensated for their efforts. We see no reason why the information providers (the actual creators of information) should not be compensated at least as well as the information services or publishers.*

# Why Windows Isn't a Mac

You can't knock Windows until you've tried it. We have.

Windows is like stealing the hubcaps from a Bentley and slapping them on a 1955 Buick. (Of course the Bentley owner stole the hubcaps from a Rolls Royce, but that's not important.) Those hubcaps may look nice, but underneath them is that same old hulking Buick.

Windows is also like the VHS of the home video industry. Macintosh is like the Beta format. Beta was better, but everyone bought VHS because it could record a crummy looking picture for a longer period of time. Beta died even though its format was technically better. Windows is close enough to the Macintosh that neither of us can any longer make our livings writing solely about Macintosh. We both hate it, but that's the way it is.

Beneath Windows is MS-DOS, a creaky operating system that should have been retired years ago.

Microsoft's installed base prevents that from ever happening, though. Some future versions of Windows won't need MS-DOS, but MS-DOS will still be around just like a career politician (and just about as useful).

Underneath Macintosh is, well, Macintosh. Unlike Windows, the Macintosh interface isn't fancy makeup on an ugly red-headed stepchild. Try this: Under System 7 and with at least one other program in memory, select the Hide Finder command from the Applications

menu in the upper right corner of the display. What happens? Your disk icons disappear and the other program becomes active. Now try this: Under Windows, select the Exit Windows command from the Program Manager's File menu to quit. What happens? You get to run MS-DOS. Well, actually, you get to run MS-DOS if you know what you're doing. What you really get is the infamous C:\> prompt.

```
C:\>_
```

**MS-DOS C:\> prompt**

## Where the Hell is the Finder?

Turn on your Macintosh. Don't touch anything

other than the Power key (or the power switch on older Macs). What do you see? You see a nice Welcome to Macintosh screen with the original Picasso-style Mac logo. Then you see the Macintosh desktop.



| File Edit View Label Special |
| --- |
| Further | Intrepid |
| 13 items    269.6 MB in disk    133.7 MB a | 6 items    90.1 MB in disk    70.5 MB av |
| System Folder    Bookkeeping† | System Folder    Archive† |
| DATEBOOK†    Telecom† | Utilities†    FileMaker Pro† |
| MS Word†    Graphics† | Electronic Publishing† |
| MORE†    FrameMaker† | SoftPC† |
| Inspiration†    PageMaker† |
| Utilities†    QuarkXPress† |
| •Network† |

**Macintosh desktop with open hard drive icons**



**Macintosh desktop**

Actually, what you see when you start your Macintosh is the Finder. The Macintosh Finder is just another Mac software program, although most novice Mac users think the Finder is the Macintosh. And in a lot of ways it is. Icons and menus represent the tools we use to be productive. The icons and menus make sense, for the most part. Double-click on the hard drive icons and the contents of the disk or disks will appear. The folder and file icons are intuitive.

Now turn on a Windows machine. Again, don't touch anything other than the power switch. (Windows machines don't have Power keys; another reason to avoid them. Both of us keep our Macs under our desk. If we did the same with a Windows machine we'd have to crawl under the desk each time we turned the computer on.) What do you see? No comforting Welcome screen, just a bunch of gibberish that's important for the computer to understand—but next to useless for a human user.



```
HIMEM: DOS XMS Driver, Version 3.07 - 02/14/92
Extended Memory Specification (XMS) Version 3.0
Copyright 1988-1992 Microsoft Corp.

Installed A20 handler number 1.
64K High Memory Area is available.

SoftPC FSA Redirector 3.02 installed
SoftPC Expanded Memory 3.01 : Warning no Expanded Memory available

SoftPC MSCDEX Device Driver Version 3.01
Copyright 1992 by Insignia Solutions Inc. All rights reserved.
Device Name     : CDROM$$$

SoftPC Mouse 3.01 installed

COM1: 9600,n,8,1,-

MS-DOS Version 5.00

Type WIN and press RETURN to start Windows.
C:\>
C:\>
C:\>
```

**MS-DOS startup display**

Macintosh puts the responsibility of managing its internal resources in the computer; MS-DOS requires the human user to accept responsibility for resource management. When you add more memory to your Macintosh, for instance, you just install it and Restart. When you add more memory to a Windows machine, on the other hand, you must completely reconfigure the system. Macintosh is smart enough to understand that it has more memory and

uses it appropriately; you have to tell Windows that it has more memory and where to find it.

So, getting back to Windows, type WIN and press the Return key. If everything is configured properly and there are no conflicts with memory, drivers, or interrupts, you'll see an attractive Windows splash screen. In Windows, there is no Finder. Then you see the Program Manager.

There is no Macintosh equivalent to the Program Manager's group icons (those five icons along the bottom of the Program Manager's screen). Think of them as sets that contain programs. Program icons you put in the Startup group, for example, automatically launch when you start Windows. You open the Program Manager's group icons by double-clicking on them. Take

the Program Manager's Main group, for instance.



**Windows 3.1 Program Manager Main group**

The weird thing about the Windows 3.1 Program Manager is that the icons aren't attached to anything. (They're like System 7 aliases in the Macintosh Finder.) Imagine if every icon on your Macintosh was an alias. You'd never be able to find anything. In order to work with directories and files in Windows, you must use the File Manager; it's roughly equivalent to the Macintosh Finder's by Name command on the View menu.
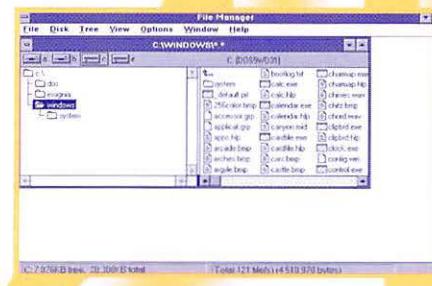


**Windows 3.1 File Manager**

In the Windows File Manager, the icons actually represent real files and directories. Unfortunately, there's no way to customize the display (without buying another program). Worse, to navigate within directories, you have to click on a tiny arrow with two dots next to it at the top of the current directory listing. The left pane of the File Manager is called the Tree. All subdirectories and files contained in the currently selected directory are

162

With Windows, the bottom line isthat you can view only a single directory at a time, unless you open a new window (select the New Window command from the Window menu). Compare this to the Macintosh Finder that enables you to view almost any number of directories simultaneously.



**Macintosh Finder view of multiple directories**

displayed in the right pane of the File Manager. All available disk drives are shown at the top of the display. In order to see the hierarchical structure of a directory you must select the directory and select the Expand Branch command from the Tree menu. Very intuitive. Is this a computer or a botany lab?

**Mike:** Lots of times, I'll drag a deeply buried folder out onto my Macintosh desktop for easy access. If I'm going to be using it regularly, I'll create an alias for it. When I no longer need easy access to that folder, I just drag the alias to the trash. It's simple, intuitive, and elegantly powerful.

You can't do the same thing in Windows. You can't even come close. All you can do is open a new window in the File Manager for the directory you want to use regularly and minimize it. The directory will shrink to an icon. When you double-click on the icon it expands to its active state. Oh, and you have to remember to check the Save Settings on Exit command on the Options menu if you want Windows to remember how your directory windows were arranged the next time you use the File Manager. Trust me, Bob hasn't had this much fun since the pigs ate his brother.

Documents in Windows aren't automatically associated with the application that creates them; you have to associate a document with a specific program. Most Windows programs automatically associate documents they create, but what about documents you download or receive from someone else on disk? And what about DOS documents? If a document has been associated with a program, its icon appears with horizontal lines on it.

Documents that you want to associate with a program must have an extension as part of their file name. There is no type and creator for documents as there is in the Macintosh world.

But wait, that's not all. To associate a document with a program, you have to select the document in the File Manager and then choose the Associate command from the File menu. The Associate dialog box appears and you then select the associated program from the scrolling list.
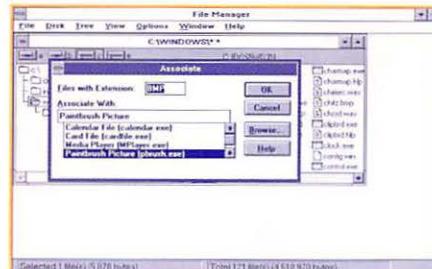


**Windows 3.1 Associate dialog box**

If the program you want to use for the association isn't listed, you must click the Browse button and root through your entire drive looking for the right program. The good news is that you only need to do this once for each file name extension. The bad news is that you have to do it at all.

This is probably as good a time as any to relate a story that took place at the Spring 1993 Computer Bowl. The Computer Bowl is modeled after the old College Bowls of the 1950s and 1960s. Famous computer nerds get together and form two teams that compete in a trivial contest. One of the hosts for the Spring 1993 Computer Bowl was none other than Bill Gates. One of the questions Gates asked of the two panels was, "What contest, held via USENET, is dedicated to examples of weird, obscure, bizarre, and really bad programming?" None of the panelists on either team had the slightest idea of what the boy billionaire was talking about. After a pause of several seconds, Jean-Louis Gassée hit his buzzer and answered, "Windows." Gates may have looked like he was ready to cry, but don't feel too sorry for him—he's crying all the way to the bank.

# Font Madness

To install fonts on the Macintosh, you simply put the font files—it doesn't matter what kind of font it is, TrueType or PostScript—in the Font folder inside the System Folder.

**Macintosh Fonts folder**

Actually, all you have to do is drag fonts onto your System Folder and the Mac is smart enough to figure out that they are fonts and should be placed in the Fonts folder. It will even move them there for you. Restart your Macintosh—that's all there is to it. If you want to get real snazzy, you can use Suitcase (about $25) to manage your fonts. Do you think Windows is this intelligent?

It's not. Installing and using fonts in Windows is a nightmare. Everyone knows that TrueType fonts suck—except maybe Windows users who are glad just to see an obliqued typeface on their screens. Any real Macintosh user knows to use Type 1 PostScript fonts and ATM whenever possible. The first lesson a Windows user learns about using PostScript fonts is that she has to use Adobe Type Manager (ATM) to install PostScript fonts. PostScript fonts aren't even displayed in the Fonts dialog box. The second lesson the typical Windows user learns is that you can't use ATM to remove PostScript fonts.
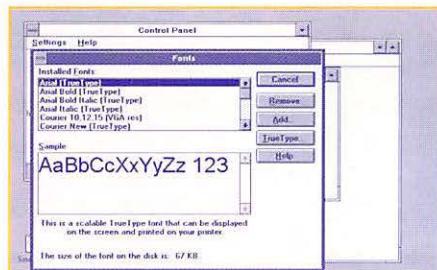


**Windows 3.1 Fonts dialog box**

Windows users quickly learn to install PostScript fonts in different directories because the more fonts that are added, the longer it takes Windows to start up and for programs to launch. Oh, and you can't just move PostScript fonts between directories. You must physically move the font files to the new directory, remove the moved fonts from the ATM Control Panel, and then reinstall the fonts from the new directory with ATM.

If you open a document that uses fonts that you've removed, Windows uses a substitute font (just like the Macintosh). The problem is that in Windows the font's name that was removed still appears in the program's font list box.

# Printing Hell

If installing and managing fonts in Windows is a nightmare, trying to get printed output will make you wake up screaming in the night. Windows uses the Print Manager to handle printing tasks. The Print Manager in Windows is roughly equivalent to the Macintosh's Print Monitor.

The difference is the Mac's Print Monitor actually works most of the time. In fact, the Windows Print Manager is so bad that Microsoft had to release a special utility for printing in Windows.

# Installation Blues

Chances are that most every Macintosh user has heard the horror stories about having to reconfigure Windows every time you add memory or a bigger hard drive or a different video card. Well, the actual horror is worse than anything you've heard. MS-DOS and Windows rely on I/O addresses, drivers, and interrupts to recognize and use peripherals.
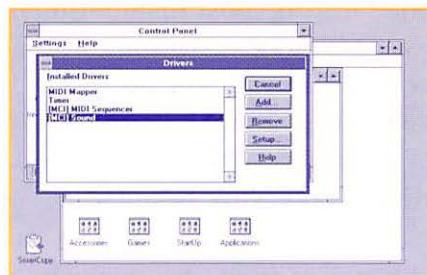


## Windows 3.1 device drivers control panel

If you think Macintosh INIT conflicts are problematic, wait until you have to deal with I/O addressing, driver, and interrupt conflicts. It's easy to remove troublesome extensions and control panels on the Macintosh to find the culprit. There's no way to do the same with Windows; it's sort of like poking around in the dark with a stick, taking random swings at the rats in the basement.

Installing Windows software is surprisingly straightforward, except that crucial files (WIN.INI, SYSTEM.INI, and others) get

modified during most installations. If these files get messed up, Windows won't run. Period. Windows users almost never remove software, once it's been installed. Know why? Because there's no easy way to do it. There's no way of knowing which lines of which files got modified or where all the associated files have been littered across your hard drive. Most Macintosh software programs can be removed by holding down the Option key while you launch the program's Installer. Windows users have to buy software that enable them to remove the crappy software they've spent hours installing and configuring.

Which reminds me, want to bring a Windows user to tears? Hook up two monitors to your Macintosh and configure the virtual desktop in the Monitors control panel. Then open a few windows on both screens and move the mouse between them. You are guaranteed to hear at least whimpers, if not shrieks of frustration.
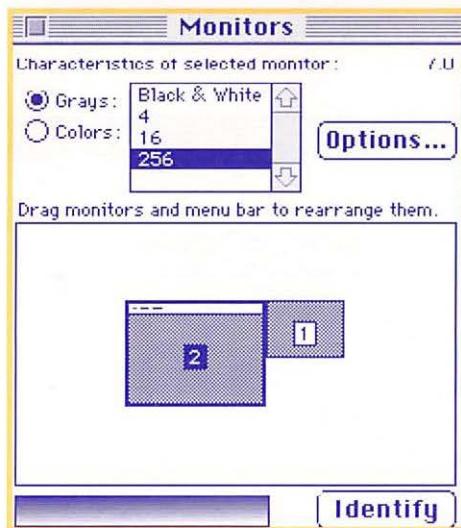


**Macintosh Monitors control panel configured for a virtual desktop spanning two monitors**

## No Free Lunches

For years, Macintosh users have been beaten about the head and shoulders about the folly of paying Apple's premium prices for hardware. For just as many years we've been saying there's no such thing as a free lunch when anyone asks us about this alleged pricing disparity. You get what you pay for.

**Bob:** When friends ask me if they should get a clone running Windows or a Mac, I ask a single question: Do you already own any software? If they don't own a zillion dollars worth of DOS and Windows software, I always recommend Mac. If they say, "but the clone is cheaper." I tell them they'll hate Windows and it's worth a few extra bucks to get the real thing. I send them off to the computer store (or Sears, these days) with one last pearl of wisdom: "If you buy the clone, you're on your own. I don't do Windows, even for friends."

**Mike:** During the writing cycle for this book, I was in the process of specifying a Windows system comparable to a Quadra 800. The results (which are now out-of-date, the 800 would be even less now) are surprising; a comparison is shown in the following table.

# Price Comparison Between Quadra and PC

| Macintosh Quadra 800 | ARES 486-66DX2 |
|---|---|
| 33 MHz 68040 | 66 MHz (DX2) 80486 |
| 3 NuBus slots | 8 EISA slots/2 VESA slots |
| 16M RAM | 16M RAM |
| 500M SCSI hard drive | 525M SCSI hard drive w/controller |
| Built-in video support | Orchid Fahrenheit 1280 video card |
| Apple 13-inch RGB monitor | Philips 1557AS 15-inch monitor |
| Built-in high-speed modem ports | Boca I/O card with 16550 UART |
| Total price: $4500 | Total price: $4200 |

A $300 difference. And that's the price for the Quadra before the 840AV was introduced. Now, I'd bet that the Quadra 800 system is actually cheaper than the 486-66DX2 system. Throw in the cost of a LocalTalk card and software for the DOS box, and the 486-66DX2 system becomes even more expensive.

Right now, Windows runs on top of MS-DOS. MS-DOS knows about dates only through the year 1999. On January 1, 2000, MS-DOS rolls over and thinks the date is January 1, 1900. There are whole theories about the end of civilization based on this "feature" of MS-DOS. We still wonder if all this was worth a lawsuit.

"*People jacked in so they could hustle. Put the trodes on and they were out there, all the data in the world stacked up like one big neon city, so you could cruise around and have a kind of grip on it, visually anyway, because if you didn't, it was too complicated, trying to find your way to a particular piece of data you needed.*"

*(William Gibson, Neuromancer)*

# MACINTOSH
# CYBERSPACE

A look at Macintosh cyberspace: today and tomorrow.

Cyberspace is a term created by William Gibson in his novel *Neuromancer* to represent a universe sustained by a vast network of computers and telecommunications lines.

But cyberspace isn't some wild future dream; it's here now. John Perry Barlow—sometimes Wyoming cattle rancher and sometimes lyricist for the Grateful Dead—describes cyberspace as "where" you are when you are on the telephone. Think about that for a minute—and then realize that cyberspace is also where your money is. Cyberspace is likely to be where you earn a good portion of

your income in the very near future.

There are three cyberspace ports that, as a Macintosh user, you should know about.

CompuServe is the online service most widely used by Mac users. It offers a lot of information, but it's a closed system. The only connection it offers to other computer systems is via E-mail. However, the biggest problem with CompuServe is its cost. Michael lost his sponsored account a couple of years ago and—after a withdrawal period—doesn't miss it much. Especially once he calculated what his monthly usage would have cost if he had to pay for it. Since then, he hasn't looked back.

America Online (AOL) is also popular with Mac users. Like CompuServe, it's a closed system, offering connections to other computer systems only via E-mail. America Online's most attractive aspect is its pricing structure. Michael was one of the original beta sites for America Online, but bailed out when they wouldn't give him a sponsored account. Bob still logs on AOL daily.

The Internet is a vast computer network of many component networks. Think of it as a kaleidoscopic web. Think of it as the first real cyberspace.

For too many years the Internet has been the playground of propeller-heads and spooks, inaccessible to mere mortals. The Internet is changing and has become a critical business tool for many computer users. Commercialization and privatization of the Internet is certain to continue—and will probably even accelerate—under the Clinton/Gore administration.

Stewart Brand—founder, original editor, and publisher of the *Whole Earth Catalog*, *CoEvolution Quarterly*, and the *Whole Earth Review*—is fond of saying "information wants to be free; information wants to be expensive." Nowhere is this more true than the Internet. For years, real people couldn't get Internet access without being affiliated with a university or defense contractor.

Commercial use of this international resource was forbidden. This is all changing quickly, and the would-be gatekeepers are being crushed as their ramparts are torn down. Nevertheless, the Internet is perhaps the last medium available that hasn't been papered over with advertisements. Hopefully, this aspect won't change anytime soon.

Imagine being able to download Dante's *Inferno* from a computer in Massachusetts just as quickly as if the material was on the file server down the hall. Imagine being able to correspond with anyone on almost a billion computer networks, anywhere in the world, as easy as you send electronic mail to your associate in the next office. Imagine being able to get news as it happens. Imagine being able to trawl through a web of connected computer networks and information resources so vast that no one knows for sure how big it is or how many people it reaches. Need to know what the weather is like for your trip to New England this weekend? No problem; weather reports and even weather maps are available within several mouse clicks. This isn't a futuristic telephone company commercial, this is a snapshot of the Internet as it exists right now.

Michael's been an inhabitant of the Internet for a few years. It's the only online system he uses. Bob doesn't use the Internet, no matter how much evangelizing Michael does. Bob's a true Mac weenie and doesn't want to be bothered with what he misperceives as unfriendliness to users.

**cyberspace isn't some wild future dream; it's here now**

Some old-time netters may

look down their nose at you for

not knowing UNIX, but there

will be many more willing to

give you a hand until you get

your Internet legs.

Forget most of what you've heard about how hard the Internet is to use. Tools with a familiar Macintosh interface are now available for just about every Internet service. It used to be true that you had to know about UNIX to navigate the Internet—most of the computers on the Internet run UNIX—but not any longer. The myth is still there, but it's all smoke and no fire. Chalk it up to a combination of greedy gatekeeperism and ignorance. Some old-time netters may look down their nose at you for not knowing UNIX, but there will be many more willing to give you a hand until you get your Internet legs.

For more information about the Internet, see Michael's *Mac Internet Tour Guide* (Ventana Press, 1993) or Hayden's *Internet Starter Kit for Macintosh* (Hayden Books, 1993). For more information about the rest of the online universe, get Bob's *Dr. Macintosh's Guide to the On-Line Universe* (Addison-Wesley, 1993).

You can take the scattergun approach to cyberspace and maintain accounts on multiple services, or you can take the sharp-shooter approach and get an Internet account. The Internet is much cheaper and offers significantly more information resources.

**Mike:** One of the most interesting aspects of cyberspace is that eventually some of us will make our living there. I can make a good argument that I already do. This is my 23  computer book and I've yet to meet any of my editors. I've never even met Bob, my co-writer on this project.

When I used CompuServe, I felt as if I was somewhere other than my office. It seemed more like I was in Columbus, Ohio (where CompuServe's host computers are located) than in Saint Paul, Minnesota (where I actually was). When I login to the Internet, I dial into a terminal server at one of the regional service providers and from there I can go anywhere in the world. The experience is the same as if I were to physically walk to the coffee house down the street or to the bar on the corner.

That's the experience of cyberspace, and within our lifetimes it will be a much richer one. Imagine being able to put on a full-body suit with force feedback devices that is capable of relaying your body movements within a shared environment that doesn't physically exist.

You'll be able to design a workspace that looks the way you'd like

it to appear, even if you access it from a bench in a rent-a-garage or warehouse. You'll be able to interact with people in your virtual office as you would in the physical world. Except different. Different because you could choose to appear any way you'd like. You could change genders, you could smooth your rough edges, you

could even appear as a piece of furniture.

There are already transaction mechanisms being built into many of the Internet services. This means that we'll be able to trade, barter, contract, buy, and sell information and services on the Internet within the next couple of years.

Of course, transactions are nothing new to online communications. AMIX, formerly a division of PC CAD behemoth Autodesk, was the first online service to build transaction support into its online marketplace. Bob liked AMIX so he spent several months working for the company as their "Macintosh Evangelist." AMIX was a brilliant idea: an electronic market place (an online service) where buyers and sellers of information—how-to articles, clip art, pieces of code, single-function software, or anything—could do business. There was even electronic consulting. ("I know just how to fix that problem. What's it worth to you?") You could haggle—electronically, of course— over price, delivery date, and warranty if you wanted. And, of course, being the marketplace, AMIX got a little piece of every transaction. It was free market economics at its best.

**Bob:** AMIX was ahead of its time. Someone will do something like it someday and make a zillion dollars. I think AMIX finally folded. I've called there 5 or 6 times in the past month and although the answering machine is on, no one returns my calls. Another one bites the dust.

# Encryption & Authentication

**Encryption is going to be a battleground for the next few years.**

In order for transactions to become commonplace, we need a way to protect our privacy and authenticate that we are who we say we are. Technically, this can be accomplished through encryption and authentication. For example, only a fool would send his or her credit card number to someone by E-mail, unless it was encrypted and authenticated.

Encryption is going to be a battleground for the next few years. Soon, we all will be using data encryption techniques for everything from electronic mail to digital voice communications. How will law enforcement agencies deal with this? The criminal element in society will jump on this new technology. Will public policy be passed forbidding encrypted communication? Will electronic mail services refuse to accept encrypted messages? Will courts be able to force you to reveal your encryption code? Under what circumstances? Or will this be considered self-incrimination under the Bill of Rights? Data encryption can render all wiretaps useless. What then?

The Data Encryption Standard (DES) was developed in

the mid-1970s under sponsorship of the National Institute of Standards and Technology (NIST). DES was designed for commercial and governmental users who did not require military-level encryption. The DES algorithm is conventional in nature; anyone holding the key can encrypt or decrypt messages.

Public key systems evolved about the same time as DES. They use a pair of keys, and messages encrypted in one key can be decrypted only with the other key. It doesn't matter which key is used for encryption, only that the other key must be used for decryption. The sender encrypts the message using the recipient's public key. Only the recipient can decrypt the message, using the second key which is kept private.

Digital signatures can be used to "sign" a message using the secret key encryption. The recipient is given the encrypted message and is told that it came from the sender. The recipient looks up the sender's public key and uses it to decrypt the message. If the decryption is successful, the recipient knows that the message did indeed come from the sender.

President Clinton, in mid-April, 1993, approved a directive on "Public Encryption Management." The government endorsed an encryption microcircuit—the Clipper chip designed by Mykotronx of Torrance, California—that is more robust than the current government standard. The scheme also permits the escrowing of keys needed to allow the government to access the

encrypted information. The problem was that the National Security Agency (NSA) had actually developed the encryption technology around which the new initiative is built and that the technical specifications are classified (acknowledged by a National Institute for Standards and Technology spokesman).

Clinton directed the Attorney General to request manufacturers of communications hardware that use encryption to install the Clipper chip in their products. Clinton also specifically made it clear that his intention was not to prevent other encryption methods from being developed, but somewhat murkily stated, "In making this decision, I do not intend to prevent the private sector from developing, or the government

from approving, other microcircuits or algorithms that are equally effective in assuring both privacy and a secure key-escrow system." It sounds as if the key-escrow system will be mandatory: "The administration is not saying, 'since encryption threatens the public safety and effective law enforcement, we will prohibit it outright' (as some countries have effectively done); nor is the U.S. saying that 'every American, as a matter of right, is entitled to an unbreakable commercial encryption product.'"

Each device that contains a Clipper chip will have two keys deposited separately in two key-escrow databases established by the Attorney General at the time of manufacture. Access to the keys will be limited to government officials with legal wiretap authorization. The two key-escrow databases will be controlled by two yet-to-be-determined agencies.

A second chip, called Capstone, is currently under development by the NSA. Capstone is a superset of the Clipper chip that will implement the Digital Signature Standard (DSS) to provide authentication services. DSS could usurp RSA Data Security Inc.'s public-key encryption system.

In April, 1993, the Computer Professionals for Responsibility (CPSR) filed 11 Freedom of Information Act requests for access to Clipper chip development records. CPSR suspects that the NSA and NIST have violated the Computer Security Act of 1987 that limits the NSA's role in the development of public encryption technologies to providing "advice and assistance." NSA has publicly stated that it is developing both the Clipper and Capstone chips.

# How Important is Privacy?

*Privacy is not a temporary issue that will fade over time.*

If anything, privacy concerns will intensify in the coming years. Virtually every poll ever taken on the importance of privacy has shown that it is regarded as a major concern. Equifax conducted an extensive opinion survey in 1990 and found that nearly four out of five people surveyed expressed concern that their privacy is "threatened." In 1978, less than one-third of those surveyed (31%) said they were "very concerned" about their privacy being threatened. By comparison, almost one-half of those surveyed in 1990 (46%) felt "very concerned."

Personal privacy has long been important to Americans because many of our ancestors came to this country to escape a government that was both intrusive and oppressive. Privacy has always been perceived as being an important defense against a powerful government. Even though privacy is not explicitly mentioned in the Constitution, most experts agree that privacy is implicitly protected in various amendments, especially the Fourth Amendment, which protects against seizure without due process.

The ways in which technology can contribute to, or even cause, privacy abuses are well known.
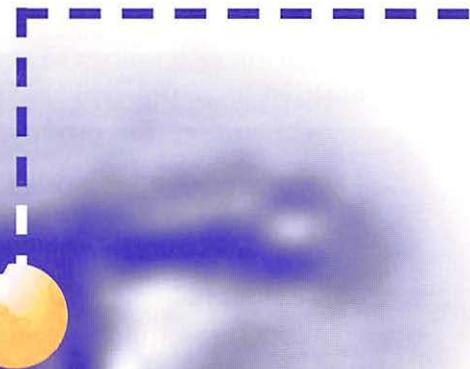
The other side of the argument, however, is usually given short shrift. Advances in technology can strengthen an individual's privacy as well by liberating the individual from social controls. A multitude of transactions that used to be carried out in person, face-to-face, are now handled remotely: home shopping, computer conferencing, telecommuting, and computer banking just to name a few. Technology also improves people's ability to access information about current events and to quickly act on that information.

> Computers are capable of manipulating information much quicker than humans can or ever will be able to manipulate it.

# Bandwidth *(A Bigger Pipe)*

Computing and telecommunications tools have improved dramatically since the early 1970s. An information infrastructure will eventually allow hundreds of millions of computers to communicate with each other in a few seconds. Typical business correspondence today takes about five days. In the future, it will only take hours, minutes, and eventually, it will become instantaneous. This compression of the information cycle will have dramatic effects on the substance of business communications.

Computers are capable of manipulating information much quicker than humans can or ever will be able to manipulate it. Unlike humans, however, computers almost never understand the information they are manipulating. A key idea behind the information infrastructure is to place the burden of communicating and processing information on computers rather than humans. In order for this to happen, computers must begin to understand, even at the crudest level, the meaning of information.

Even though we are continually inundated with information, we have only an intuitive hunch about its meaning and virtually no sense of how to value it. Information has economic value only if it can lead to the acquisition of tangible goods or services.
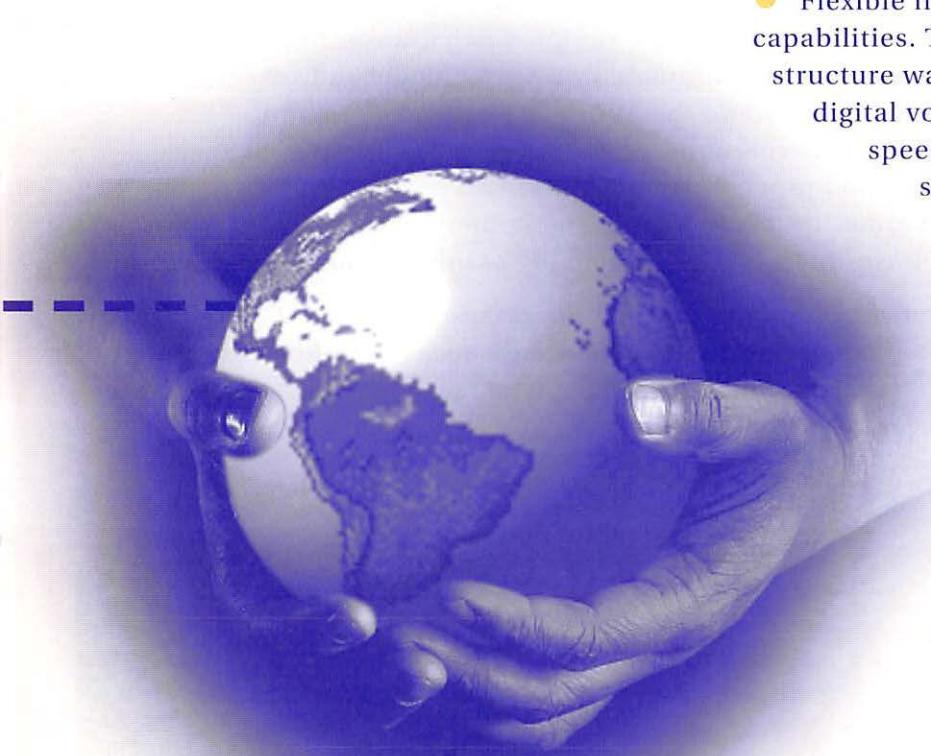
Information leads to tangible goods and services indirectly; therefore it is reasonable to value it at a fraction of the worth of the tangible goods and services to which it leads. This means that information has less value in poor countries because there are fewer tangible goods and services. Information has intangible value if it enables us to satisfy intangible human desires.

The information infrastructure has several properties in common with well-established infrastructures like the telephone system, electrical grid, and national highway system: wide availability, ease of use, and multiple useful applications.

The information infrastructure must have several basic capabilities:

● Flexible information transport capabilities. The telephone infrastructure was designed to carry digital voice signals at a fixed speed of 64,000 bits per second with non-varying levels of security and reliability. Computers can transmit information at a wide range of speeds, depending on the information being delivered. Brief text messages, for example, require only a few thousand bits per second while high-resolution video requires tens of millions of bits per second. Similarly, monetary transactions require high levels of security and reliability, whereas a digital photograph can tolerate a few lost bits here and there. The key is that the user should have a wide selection of speed, security, and reliability from which to choose, paying only for the level of service needed.

● Common services. Common resources—directories, regulations, census data, and so on—must be available.

● Common communications conventions. It's still impossible for a single software application to run on all available computing platforms. Vinton G. Cerf and Robert E. Kahn at the Corporation for National Research Initiatives (CNRI) have developed software programs they call Knowbots. Knowbots are designed to travel throughout a network, inspecting and understanding similar kinds of information

without regard to language or form.

"Autonomous, interprogram communication is being explored today in an even more general form under the rubric of knowledge robot (Knowbot is a registered trademark of the CNRI) programs that move from machine to machine, possibly cloning themselves. Knowbots support parallel computations at different sites. They communicate with one another, with various servers in the network, and with users. In the future, much computer communication could consist of the interactions of Knowbots dispatched to do our bidding in a global landscape of networked computing and information resources."—Vinton G. Cerf, "Networks," *Scientific American*; September 1991.

The information infrastructure should help us lead more productive and enjoyable lives in several ways:

● The infrastructure should relieve us of many of the repetitive, boring, and unpleasant tasks related to retrieving, processing, and transmitting information.

● The infrastructure should help us improve the ways we do things now, both qualitatively and quantitatively.

● The infrastructure should open a wide range of new possibilities.

The most appropriate information infrastructure will allow free enterprise to flourish. The telephone and cable companies will probably lay down the physical media for the network and will bear the responsibility of providing flexible information transport services, minimum

common services, and access to shared resources. No telephone or cable company or other centralized body should decide what common communications conventions should be offered.

Similarly, no centralized body should have anything to say about what services will be offered. As in traditional markets, any number of goods and services will be bought and sold, and not all transactions will be monetary. The people or companies that profit by providing the services should be accountable and held responsible for services that misbehave.

**The most appropriate information infrastructure will allow free enterprise to flourish.**

# Integrated Services Digital Network (ISDN)

Integrated Services Digital Network (ISDN) is a set of standards that will eventually unify voice, data, text, and image communications into a single digital wide area network. The standard is currently in flux and continues to evolve. It represents nothing less than the total conversion of the world's telephone network from analog to digital. ISDN, in simple terms, will digitize the only remaining analog portion of the telephone network: the link between your local telephone switching station and your desktop.

The ISDN standard consists of two components: First, a digital network. The digital network part of ISDN includes the ISDN lines, equipment, and software that controls the network. The second component is integrated services. The integrated services of ISDN are the actual applications and services that will be developed. Such applications and services will focus on the moving of voice, data, and image information across the physical network.

There are two configurations of ISDN that will initially be available. One is geared for consumer and home use, the second is aimed at businesses.

The minimal configuration is called the Basic Rate Interface (BRI) and consists of two digital lines (referred to as Bearer, or B, channels), and a third Delta (D) channel. This basic ISDN service is commonly referred to as "2B+D." Each Bearer, or B, channel is capable of carrying any kind of data at a speed of 64,000 bits per second. The Delta, or D, channel controls the B channels and is capable of transmitting and receiving data at 16,000 bits per second. The two "B" channels in ISDN's Basic Rate Interface result in a total available bandwidth of 144,000 bits per sec-

ond. Using both "B" channels at the same time allows you, for example, to simultaneously talk with a workgroup associate while you collaborate on a document using screen-sharing software.

> **Integrated Services Digital Network (ISDN) is a set of standards that will eventually unify voice, data, text, and image communications into a single digital wide area network.**

The ISDN configuration intended for business use is called the Primary Rate Interface (PRI). The PRI specification offers 23 B channels in North America and Japan (30 B channels in Europe) and a single D channel. All the channels in the Primary Rate Interface version of ISDN—including the D channel—are capable of carrying any kind of data at 64,000 bits per second. The North American and Japanese version of ISDN's Primary Rate Interface offers a total available bandwidth of 1.54 million bits per second. It's believed that the earliest users for ISDN's Primary Rate will be those businesses wanting to provide bulk connectivity into the network. This will have major ramifications for the online telecommunications services and educational institutions, to mention only two.

The ISDN "B" channels in either BRI or PRI service configuration are used for the actual user-to-user communications. Each B channel can carry any type of data.

The ISDN "D" channel in either service configuration carries signaling information that controls the B channels. A little-known aspect of the "D" channel is that because the signaling information does not use the complete channel at all times, the channel can also be used for X.25 packet switching or other low-speed data transfer activities.

BRI ISDN is effectively 27 times faster than a standard 2400-baud modem and works over existing two-wire copper telephone lines.

# The Golden Splice

The various regional telephone companies have implemented different versions of the ISDN standard, resulting in incompatibilities between the different service providers. In the past, the various railroads used to run on different gauges of track in different parts of the country. The "Golden Spike" completed the first transcontinental railroad at Promontory Summit, Utah. In November, 1992, the ISDN "Golden Splice" was completed, linking 20 regional telephone networks into a single national network.

Most observers agree that by 1995, 50 percent of all phone customers will have access to ISDN, and modem manufacturers will likely release a $100 ISDN adapter capable of linking personal computers to the ISDN network.

The railroads made the classic mistake of forgetting what business they were in. They failed to see themselves as transport companies—the railroads thought they were in the train business—and were almost driven out of business by upstart trucking companies that were well aware that they were in the transportation business, not the truck business. Here's hoping that the telephone companies will not suffer the same fate.

## What Does ISDN Cost?

According to the Consumer Federation of America, ISDN costs a telephone company about $7.50 per month. New England Telephone charges $13 per month for a home ISDN line. In the San Francisco Bay area, PacBell charges $635 for installation plus $45.15 per month.

In addition to the line, you'll need to spend about $300 for a network interface and $1,000–$2,000 for

computer peripherals. An ISDN-aware telephone without computer connections costs about $250. You'll also need a terminal adapter (TA) connecting the computer to the phone line. Fujitsu sells one for about $400; Hayes sells one for $1,199 with Mac software.

If you have a local area network, you can connect it to the ISDN line so all users can share the ISDN line. This requires a router, however, with prices beginning around $1,000 for Macintosh users.

## The National Data Highway

The National Data Highway, first signed into law by George Bush and made a top priority by President Clinton, is a $5 billion project that promises to replace existing wire with fiber optic cabling. Don't worry about getting out your checkbook yet; it won't exist until at least 1996.

The current political fighting and dicing for position threatens to push the implementation of a national broadband data highway even further into the future. Rep. Rick Boucher (D-Va.) and members of the president's Office of Science and Technology Policy, favor a network developed using fiber-optic cable. Rep. Edward Markey (D-Mass.), the Electronic Frontier Foundation (EFF), and various computer and communications companies including McCaw Cellular Communications, Inc., propose a cobbled network using fiber-optic cable only as a backbone medium with other network links using metal cable already installed by telephone and cable TV companies. (Sen. Earnest Hollings [D-SC.], is sponsoring parallel legislation in the Senate.)

In April, 1993, Denver-based Tele-Communications Inc.—the nation's largest cable TV company—announced its plans to lay fiber-optic cable to more than 250 communities across the nation by 1997.

The company's $2 billion investment is designed to bring 500 television channels and other services to 10 million cable TV subscribers.

## What's It All Mean?

You're asking us? We're talking about predicting the future here. OK, OK, we'll take a stab at it. First, it means many people are going to be using the Internet. If you haven't checked it out yet, what are you waiting for? Don't be the last on your block. Second, computer-to-computer communication is going to get real, real fast. Your 14.4 modem will soon be a quaint relic—kind of like a 1984 model 128K Mac. Finally, you may be using some form of encryption and authentication, although chances are good the government will have the key. Whatever happens, it's going to be interesting.

# Macintosh Mirrorshades:
## The Macintosh Underground

**A** heretofore unseen glimpse of the Mac community's seamy white underbelly.

The Macintosh underground is populated with an assorted collection of infonauts, explorers, and characters. It's important to understand that most of these people are not criminals, even though some of the things they do are not always within the letter of the law. Until the legal system catches up with technology, this will continue to be the case.

### Hackers

A 1986 study by the Office of Technology Assessment found that while much attention is focused on computer hackers, often more significant security problems are posed by individuals who have official access authorization. In fact, the National Telecommunications and Information Security Committee found that most of the crimes against government computers were committed by people with authorized access to those computers.

Jack Kerouac and Neal Cassady hitchhiked the highways of the 1940s and 1950s; hackers are traveling the byways of the electronic frontier in the 1990s. Hackers are explorers, not criminals, although sometimes they do run afoul of the law.

Steve Goldman's apartment was raided on March 8, 1990, by the Secret Service and Los Angeles Police. Goldman, a freelance investigative reporter, was reportedly working on an exposé of "tabloid" television shows like "Current Affair" and "Hard Copy." Goldman had been a contributor to these programs in the past. According to accounts in the *Los Angeles Times* and elsewhere, Goldman was caught attempting to access Fox computers in New York and Los Angeles. He was charged under Section 502(c)(2) of the California Penal Code.
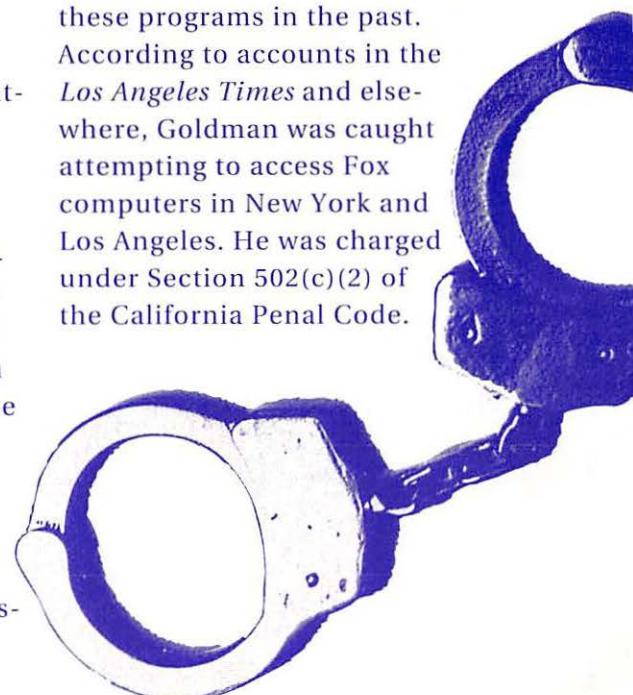
From the reports, it appears that access to the Fox computers required no password, only a user ID. Tracey Miller, of KFI's "Live Line" in Los Angeles, described Goldman as someone who "had managed to infiltrate the world of tabloid journalism and then got caught up in a sting operation involving Fox Television computers."

The search affidavit indicates that Fox employee Paul Smirnoff noticed attempted logins to the Fox computer used by "Current Affair" writers in New York. Smirnoff ordered a "bait" story to be placed in the Los Angeles computer.

Investigators gathered evidence for their allegations against Goldman

and made the raid on Goldman's apartment on March 8, 1990. What makes this raid different from others, however, is that the Secret Service and Los Angeles Police were accompanied by a Fox television reporter and camera crew.

Traditionally, the Secret Service has been extremely quiet about its procedures and maintain that the times and dates of raids are "secret." Not only were the Fox reporter and crew present, but they seemed to have the full cooperation from the law enforcement officials. Has collusion between law enforcement and the media become standard practice?

The tape begins as law enforcement agents in bullet proof vests and with guns drawn are right outside Goldman's apartment door. One has to wonder if Charles Keating, Michael Milken, or Oliver North were arrested in a similar manner. Computer raids have become almost commonplace and we wonder how many hackers have engaged law enforcement personnel in gunfights. Assuming the situation was as dangerous as the vests and guns would indicate, why was the Fox crew allowed to be present?

**We wonder how many hackers have engaged law enforcement personnel in gunfights.**

## The MacMag Peace Virus

The infamous MacMag Peace Virus was the first computer virus to strike Macs. Much was made of the virus, embedded in a HyperCard stack, that was distributed via the online information services. Fingers were pointed, chests were indignantly pounded, and many harshly worded accusations were flung.

The infamous MacMag Peace Virus *was* the first computer virus to strike Macs

A computer virus is programming code that is implanted in a software program (the host) and migrates to any computer system that comes in contact with the host. In the case of the MacMag Peace Virus, running the infected HyperCard stack infected your Macintosh. Viruses are usually introduced by disgruntled employees, adolescent misfits, or sociopaths. In their worst forms, computer viruses spread from user to user undetected for some time,

and then suddenly wreak havoc by erasing data, scrambling directories, changing account passwords, and the like.

Any unauthorized modification of a user's computer system—anything that is done without the user's knowledge and control—is categorically wrong. Of course, some successful commercial software programs meet this definition. They're not considered viruses, but maybe we should collectively rethink that. For example, some programs add resources to your System file when they're installed, without warning you or asking your permission. If you later throw the program away, you're left with spurious invisible resources in your System file. They may not do any harm, and they aren't exactly a virus, but they are definitely unauthorized modifications.

Many Mac owners were outraged that the

online services didn't screen for the virus. (Remember that at this time, the virus detection and eradication industry did not yet exist.) Many argued that it was the duty of the respective networks and bulletin boards to scan program submissions for viruses to protect their users from themselves, as it were. Since they already screened for commercially distributed, copyrighted material, the argument went, the information services should have no problem screening uploaded software for

188
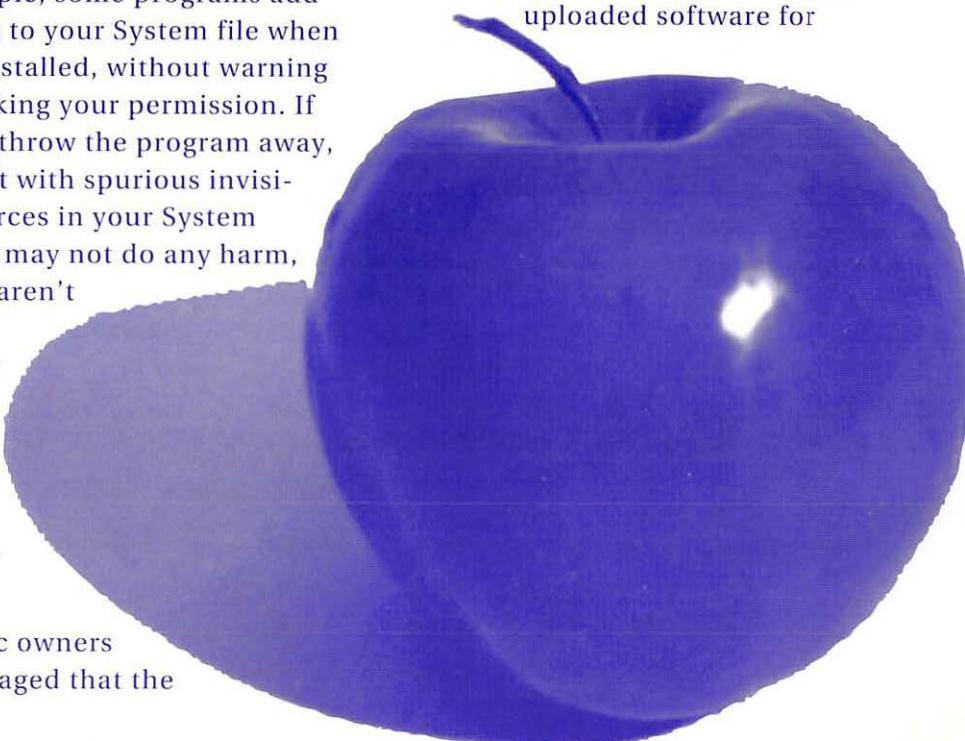
viruses. The squeaky wheels got the grease, because today the commercial information services do, in fact, screen uploaded software for viruses.

The logic behind the screening argument is, at best, fallacious. The commercial information services are conduits. Nothing more, nothing less. They're channels for the conveyance of information; they're not baby-sitters, and they're not a collective conscience, or guardian.

Besides, there's no way to protect against a new virus until an antidote is available. In order for an antidote to be available, someone must be infected. It's a classic chicken-and-the-egg problem. You can't have an antidote without having a virus; and someone has to be infected before you know there's a virus.

Neither of us has ever been infected with a virus. Ever. I don't know anyone who has. (**Bob:** I know a couple of people who got WDEF from their service bureaus when it was first discovered.) Yet every time a new virus strain is discovered, it makes headline news in all of the trade magazines. And then the antidote vendors shuffle out a new upgrade and extract a price for fear.

**Mike:** The only virus utility I use is Disinfectant. It works as well as any of the commercial products and, since John Norstad distributes it as freeware, the price is certainly right. I suspect we can do a lot to eliminate viruses simply by not purchasing commercial virus detection and eradication products.

**Bob:** I disagree. I use SAM (Symantec Anti-Virus for Macintosh) and recommend it to anyone who isn't diligent enough to make absolutely certain they always have the latest version of Disinfectant. Viruses suck, but they're not going to go away just because you boycott commercial anti-virus programs. SAM offers users a valuable service—you're always protected against all known viruses. Symantec sends SAM owners a postcard each time a new virus is discovered with a virus definition you can use to update your copy of SAM. With all due respect to Disinfectant, if you're not using the latest version, you're not protected from the latest virus. That doesn't happen with SAM (or the other commercial anti-virus programs).

The simple fact is that the biggest part of the responsibility lies with us as individual users. A fair argument can be made that anyone who downloads something from any-

# THE SIMPLE FACT IS THAT THE BIGGEST PART OF THE RESPONSIBILITY LIES WITH US AS INDIVIDUAL USERS

where and places it on a computer system used for valuable work is being foolish. Now I know that nobody downloads files to floppies and runs them from a test system after taking all hard drives and other storage devices offline. Nobody does that. You shouldn't have to do that. You're taking a big chance if you don't. After all, you wouldn't ingest a handful of drugs offered by a stranger without first identifying them, would you?

You see, we base our actions on trust. We trust that the materials that we download, especially from the commercial online information services, are for the most part wholesome and at the least, won't rot our teeth. Viruses violate that inherent trust and I think that's where most of the anger about the MacMag Peace Virus came from.

The MacMag Peace Virus itself was harmless. Some would argue it was even well-meaning in nature. The virus was set to trigger on March 2, 1988, (the first birthday of the Macintosh II) and displayed, quite benignly, the following message along with a graphic image of a globe:

Richard Brandow, Publisher of MacMag, and its entire staff would like to take this opportunity to convey their UNIVERSAL MESSAGE OF PEACE To all Macintosh users around the world.

The virus then erased itself completely from memory and disk.

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**Mike:** I interviewed Brandow a few days after the virus was discovered (but before it triggered), and he seemed genuinely surprised with all the negative reactions from the community. He really felt as if he had done nothing wrong. At the time, I was reminded of a line from Jim Dodge's wonderful novel, *Not Fade Away* (Atlantic Press, 1987): "The Fourth Wiseman delivered his gift and slipped away."

Brandow had single-handedly alerted the Macintosh community to the Virus Problem. And he did it with a message of world peace. Some will argue that Brandow caused the Virus Problem in the Mac community, but that argument doesn't hold much water.

Richard Brandow had no intention that the file containing his virus be distributed over the commercial information services. He had simply placed it on his own machines in MacMag's offices and hoped it would spread. Of course, wrapping it in a HyperCard stack boasting to contain secret information about Apple's forthcoming products didn't hurt its chances of spreading far and wide. "The Fourth Wiseman delivered his gift and slipped away."

But the MacMag Peace Virus did get distributed, and it was a computer virus. Community trust was violated. While many in the community referred to the situation as a plague on our houses for years to come, I still think there was a deeper message.

Consider how closely you monitored the files you placed on your hard drive after the MacMag Peace Virus incident. "The Fourth Wiseman delivered his gift and slipped away."
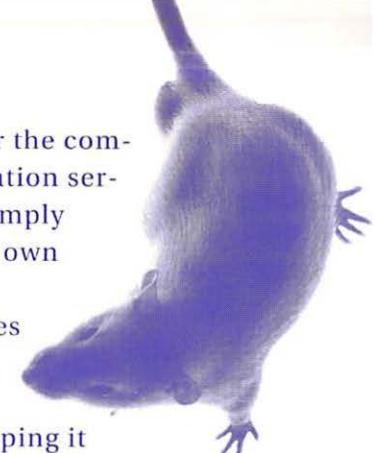
## Dumpster Diving and a Tale of Two Weeklies

Dumpster diving is a popular participatory sport in the Silicon Valley; dumpster diving is the finesse sport of rooting in trash cans for morsels of information. Chuck Farnham is probably the most proficient dumpster diver we know. He's made something of a career of it, actually. Farnham's best diving resulted in a late February, 1988 *Macintosh Today* article he wrote detailing Apple's plans for its first portable Macintosh. For a week or so after Farnham's disclosure, every writer we know got a call from his contacts at Apple bemoaning how this was going to "cannibalize CPU sales for months," and how "some Apple employees just don't understand the company's profit-sharing program."

It was BS then and it's BS now.

Apple doesn't understand what motivates some of its employees. The company hasn't had a clue about this for quite some time. Unfortunately, Apple has lost many good employees because of this lack of understanding.

Many of the writers told their Apple contacts the same thing we told ours: "You don't understand what motivates some people; it's not money, and it's damn sure not stock options."

Dave Wimer, Developer, Founder of Personal Software ahd UserLand Software among others:

**"They do too much user testing at Apple. They don't do enough thinking."**

It turned out that some of us even passed on the same bit of unsolicited advice: "Open up. Let your product plans be known earlier throughout the community. Nobody's going to put off purchasing a Macintosh today because there are more powerful models on the horizon. There will always be more powerful models on the horizon. At least you guys had better hope so."

Several writers went so far as to suggest that Apple publish a publicly accessible document of some kind talking openly about what's going on at the company and giving

credit and open acknowledgment to deserving employees.

In mid-March, 1988, Debi Coleman, then Apple's chief financial officer, announced that Apple planned to reveal its "strategic technology plans" in the second half of that year.

So, here were two intrinsically linked incidents; one open and free, the other structured and corporate. It reminds us of an old Louden Wainwright song: "at the latter I was informal, at the former I wore my suit; I wore my swimming suit."

Farnham's *Macintosh Today* piece about Apple's first portable Macintosh (code-named "Laguna") has, of course, withstood the test of time and was the more important of the two incidents.

Although the bylines and layout of the *Macintosh Today* article led the reader to believe that Dan Farber and Cliff Barney uncovered the story and Farnham only did the technical analysis, this was simply not the case. Farnham rooted out the story from a disgruntled Apple employee all by his lonesome. Farnham was subsequently inundated with requests for the information and offers of fame and fortune to leak the story to other writers and publications,

including *Newsweek*. We're talking mainstream publications here, not this inbred trade press stuff.

Chuck Farnham turned down the big offers and gave the story to *Macintosh Today*.

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**Mike:** I spoke with him about a week before he broke the story and asked him why he refused to sell out to the highest bidder. His response was classic Farnham and a clue to why Apple's problems were deeper than employee leaks: "I don't do this for the money, I do it because it's fun."

**Bob:** My favorite Chuck story is the one about the videotape of an Apple security guard chatting casually with him as he dumpster-dived. What a character!

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There's a deeper story here, though. Less than five months after publishing Farnham's story about Apple's "Laguna" portable Macintosh, *Macintosh Today* was history. During the Spring and Summer of 1988, *Macintosh Today* and *MacWEEK* were battling it out—toe-to-toe—for the Macintosh

weekly trade press slot. Most observers agreed that there wasn't room for two weeklies, so this was a pretty serious fight. Although neither publication could be called independent—*MacWEEK* was soon-to-be-owned by Ziff-Davis; *Macintosh Today* was owned by IDG Communications—they sort of kept each other honest. (*MacWEEK* was started by a bunch of scrappy upstarts that had the cajones to take on the then-giant of Mac publishing and beat the snot right out of them. Then came the Ziff-

Davis buy in, and the weekly started to coast.)

If *MacWEEK* can be said to be the *USA Today* of Macintosh publications, *Macintosh Today* was closer to the *New York Times*. Where *MacWEEK* looked kind of funky and flashy, *Macintosh Today* looked pretty staid and maybe even a little stuffy. But that was only cosmetics. Inside, *Macintosh Today* had better reporting, more in-depth articles, and took bigger risks. That's probably what killed it. *Macintosh Today* was said to have lost close to $600,000 in May, 1988, alone and more than $3.5 million in its eleven-month history.

What happened? *Macintosh Today* had significantly more money behind it than the original

*MacWEEK*. Additionally, and perhaps more importantly, it had Apple's blessing (and advertising). Everyone in the community thought that the Patch Communications crew that was

**If *MacWEEK* can be said to be the *USA TODAY* of Macintosh publications, *Macintosh Today* was closer to the *New York Times*.**

scratching and scraping to put together *MacWEEK* was doomed once IDG got *Macintosh Today* cranked up to speed. It was only a matter of time; the oddsmakers were giving *MacWEEK* four months at the outside. No bunch of yahoos whose flagship publication had been a sad tabloid with wall-to-wall knick-knack ads for PC clones could compete with the highly-polished PCW Communications.

# OK, so maybe the pudgy PCW brats got their butts kicked a little bit.

This was PCW territory, and word on the street was that David Bunnell was pissed about being beat to the *MacWEEK* name. Word leaked quickly that *Macintosh Today* was going to kick some serious Patch butt. All the way back to Florida were the words we think we remember.

So, here we had big bad Bunnell and his PCW cadre, experts at everything involved in putting out a Macintosh weekly with their hackles up and ready to go for the jugular with both teeth. And in the other corner was this group of mongrel misfits with very little Macintosh experience and an inherited name that made Bunnell and his sidekicks see red. Everyone agreed that it was not going to be a pretty sight and that there would be bits of flesh and clots of blood lining the streets of the Mission district in less than three months.

A crooked twist of fate changed the course of this bit of media history,

however, and *MacWEEK* slowly, then more rapidly, began to gather momentum. By the first part of 1988, most observers were doing Richard Nixon imitations—cheeks a' flappin' double-take-sayin' "wha' happen'd," with a kind of glazed, non-descript look.

Nobody could believe that the upstart bush-leaguers from the sink-hole State could possibly be beating up a PCW publication, consistently, and on their own turf. Even Apple—never really quick on its feet in these matters—began to take notice and placed an ad or two in the flashy tabloid that *Macintosh Today* once referred to as "funky and irreverent" in a back-handed compliment that backfired in its collective face.

OK, so maybe the pudgy PCW brats got their butts kicked a little bit. They re-grouped, and came back with a weekly publication to compete against the *USA Today* of the Mac world. It looked like it was

going to be a contest for a while. Things were picking up—especially with Farnham's Laguna story—but it was too late. PCW and its corporate parent, IDG, hadn't faced much competition and were winded by the end of the second round.

Winded, but not yet down for the count, *Macintosh Today* didn't even come out of its corner for the third round. It threw in the towel and packed it in. The eulogies read that *MacWEEK* got in the hands of the readers earlier, was easier to read, prettier, and generated more ad revenues in the end. Like most eulogies, they were at least be partially true, but the underlying fact is that *Macintosh Today* wimped out. We still miss it today.

After Ziff-Davis bought into *MacWEEK*, most observers thought the end of a respectable Macintosh-specific weekly was near. It turns out that Ziff-Davis
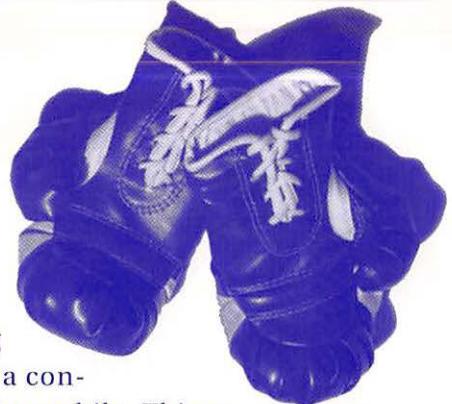
didn't kill *MacWEEK* and the community is better for it.

*Macintosh Today* understood dumpster diving and what motivated Apple employees at that time. *MacWEEK* didn't. *MacWEEK* won partly because it understood what motivated Apple as a corporate entity.

An interesting footnote: Maggie Canon, editor of *Macintosh Today* in its hey-day, just began work as editor-in-chief of *MacUser*, a Ziff-Davis publication.

## NuPrometheus League

Prometheus was the Greek god who stole fire from Zeus and gave it to the people; mere mortals known as the human race. Zeus didn't cotton to Prometheus' act and had him chained to a mountain where the birds pecked away at him.

A group of individuals, known collectively as the nuPrometheus League, apparently stole the metaphorical fire from Apple Computer, Inc., in June, 1989. The nuPrometheus League claimed to have appropriated secret source code that belonged to Apple Computer; source code to the internal workings of Macintosh that could be used to create a Mac clone, according to some observers.

The nuPrometheus League, which referred to itself as "Software Artists for Information Dissemination" began distributing floppy disks containing Apple's proprietary source code to journalists and individuals within the Macintosh community in early June, 1989. Given that Apple maintains very tight security over its source code, it is reasonable to

speculate that the core of the nuPrometheus League consisted of Apple employees, probably engineers. A letter, which accompanied the first disk, stated quite clearly that the group's "objective at Apple is to distribute everything that prevents other manufacturers from creating legal copies of the Macintosh." The correspondence suggested that those interested in receiving future source code disks place classified ads carrying the "nuPrometheus" title in *MacWEEK* and *Computer Currents*.

The letter went on to state that the nuPrometheus League "has no ambition beyond seeing the genius of a few Apple employees benefit the entire world, not just dissipated by Apple Corporate through litigation and ill-will." Apple Computer remains, even today, embroiled in a series of lawsuits revolving

around the company's claim of copyright on the "look and feel" and graphical interface of its Macintosh computer.

The first disk distributed by the group contained source code for Apple's announced, but unreleased, color extensions to QuickDraw; these are the routines responsible for the Macintosh screen display.

Apple's public relations machine responded immediately, stating that the company would "aggressively investigate" the distribution of the "stolen property" and "prosecute the individuals to the fullest extent of the law."

We found this entire episode mildly amusing and quite confusing on several different levels.

First of all, why did Apple get its corporate buns in such a wad over this? It had been going on for years. Steve Jasik's MacNosy could create source code of the Macintosh ROM since at least 1986. In fact, Jasik used to offer to send source code

out for $20. Of course, the source code produced by MacNosy was uncommented.

Secondly, the nuPrometheus League's disk was sent out via normal mail. Apple's David Szetela, manager of developer services, went on CompuServe's MAUG and stated that the community could help Apple by "not accepting copies of stolen source code." Szetela went on to threaten community members by stating—in the same breath—that "Possession of stolen property is itself a criminal act. If you find yourself in possession of stolen source code, the best thing to do is destroy it immediately." Apparently Apple representatives believed that those who received the nuPrometheus materials were guilty of a criminal act by simply opening their mail.

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**Bob**: That figures. Szetela is kind of a weasel anyway. Did you know he got transferred to Paris? Anyway, not too long ago he AppleLinked me an urgent request for a list of

the good parties at Macworld Expo. He bribed me with "a cool Apple tchochke from Paris." He got his list; I'm still waiting for my tchochke.

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In the last place, Apple's response came just a little too quick on the heels of the distribution of the nuPrometheus materials. Something didn't smell quite right when Apple's response followed so quickly on the heels of the nuPrometheus initial distribution. It seemed somehow choreographed. Especially in the light of then-ongoing developments in Apple's copyright infringement case with Microsoft. Less than a month before the nuPrometheus League began distributing source code, Microsoft presented a videotape to the court comparing Microsoft Windows 1.0 and Microsoft Windows 2.0. The judge ruled that the two products were, for the most part, the same. Since

Microsoft holds a licensing agreement for Windows 1.0, this was perceived as a serious blow to Apple's suit.

Being of a basically conspiratorial nature—we grew up in the 1960s—it's fathomable to us that Apple Computer may have been behind this. A charade to gain notoriety for—and to point to the value of—its proprietary source code. Stranger things have happened.

In any case—for whatever reasons and to whatever ends—all indications were that Apple's proprietary source code was on the loose. We found this to be symptomatic of deeper problems within Apple Computer that have yet to be addressed. Disgruntled Apple employees have, for years, been distributing secret documents and specifications for forthcoming products to members of the press. The actions by the nuPrometheus League were only a single step further; a somewhat logical progression.

## Operation Sun Devil and the Electronic Frontier Foundation

In 1990, the Secret Service, with guidance from the telephone companies, launched Operation Sun Devil in an attempt to put an end to the "hacker problem" once and for all. At the height of activity, in early May, 1990, 28 raids were conducted in 14 cities over a three-day period. Approximately 42 computers and 23,000 disks were confiscated and a grand total of four arrests were made. The most famous of the cases was dropped when prosecutors learned that an allegedly stolen document Southern Bell claimed to be

worth $79,000 was available to customers for about $25. Never mind that the defendant's legal fees are likely to top $100,000. Never mind that the defendant's electronic publishing system was confiscated. We wonder if the system would have been confiscated had it been a traditional printing press.

On July 10, 1990, two unlikely cohorts announced they were forming a foundation to "address social and legal issues arising from the impact on society of

197

the increasing pervasive use of computers as a means of communication and information distribution." One of the two was Mitch Kapor, best known as the founder of Lotus Development Corporation (the publisher of the Lotus 1-2-3 spreadsheet program). The other was John Perry Barlow, a sometimes lyricist for the Grateful Dead, one-time Congressional candidate, and Wyoming rancher.

A number of factions are battling for control and influence over cyberspace, and the Electronic Frontier Foundation (EFF) formed by Kapor and Barlow is entrenched on the front lines of the battlefield. On one side of the battle, are a number of government agencies, corporations, and other entities that want to limit access to information and dictate what people can do in cyberspace. On the other side, there are those—like the members of the EFF—who want to widen (and deepen) everyone's access to information and extend the rights that most Americans enjoy in physical reality to cyberspace.

Kapor and Barlow came together when both were questioned by the FBI following the nuPrometheus League incident.

John Perry Barlow was amazed at the level of computer ignorance exhibited by the FBI agent who visited him in May, 1990. Barlow had been a longtime member of the Internet-connected Whole Earth 'Lectronic Link (WELL) and describes himself as a "technocrank." From the agent, Barlow learned that computer hackers—all computer hackers—were under suspicion as Evil Criminals. He also learned that the FBI was tracing anyone who had visited the Hackers Conference, an invitation-only affair begun in 1984 that drew attendees from the top levels of the computer industry, including executives, consultants, and pundits.

**Bob:** How about that Hackers Conference?

> **John Perry Barlow was amazed at the level of computer ignorance exhibited by the FBI agent who visited him in May, 1990.**

198

## Steve Bobker:

"It was very distinctly not for journalists, unless you count me. And I was there only because I quite literally hacked my way in. The organizers were prepared to let in a few determined folks who showed, uh, some imagination. Few did. Journalists were allowed to attend a closing session on Sunday morning that was generally boring. I remember it best because in a conversation with Bill Atkinson, I had the intelligence or stupidity to ask him if his ego ever got in the way of his programming. We're sort of friends now, but it took a few years."

It's important to draw the distinction between hackers (those who like to explore systems for the sake of learning something about those systems) and crackers (those who are out to wreak havoc by breaking into systems, deleting files, and illegally reaping financial gain).

Barlow, alarmed at the implications of computer ignorance within the FBI (and the possibility of a high-tech witch hunt), sounded the alarm on the WELL. One of the many WELL inhabitants who took note of Barlow's outcry was Mitch Kapor, who had already endured fingerprinting by the FBI.

Kapor flew to Barlow's Wyoming ranch in June, 1990, to lay the groundwork for the EFF, and Barlow wrote "Crime and Puzzlement," an article announcing the pair's intention to form a political organization intent on extending Constitutional rights to cyberspace.

The response from the computing community was astounding. Original funding for EFF was provided by Kapor and Apple co-founder Steve Wozniak. John Gilmore, one of the founders of Sun Microsystems, also contributed, and others quickly followed.

The Electronic Frontier Foundation continues to fight for a careful balance of freedom, access, and privacy throughout the networks; they've even won a few battles.

# VIRTUAL SEX

## It's virtual.

## It's kind of like sex.

## It's virtual sex.

It's a sad fact of our culture, sex sells. No, make that sex sells big. The home video market took off because people could go to their local video store and rent porno tapes to watch in the privacy of their own home. People didn't have to venture out to a seedy porno theater any longer. Similarly, the 900 exchange telephone services exploded with dial-a-porn sexual activity. Sex sells video; sex sells telephone services. Sex sells.

**Mike**: I have a friend—she's usually quite reasonable about most things—who insists that pornography contributes to violence against women and should be prohibited. Her argument is that the good of the society—and women's safety—is more important than the First Amendment. I strongly disagree with her. Even if someone could demonstrate an incontrovertible link between pornography and violence against women, I'd still disagree with her position. No one forces anyone else to buy, dial, or tune in pornography.

**Warning!** If you're squeamish about pornography and frank talk about human sexuality, skip this chapter. Don't boycott this book or its authors or its publishers or whomever sold it to you. Just skip the chapter if the subject matter offends you. And don't waste your time or ours with phone calls, E-mail, or faxes. It's unlikely any of us will change our positions. There are more important things to worry about in life than whether or not your neighbor may be reading dirty books.
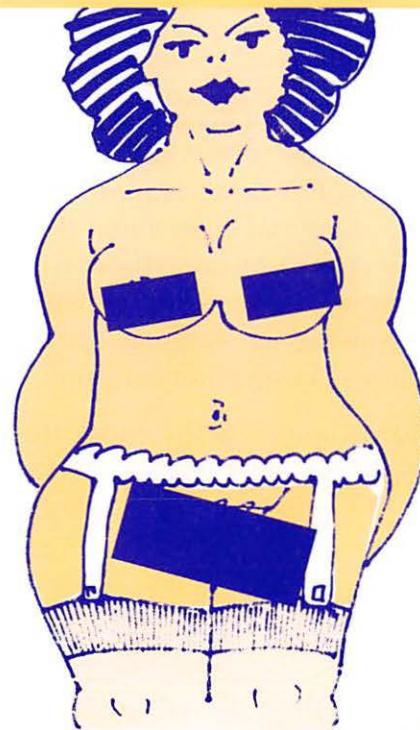
# Digital Deviations

Soon after HyperCard shipped, Chuck Farnham—our favorite dumpster diver—released a sexually-oriented HyperCard stack called, simply enough, SmutStack. It was the first interactive computer sex toy and launched Farnham on yet another career. Farnham formed a company to market interactive MacSex.

Farnham continues to explore the realms of electronic sex and has, um, diversified.

# Reactor

Mike Saenz is also active in the Macintosh-specific virtual sex arena. The creator of some of the first computer-generated comic books, Saenz is a highly respected (and very talented) computer artist. MacPlayMat was the first pornographic computer game

and it ran, of course, only on the Macintosh. Using VideoWorks Interactive (which has transmuted to Macromedia Director), Saenz was able to create pretty compelling interaction on an 800K floppy disk.

Saenz explains that he set out to explore the realm of non-violent interactive simulation and needed to use a redundant animation so it would fit on a single floppy. Sex is redundant and engaging, so the Maxi character seemed like a good fit. MacPlayMat had the feel of a weird combination of the underground comics of the 1960s and the ads for X-Ray vision glasses found in the back of mainstream comic books.

Mike Saenz released MacPlayMat at a San Francisco Macworld Expo. On the second day of the show, his booth was visited by the San Francisco Vice Squad who firmly requested that the monitors displaying this new product be turned away from the scanning eyes of attendees innocently passing by the booth. Shortly after MacPlayMat's suc-

cess at the expo, Saenz formed Reactor, a company to create and market interactive material—both sexually oriented and non-sexually oriented—for the Macintosh.

Several years after MacPlayMat's debut, Reactor released Virtual Valerie, a full-color, interactive sex toy on a CD-ROM. Virtual Valerie is to MacPlayMat as aged cheddar is to American cheese-food product. Still cheesy, but closer to the real thing.

**Bob**: I talked to Mike Saenz just the other day. What a character! He's doing another comic book—an actual paper-that-you-hold-in-your-hand-comic book—about a character he calls Donna Matrix. The big news, at least for this chapter is that Virtual Valerie: The Director's Cut will ship in a few days. I asked him what it was all about.

"Well, there was a lot of stuff that was, you know, too sick for the first one. It's all in this one. If you can think of it, we did it. And a few things you probably wouldn't think of. It's unbelievable."

OOOH HEY BABY, OH YEAH, AHHH! YESSS! YESSSSS! OOOH, AHHHHH!

I can't wait. Whether the subject matter appeals to you or not, Mike's genius designing and executing interactive stories for the Macintosh is undeniable. Reactor's three year-old PG-rated space opera Spaceship Warlock, is still one of the best (and best-selling) CD-ROM games ever. The guy is amazing.

# Virtual Reality and Virtual Sex

Forget virtual reality, virtual sex is what will make virtuality successful. The movie *The Lawnmower Man* introduced the notion of virtual sex into the mainstream. Two characters jacked-into a computer system and had sex in there. Sort of. If the computer nerds have their way, we'll all be having sex with computers in another ten years or so. Make no mistake, it will be having sex with a computer, not with another person.

You'll struggle into a skin-tight bodysuit lined on the outside with electronic sensors that monitor your position and movements as well as provide feedback about other objects with which you come into contact. The inside of the suit will be lined with teensy-weensy vibrators that will receive the feedback from the outside
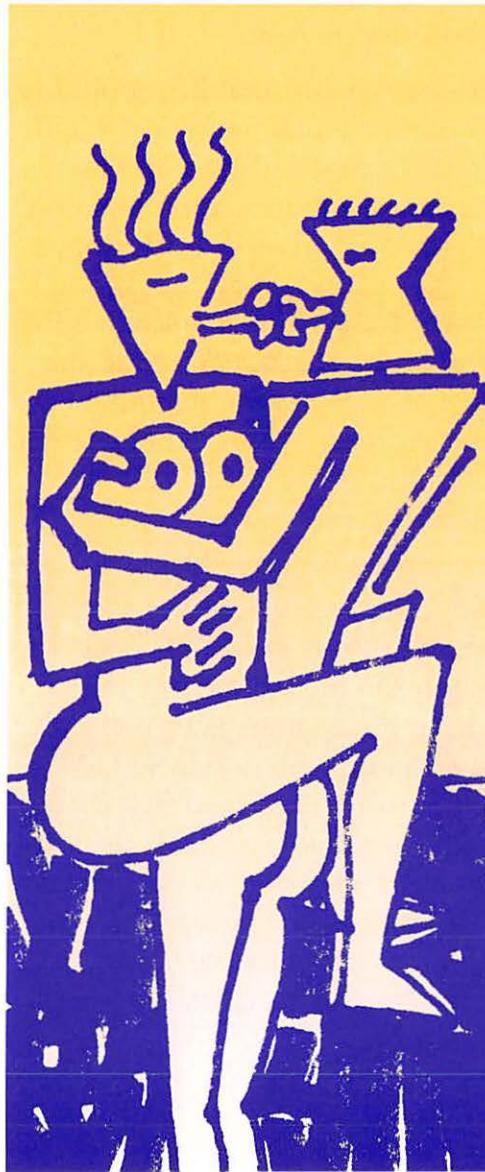
sensors and respond accordingly. As you reach out to touch something, you'll be able to "feel" the weight, surfaces, texture, and edges of the object. Since this all takes place inside a computer, everything you touch, smell, see, hear, and experience will be an object. Actually, everything you see will be merely polygons. This technology will give new meaning to AT&T's "Reach out and touch someone" because your computer system will be networked to other computer systems over a worldwide network using the telephone lines.

This technology,

of course, will have many applications, but virtual sex will be the first really successful one.

The technology itself is based around two relatively simple concepts: the computer system's sensors emit signals out into cyberspace and the system's effectors receive the signals and transmit the information to the user. There are any number of ways to accomplish this information loop—although the notion of the mini-vibrators is perhaps the most appealing.

Compressed air can be used, for instance, to inflate and deflate the appropriate regions of the
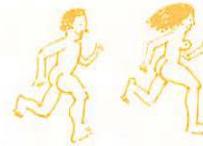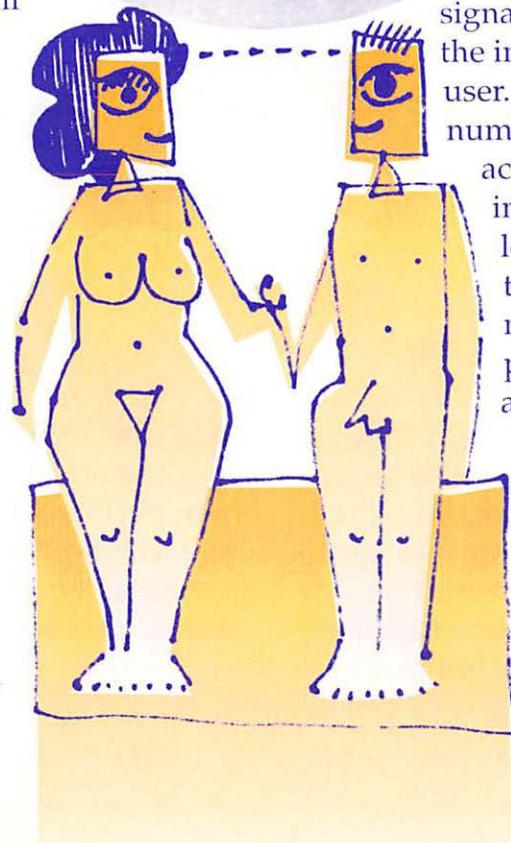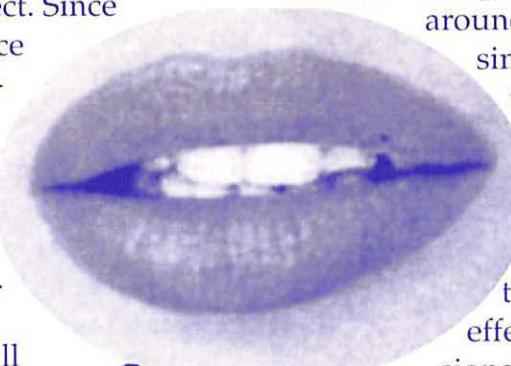
bodysuit, giving new meaning to Huxley's pneumatic *Brave New World*. Special metallic alloys can be used that have a "memory" when heated, allowing specific degrees of bend to be achieved.

In Howard Rheingold's *Virtual Reality*, he uses the term "puppet" to refer to your presence in this virtual world. He points out that loads of fun can be had by remapping your bodysuit's effectors. You could, for instance, remap your genital sensors to those on the palm of your hand, resulting in sexual stimulation whenever you shake hands with someone. The possibilities are virtually boundless (bad pun intended).
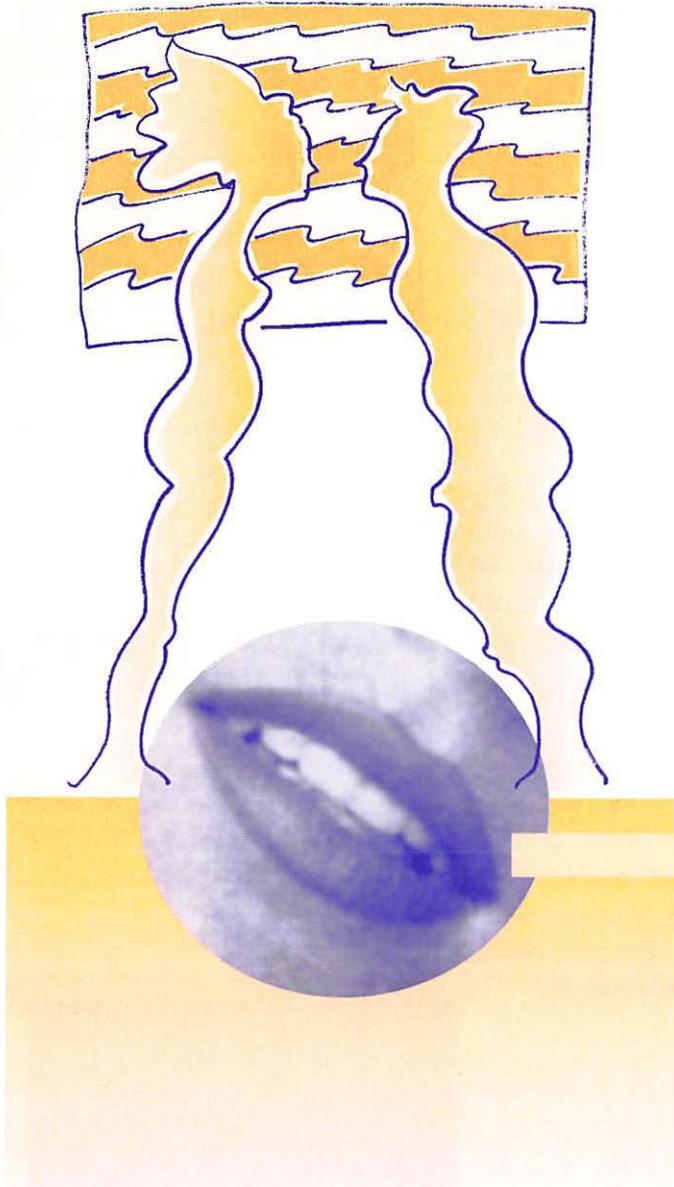
# Online Sex

While that kind of stuff is still years away, back here in the present you can have a tamer form of virtual sex right on America Online. Yes, popular family-oriented America Online has been putting the lead into online sex's pencil since it came on the scene four years ago. Whether through shrewd planning or just dumb luck, America Online has become the online sex capital of the known universe.

We don't know if it was planned, but America Online has two features that make it conducive to electronic intercourse: the Instant Message and the private room. An Instant Message (IM to AOL regulars) is a private message to anyone on the system. That's pretty good, but the concept of "private rooms" is brilliant.
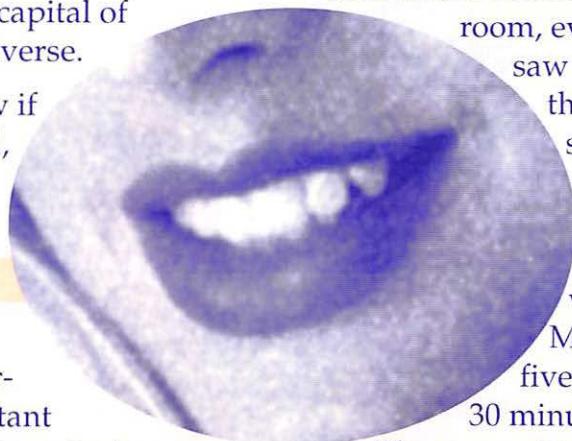
Anyone can create a private room, but only people who know the password (which you can send them via Instant Message) can get in.

**Bob**: I logged on to AOL to check it out, using the handle "Sexy." (On AOL, you can use any "handle" you want.) That handle, Sexy, identified me on the system. When I entered a public room, everyone there saw a message on their screens saying that "Sexy" had arrived. I was propositioned via Instant Message at least five times during 30 minutes online. The propositions ranged from the blunt ("Want to go private with me?") to one so crude we couldn't possibly print it, even in a book as lowbrow as

this. (The sad part is, the guy didn't bother to ask if I was male or female before describing the lascivious things he wanted to do to my body!) And that was just in the public rooms! Suffice it to say that the stuff that goes on in those private rooms is best left to the imagination.

**Virtual sex is here today.**

# MACINTOSH AGENTS

Agent technology—it'll probably be cool, once we get it.

By now, almost everyone has seen Apple Computer's Knowledge Navigator video at least twice. It's a great video and introduces the concept of computerized agents. In 25 years or so, we'll probably be using anthropomorphized agents. We'll probably be employing them, because by then they will most likely be intelligent, at least semi-autonomous, unionized, and enjoy collective bargaining privileges.

## The Anthropomorphism of Computers

The anthropomorphization of computers is disturbing to many, perhaps because it's hard to conceptualize an anthropomorphized computer without the quality of intelligence. For years, pundits in the computer industry have told us

that researchers were on the verge of creating intelligence in their machines. During the last two decades, we've been told constantly that artificial intelligence—and, specifically, a thinking machine capable of more and better thought than its creators—was five years out or at the longest, a decade away.

As a culture, we have accepted and even adopted this anthropomorphization of computers with little resistance. Many Macintosh users have named their computers and spend an inordinate amount of time with their electronic friends. We personalize our electronic workspaces with customized backgrounds and specialized sounds for various system functions.

Not only are we anthropomorphiz-

ing our computers, we're also mechanizing our personal relationships. For example, we talk about interfacing with our associates and we solicit feedback from them.

Most likely, this started when we began to refer to the computer as having memory.

The anthropomorphism of the computer seems to have peaked with Sculley's idea of the Knowledge Navigator. Sculley's vision focuses on the computer as an "electronic buddy" with human traits that carries out our bidding, without question or complaint. In other words, the perfect slave.

**Q:**

**Bob**: How do you feel about Sculley leaving? Were you sad to see him go?

**A:**

**Guy Kawasaki**:

"I have mixed feelings about what he did, and therefore, about him going. On one hand, he did quadruple the value of the company. Without him, the company was headed for a deep funk.

On the other hand, Apple is more than a publicly-traded company. It's also part of America's entrepreneurial lore, and I'm not sure entrepreneurship is still alive at Apple. But, I couldn't have done a better job than John, so who am I to judge him?"

**A:**

**Don Crabb**:

"Sad. John has not gotten credit for creating a revitalized Apple when he took over from Steve. Nor has he gotten credit for laying out Apple's consumer strategies that will eventually be the company's mainstream business. But given Apple's current operational problems, a change was due regardless of how good John had been for Apple."

**A:**

**Steve Bobker**:

"No, it was time for John to move on. Although John Sculley was never truly part of the personal computer revolution, he was an excellent leader for many years. At the end, he became too enamored with the toys."

**Bob**: What do you think of Spindler? Is he going to be good for the Macintosh and/or good for Apple as a company?

**Steve Bobker:**

"The first time I heard Mike speak, he was prouder of currency manipulation than he was of the sales of Apple computers. That says a lot. He's a bottom-line guy. He's also a workaholic, which is both good and bad. In the short term, he'll be good for Apple, but in the long term, he'll be bad for it."

**Guy Kawasaki:**

"The perception of Mike as 'merely' a bottom-line, hardcore manager is unfair. The press, because of its limited mental faculties, seems to have to cubbyhole people.

"He's as visionary and imaginative as any executive in the computer business. I like him a lot. He'll be good for Apple and Macintosh and he's inheriting a much less attractive situation than John."

"John inherited a new ship—albeit one needing debugging. Mike is inheriting an old ship and has to build a new one. Who would you rather be?"

**Don Crabb:**

"He has the deserved reputation of being very smart and very no nonsense. Apple needs to cut its overhead and consolidate its businesses. It's been flopping around trying to do too many things over the last couple of years. My concern is that Mike doesn't have enough experience in product development and so won't be able to broker the right new mix of products. But if anyone can cut through the product BS that has consumed Apple in recent years and kill the silly 'not-invented here' syndrome, it's Mike."

## It's Nothing But a Box Full of Switches

It's difficult for some computer enthusiasts to remember that a computer is little more than a series of electronic switches that open and close at lightning fast speeds. Often, computer users talk about computers as if they're capable of more advanced thinking than humans. Many of the artificial intelligence researchers posit that computers are potentially more capable of thought than humans because computer memory is much less fallible than human memory. Indeed, computer memory exists as distinct pieces that, barring system crashes or media failure, are subject to total recall. Human memory, on the other hand, is fuzzy. It's what Theodore Roszak refers to as:
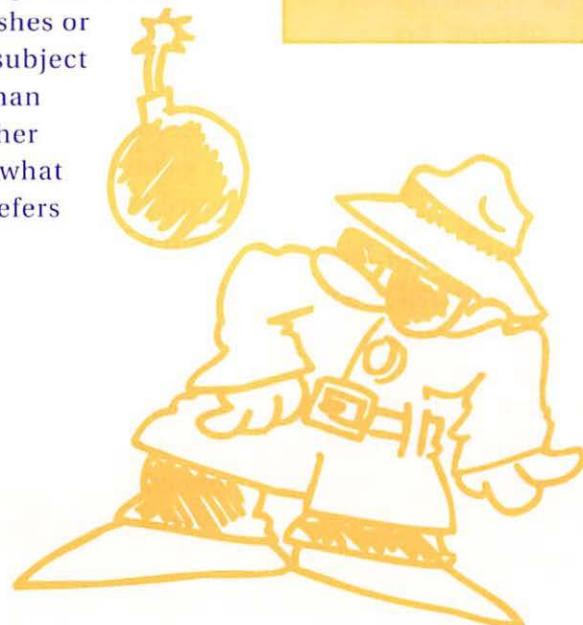
"... the invisible psychic adhesive that holds our identity together from moment to moment... it is fluid rather than granular, more like a wave than a particle. Like a wave, it spreads through the mind, puddling up here and there in odd personal associations that may be of the most inexplicable kind."

Stanford University professor Avron Barr, for example, insists:

"The human mind not only is limited in its storage and processing capacity, but it also has known bugs; it is easily misled, stubborn, and even blind to the truth.... Intelligent systems, built for computer and communications technology, will someday know more than any individual human being about what is going on in complex enterprises involving millions of people."

209

Views such as Barr's are based on the notion that humans are obsolete; they reduce thought to simple information processing. If thought and knowledge are indeed nothing more than information processing, then computers are better tools for the job and we may as well all go into hibernation. We've yet to see, however, any evidence that computers are capable of anything more than advanced information processing and inference. Information processing and inference do not intelligence (or even knowledge) make. So maybe there's hope for us yet.

We think with ideas—not with information or inference—and ideas are generated by other ideas, not by facts, data, or other information.

Man is a creative being by virtue of his ideas. The computer is nothing more than just another of man's ideas. Roszak addresses this point adroitly by pointing to the human mind's capacity for self-transcendence:

"The mind, unlike any computer anyone has even imagined building, is gifted with the power of irrepressible self-transcendence. It is the greatest of all escape artists, constantly eluding its own efforts at self-comprehension. It can form ideas about its own ideas, including its ideas about itself. But having done that, it has already occupied new ground; in its next effort to understand its own nature, it will have to reach out still further. This makes it impossible to invent a machine that will be the mind's equal, let alone its successor. The computer can only be one more idea in the imagination of its creator."

While the computer is just another idea of its creator, its meta-tool nature—in that computers are tools used to create other tools—is what fascinates and absorbs the initiated. This phenomenon is especially apparent in the Macintosh community as the tool itself—as well as the tools it is used to create—are regenerative and build upon previous iterations.

## What is an Agent Anyway?

If you haven't seen the Knowledge Navigator video, check it out. Anthropomorphism aside, it's worth studying to get a grasp of where some of Apple's big thinkers believe technology will be within our lifetimes. Just remember that it's still just software flipping switches on and off.

John Sculley's concept of an agent, as outlined in his book *Odyssey* and featured in Apple-produced videos

including *Knowledge Navigator, Project 2000, HyperCard 1992,* and *The Grey Flannel Navigator,* is a device that provides us with a guide that helps us access vast stores of information. More important, the agent would be able to ascertain which bits of information would be important to us and which ones would not.

Consider this rather pedestrian example. You're a smart business person. You realize that information, and access to that information, helps you maintain an edge on your competition. You also realize that the best way to access information is via the telecommunications networks, but your experience with those is like being in a dark room filled with rack after rack of file cards equipped with only a small, single-beam flashlight. The only thing you can see is what the flashlight is pointed at: the front card where your light happens to fall. A software agent would observe the way you navigate online, what your interests are, which networks you use for what information, and the like. Initially, you would do something like flag important topics and the

software would "learn" to associate levels of importance with different information. In no way is this intelligence—it's simply pattern matching and inference.

As you continued to go about your online research and ruminations, your ever-present, ever-diligent agent would be there with you looking over your shoulder. From time to time, it would request confirmation about the importance level of certain information. Something to the effect of popping up a dialog box that says, "You seem to be interested in 'agents' specifically related to computers, but not 'agents' when related to literary or real estate. Should I flag this concept now?" The dialog box would contain buttons labeled "Yes," "No," "Cancel," and maybe "Interpret" (the Interpret button allowing you to specify additional conditions).

Thus, the agent begins to "understand" what you are searching for and goes off on its own to find this information; it retrieves data that relates to the search parameters it has developed through queries to you. After a time, the agent

"returns" and provides you with a summary of what it has found. You can examine this information in greater detail, discard what you don't need, and send the agent out again. (You could also have the agent adjust the search parameters).

The agent is a semi-intelligent helper that could significantly increase your productivity; the agent enables you to spend your time *using* data, not *searching* for data. It further reduces your involvement in the search for data in that you don't have to specify word pairings or phrases; you simply provide underlying concepts and general search parameters.

The next step is when agents can communicate with each other. Imagine this scenario: Agents become specialists in certain areas and can freely communicate and exchange information with other agents. For instance, Alan Kay's agent's knowledge about agents would probably be much

211

more powerful than ours. What if Bob's agent could communicate with Alan's agent and request assistance in navigating through data on agents in cyberspace? The resources required for Bob's search for information would be greatly reduced. Bob's productivity would increase dramatically. (He probably would have to "pay" Alan Kay, Alan Kay's agent, and/or his own agent).

Imagine being able to tap into to a vast international data network to research, for example, the positions of various political candidates on economics. Instead of having to speak the languages of the various search and retrieval engines (generally unique to each online service), you could simply type (or say), "What are the economic policies of candidate A as compared to candidate B?" Your agent would handle the search for this data and provide you with as much summary and detail information as you wished.

This process sounds awfully like John Sculley's much-ballyhooed Knowledge Navigator, doesn't it? Before you cast this aside as more pie-in-the-sky noodling, you

should know that such a system already exists. Anthropomorphic talking heads will have to wait for a few years, but the central concept is already up and running.

## The Connection Machine Connection

It's called the Connection Machine. The Connection Machine is a text search-and-retrieval engine designed to enable users to communicate their queries in English, rather than the archaic search commands commonly used on computer systems. The Connection Machine relies on the parallel-processing computers from Cambridge, Massachusetts-based Thinking Machines Corporation as the "back-end" of the system. This is combined with an English language query interface "front-end." The Connection Machine enables a Macintosh user, with special software, to access the computing power of 32,000 small processors. The computer paradigm is that of applying a dedicated processor to each data element of a given problem.

Once the search from the original query has provided a collection of "hits" matching the search criteria, you can narrow the query with the "relevance feedback" feature. Out of the initial "hits," you select the relevant articles to instruct the machine to go out and fetch more articles similar to those you selected.

Although it seems that the machine and the software it runs are intelligent, artificial intelligence doesn't enter into the picture. At least not yet. Of course, once artificial intelligence becomes a reality, tools like the Connection Machine become an order of magnitude more useful.

Right now, the importance of the Connection Machine lies in its wresting the control of access to information from the information brokers and placing it in the hands of individuals.
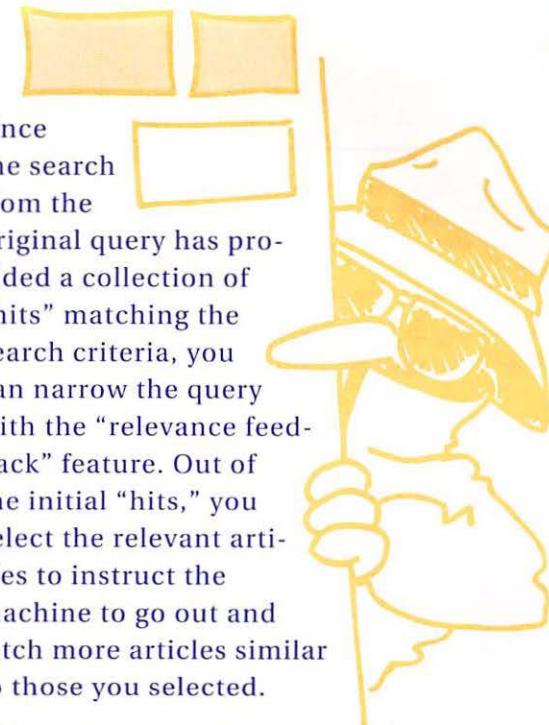
## Macintosh Agents: Today and Tomorrow

Sad to say, agent technology today is a mere glimmer in the eye of Macintosh users. There have been several products—most notably No Hands Software's Magnet—that claim to use agent technology, but don't be fooled. So far, we haven't seen a Mac product that truly deserved to be called an agent. Sure you can do a few cool agent-like things with UserLand Frontier or even QuicKeys, you still can't build-in much intelligence. Yet.

AppleScript and AppleEvents are making it easier and easier for an agent to exist in your Macintosh. With rapid advances being made on all fronts—Macintosh processing power, artificial intelligence, inter-process communication, neural networks, and so forth—it seems likely we'll see real intelligent agents for the Macintosh before the year 2000. We can't wait.
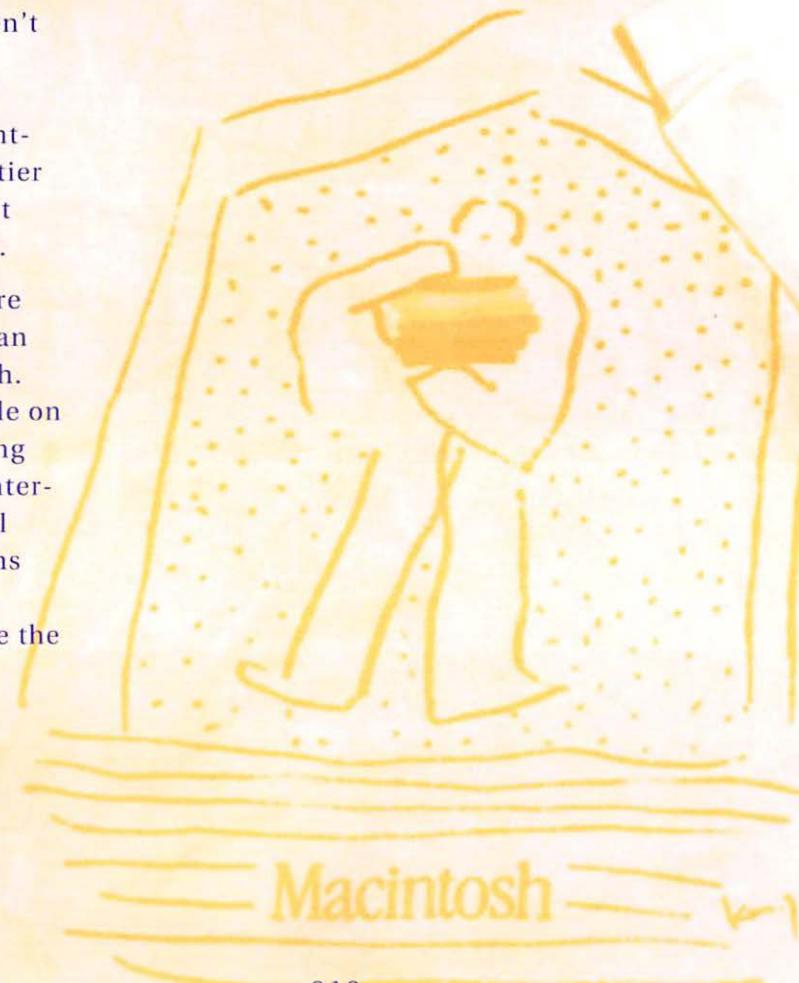
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# BILL GATES:

# Winner or Wiener

## Is he a winner or a wiener? You be the judge.

Bill Gates III, boy billionaire, is one of the richest people in the United States. Even better, he's made his money on his own, with the minor exception of some savvy moves by his politically astute and socially acceptable mother. Gates exemplifies our culture's notion of "success" and is a better Horatio Alger story than either of Apple's Steves. But nobody likes him. The intense dislike almost everyone feels for Gates is truly a mystery; we really should like the guy.

We all hate Bill Gates III for the same reason we all hated the class genius when we were in high school: he messed up the bell curve. Bill Gates was the kind of kid who read the entire encyclopedia by the third grade. What's worse is that he liked it. There are many people in the computer industry who would probably like to whip the tar out of Bill, but most of us would just like to slap him around a little.

We all have personal habits that make others wonder about us: Gates seems to have more than his fair share. He can't sit still and rocks continuously. His glasses always have fingerprints all over the lenses. His hair looks as if he washes it with used 30-weight motor oil. He's a nerd and you'll never convince us that he wasn't the model for Bryce in *Max Headroom*. Bill Gates is a walking cartoon and this should endear him to us, but it doesn't.

Bill Gates' public persona of the archetypal harmless and well-meaning computer nerd doesn't endear him to us either, because it's a false patina. Bill Gates is a slick salesman and a shark

On January 24th, Apple Computer will Introduce Macintosh

215
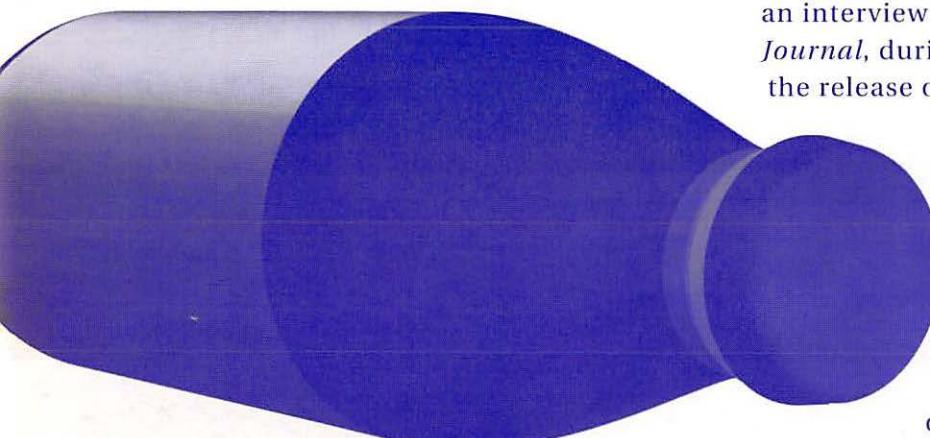
when he smells money, all under the costume of the brilliant clown. If Bill Gates is a computer genius— and he probably is—he's an even better salesman and carny barker. Who else could convince every major player in the computer industry that his company is their ally, their ace-in-the-hole, and then proceed to screw them to the wall? No, when you get into bed with Gates, there's no question who is on top.

Now we're not saying that Gates isn't a true nerd or even that he works at it. His nerdiness isn't an act; it's who he really is. What we're saying is that there's a whole lot more to this complex character than can be summed up in the label "genius nerd."

Bill Gates is dangerous, but not in the way you may think. He simply wants to control the entire computer market: not just operating systems, not just multimedia, not just applications, not just whatever may come up next. Everything. He wants it all, and that's an idea that's pretty hard to wrap your mind around.

Gates also has a knack for assembling other sharks around him. Steve Ballmer, for example, worked at Procter & Gamble before going to work for Microsoft. While at Procter & Gamble, Ballmer was assigned to the Duncan Hines cake-mix product line. His claim to fame while at P & G was redesigning the chocolate cake boxes so they took up more shelf space. In an interview with the *Wall Street Journal*, during the fiasco that was the release of Microsoft Word 3.0 for the Macintosh, Ballmer was quoted as saying, "The whole idea was to hog shelf space. You know, squeeze the other people off the shelf. Come to think of it, that's sort of the

same thing we're trying to do at Microsoft."

Microsoft was formed in the summer of 1975 as a partnership between Bill Gates and Paul Allen, friends since childhood. The two had developed a version of BASIC during a two-month period while they were both at Harvard. The young company's first customer was MITS who needed BASIC for its Altair computer, which was based on the Intel 8080 chip. Microsoft agreed to exclusively license its

BASIC to MITS for a ten-year period. MITS was free to sublicense the software to third parties, but first had to obtain a non-disclosure agreement prohibiting the unauthorized disclosure of Microsoft's BASIC. MITS agreed to use its "best efforts to license, promote, and commercialize" BASIC. Gates' father was a lawyer and trained his son well. Microsoft inserted a clause in the agreement that allowed the company to terminate the contract if MITS didn't use its "best efforts."

In a pattern that has come to character-

ize Microsoft, Gates and Allen shipped a barely usable version of BASIC to MITS for inclusion with its Altair. Allen subsequently spent a lot of time finishing and polishing Microsoft BASIC, but in the meantime, Altair buyers

> **In a pattern that has come to characterize Microsoft, Gates and Allen shipped a barely usable version of BASIC to MITS for inclusion with its Altair.**

grew frustrated and simply made copies of the Microsoft software when they couldn't get it on time.

Gates was outraged at these impudent thieves and published a letter in the Altair newsletter (published by David Bunnell) venting his spleen about the situation and ostracizing the entire user community. The users responded by saying that there was nothing different in what they were doing than when they taped music from a radio. Besides, they said, BASIC belonged in the public domain, especially since Gates and Allen had created the software on a Harvard computer that was funded by the government.

The piracy of the Altair BASIC probably helped promote both the computer itself and the BASIC programming language more than it hurt Microsoft; the community outrage from being called unprincipled thieves hurt both companies more than the piracy. This impor-



On January 24th.

tance of community goodwill is something that continues to confound Gates to this day.

Two months after his initial letter was published in the Altair newsletter, Gates published a follow-up. The follow-up letter "clarified" Gates' position. It wasn't his intention to indict the entire computer hobbyist community, even if many copies of BASIC were not obtained legitimately. By now BASIC had spread throughout the country, and Gates realized that BASIC would become a base for developing more software rather than an end-product in and of itself. By the end of that year (1976), Microsoft was selling versions of BASIC to both General Electric and National Cash Register.

There was only one problem. Microsoft couldn't sell its 8080 BASIC without the approval of MITS. For Gates this was only a speedbump in the way of the Microsoft express. In April, 1977, Gates notified MITS that Microsoft was terminating their agreement for reasons that included MITS not using its "best efforts" to commercialize BASIC and also that they did not get non-disclosure agreements from all the Altair owners that had pirated BASIC. A series of legal battles ensued, and MITS founder Ed Roberts sold the company to Pertec. Pertec informed Microsoft that it considered all other vendors to be competitors and would no longer promote BASIC. Gates argued that this was contrary to the "best efforts" clause of the contract, and won.

In 1980, IBM asked Microsoft to write a ROM-based BASIC for its forthcoming personal computer. Gates quickly agreed. Because of development time constraints, IBM also needed an operating system. IBM representatives—for reasons that still aren't quite clear, but we'd bet even money it had something to do with something Gates either

218

said or, more likely, didn't say—were under the impression that Microsoft owned the rights to Digital Research's CP/M source code. Not only did Microsoft not have the rights to

CP/M, a 16-bit version of CP/M didn't even exist yet.

Throughout the late 1970s, Microsoft and Digital Research had enjoyed an almost symbiotic relationship. Microsoft wasn't interested in doing operating systems and Digital Research wasn't interested in doing languages. In late 1979, however, Digital Research started bundling a version of BASIC with its CP/M operating system. Gates struck an agreement with AT&T to license UNIX, and the Microsoft-Digital Research symbiosis was history. Nevertheless, Gates still called Digital Research's Gary Kildall about using CP/M in the IBM PC. Gates didn't like sending business to a competitor, but couldn't pass up the IBM deal for BASIC.

Industry legend has it that Kildall was out joyriding in his

airplane when IBM came calling, and missed out on the IBM deal. IBM went back to Microsoft and as part of the deal, made the creation or acquisition of an operating system Microsoft's problem.

Tim Patterson's Seattle Computer Products had just about finished an operating system for the 16-bit Intel 8088 called 86-QDOS. Microsoft didn't know about this until Patterson contacted Paul Allen and asked if Microsoft wanted to adapt its BASIC for QDOS. Nobody at Microsoft bothered to tell Patterson that IBM was shopping for an operating system, and in early 1981, Seattle Computer Products granted Microsoft a non-exclusive license for the operating system. Microsoft agreed to pay Seattle Computer Products $15,000 for each sublicense that included source code and $10,000 for signing the agreement. Microsoft sublicensed the operating system to only one customer, IBM, and paid Seattle Computer

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Bill Gates' strategy has

*Products a total of only $25,000.*

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it later.

*known, although Microsoft received a royalty on every copy of DOS that IBM sold.* By 1991, Microsoft was making more than $200 million annually on MS-DOS sales.

Bill Gates' strategy has always been to release a mediocre product, garner industry support for it as the standard, and then worry about polishing it later. This tends to squeeze out the smaller players in any market segment and has usually worked. It usually takes Microsoft three or four major revisions to get something right, but eventually they do.

In early 1982, Apple provided Microsoft with Macintosh prototypes. Ever the astute businessman, Gates recognized the future when he saw it and invested Microsoft's resources heavily in Macintosh. On January 22, 1982, Microsoft and Apple signed an agreement to work together, and Microsoft had an entire team of programmers working on Mac applications under Charles Simonyi. If you've ever wondered why the Mac's Alarm Clock and Calculator desk accessories are so crummy, it's because they were developed by Microsoft. By January, 1984, Microsoft's spreadsheet, MultiPlan, and a version of Microsoft BASIC were ready to ship with the first Macintosh.

When asked about the similarities between Windows and the Macintosh, Gates used to rattle off that it was like he and Steve Jobs had a rich neighbor down the street (Xerox). When he broke into Xerox's house to steal the television set, however, he discovered that Jobs had beaten him to it.

By 1985, the first version of Windows was out, and although it was a serious flop, Apple was pissed because Microsoft stole the ideas for Windows that Apple itself had already stolen fair-and-square from Xerox. Apple threatened to sue Microsoft for copyright violation and Gates countered by threatening to stop development on Excel and Word. At the time, Macintosh sales were still lagging, and Apple desperately needed software programs like Excel and Word to persuade people to buy Macs. Apple had no choice but to eat its threats of lawsuits and on November 22, 1985, Microsoft and Apple signed an agreement allowing Microsoft to use the Macintosh-like interface elements—including overlapping windows and pull-down menus—royalty-free. All Apple got in return for giving Microsoft the keys to its interface castle was a vague promise from Microsoft that it would fix the bugs in Word.

With his left hand firmly clenched around John Sculley's throat, Bill Gates held a pistol in his right hand flush against Sculley's temple. This pistol had a name: BASIC.

Sculley wanted Apple to market a particular new and very excellent version of the BASIC programming language for Macintosh, called MacBasic. It had been developed by Mac programmer extraordinaire Donn Denman. When Gates got wind of Apple's intention to sell a programming language for one of its computers, he got very territorial. He met with Sculley and threatened to cut off Apple's license for Applesoft BASIC, the version of BASIC created by Microsoft and licensed by Apple for inclusion in every Apple II's ROM. Remember, at this time Macintosh sales were languishing—the Mac Plus hadn't been introduced yet—and the Apple II was virtually Apple Computer's sole income source. Sculley quickly killed MacBasic and signed over the rights to the MacBasic name to Microsoft. Apple didn't just lose MacBasic; the company lost a lot of morale and several key software engineers resigned in disgust.

Bill Gates is ruthless because he gets away with it. It's not his fault; if anyone can be blamed it's all the supposedly high-powered, iron-willed negotiators who have gone toe-to-toe with him and backed down. We've pretty much created Bill Gates in his own image, and that's why he's both a wiener and a winner.



On January 24th, Apple Computer will introduce

**With his left hand firmly clenched around John Sculley's throat, Bill Gates held a pistol in his right hand flush against Sculley's temple.**

## Bob: What do you think of Bill Gates? Is Microsoft "the enemy?"

**Steve Bobker:**

"I admire Bill Gates. Bill was the ultimate nerd, but has grown remarkably. He has developed a company that produces mediocre software, but that is a marketing giant.

"He is one of the most focused people alive. He drives very hard and plays hard. One day, the FTC might find that Microsoft didn't play fair, but right now I don't see it. I expect Bill Gates and Microsoft to be a major power (if not the

## Bill Gates is ruthless because he gets away with it.

only one) for the rest of my working life.

"Yet, we must recognize that most of their products are not that good. Word is not the best word proces-

sor. Excel is not the best spreadsheet. But they dominate their markets anyway.

"Bill Gates and 4 or 5 others run Microsoft; Bill is firmly in the driver's seat and calls all the shots. He's still a nerd, but he has transcended his image (although I suspect he somewhat enjoys his nerd image and has used it successfully to encourage his opponents to underestimate him just before he crushes them).

"Although he is a little too self-centered for me to vote for, I'm not sure that he couldn't convert into a good politician someday. I'd rather have President Bill Gates than President Ross Perot, that's for sure. All-in-all, Bill Gates is a sterling example of how someone can grow and change for the better.

"As for Microsoft being the enemy, I say 'No.' Microsoft is one planet in our firmament. Apple is another. They revolve in the same general galaxy. To consider Microsoft 'the enemy' is to commit suicide. You can't fight Microsoft and win. You can work with them and win.

**Mustard**

NET WT 8 OZ 227g

WATER, VINEGAR, MUSTARD SEED. SALT, TURMERIC, SPICES, NATURAL FLAVOR.

"Windows sucks, but that doesn't mean that Microsoft is the enemy.

"Microsoft is one company that Apple should have a full-time team studying (if they don't already). All of us can learn from the Microsoft model, marketing, strategies, and so on."

**Don Crabb:**

"William H. Gates III is the smartest guy in the computer business. Competitors who constantly underestimate Gates are littering the bonefield of our industry as Microsoft buries them alive. The latest is Oracle, which now thinks it can out Microsoft Gates with client-server computing. Not a chance. As for MS being the enemy, my question is always, 'the enemy of whom?' Is Microsoft ruthless? Probably. Is Microsoft a tough competitor? Surely. Is Microsoft bad for the Macintosh industry? No way. MS has put the fire under a lot of other Mac software companies (does the name Claris ring a bell?), making them come up with better software and get it to their customers more quickly. If that's bad for the Mac industry, I surely can't see it and neither can the millions of MS customers.

"As to MS and their Windows product, Apple has only one company to blame for this and it's Apple. That's probably the dumbest decision that Sculley ever made, allowing himself to be buffaloed by Gates into licensing the Finder-like elements of Windows to him. At the time, Gates threatened to pull out of Mac software development if he didn't get the license. What a masterful bluff on Gates part!"



On January 24th, Apple Computer will Introduce Macintosh

# Underground Glossary

**Apple**: the place and state of mind that used to be like the Boy Scouts without the adult supervision. Now it's pretty much like anywhere else.

**accelerator**: inexpensive alternative to overpriced Apple hardware upgrades.

**access time**: the speed at which hard drive vendors claim (lie) that their drives can retrieve information.

**active matrix**: the sequel to Reactor's Donna Matrix.

**ACIUS**: Apple Computer Inc.'s Used Software.

**Adobe**: means "mud" in Spanish.

**alias**: what Windows users wish all their icons weren't.

**America Online**: safe sex, electronically.

**Apple Menu**: what you look at before you order lunch in Apple's executive dining room.

**AppleTalk**: finally more than a long printer cable.

**A/UX**: UNIX with an interface. Sort of.

**back up**: something you don't do often enough.

**benchmark**: what hardware vendors cheat on to make their products look faster than they are.

**beta**: software you wouldn't show your mother, but have no problem subjecting strangers to; sometimes labeled "version 1.0."

**bomb**: something you do too often.

**bug**: product attribute generally referred to by marketing weasels as a "feature."

**byte**: the missing piece of the Apple logo.

**cache**: what you had in your pocket before you went to Macworld Expo.

**character**: a Mac zealot.

**Claris**: what used to be BCIUS: Bill Campbell's Inherited Used Software. (Bill was the first CEO at Claris.)

**Clipboard**: a temporary holding place for information before it goes in the trash can.

**clock speed**: a rationalization software companies use to explain why their software runs so slowly.

**compatible**: when software works with other software; rare.

**CompuServe Navigator**: yet another way to crash your computer. (Doc McGraw calls it CompuServe "Naggrivator.")

**Control key**: added to Macintosh keyboard after Jobs ouster.

**crash**: see bomb.

**database**: electronic equivalent of a drawer full of paper scraps.

**debugging**: the phase of software development that begins after version 1.0 of a product ships. Usually starts around the third week of August and January (post Macworld Expo).

**dialog box**: onscreen annoyance that should have been a floating palette.

**documentation**: filler that comes with software—vendors use it to gain more shelf space.

**emulation**: when one computer impersonates another, very slowly.

**extension**: a post-pubescent INIT; (see also: bomb).

**fragmentation**: Apple's current product line.

**Font/DA Mover**: quaint artifact of System 6.

**Gates, William III**: a billion dollar bill.

**groupware**: fashions favored by groupies.

**HyperCard**: either System software or a program construction set, depending on whom you ask.

**IAC**: yet another TLA.

**INIT conflict**: more annoying than an hour with Rush Limbaugh (but only a little).

**interface**: what Apple stole from Xerox.

**ISDN**: I Still Don't Know.

**Kermit**: a frog.

**Linotronic**: world's most expensive laser printer.

**MacWEEK**: lie about how many Macs you manage to get a free subscription.

**Macworld Expo**: where all your cache goes.

**marketing**: what the suits think an interface is for.

**MS-DOS**: primitive user-hostile operating system.

**multimedia**: what the suits use to take up time when they don't have anything to say.

**multitasking**: the ability to walk and chew gum at the same time.

**non-disclosure**: guaranteed free advertising.

**Newton**: either the father of modern physics or an expensive hand-held device for mangling words.

**Q:**

**Bob:** What do you think of the Newton?

**A:**

**,Don Crabb:**
"I love it. Newton Intelligence is one direction that a New Finder for the Mac ought to take. While the machine won't make Apple a bundle, licensing, software, network services, etc., will, and put Apple headlong into the consumer personal electronics market. I am annoyed, though, that so many dealers chose to penalize early adopters by charging a surcharge for the MessagePad. That's bad business because you want to reward those folks so they will buy lots of extra doodads later on. As Apple moves into this personal electronics business, they will need to figure out how to better handle their deal-ers."

**A:**

**Steve Bobker:**
"I love my Newton.

"Newton has serious problems and has been poorly handled by Apple. I love it anyway. On a recent trip to the hospital, I could have taken my PowerBook, but I took my Newton instead.

"Newton technology will change the world, although the Newton itself is seriously flawed and it may not be Apple that ends up running with it. Newton will change the way we all work.

"My wife uses her Newton extensively. She's involved in fashion design and her Newton is a great sketch pad and personal organizer. We both like them, but we also recognize their limitations, which are many and severe. It's beginning to look like Apple doesn't have a clue."

On January 24th, Apple Computer will introduce Macintosh. And you'll see why 1984

**Pink**: what your face turns when you see the price of a fully configured Quadra.

**pirate**: the computerized equivalent of baseball card collector. Also, free advertising for software vendors.

**PostScript**: What we'll have to write for the Apple story if the PowerPC doesn't take off.

**Prodigy**: the world's worst online service; (what do you expect from IBM and Sears?).

**Quadra**: should have been called IIfx (for "too f [we know what you're thinking, but you're wrong] fantastically expensive"), but that name was already taken.

**QuickTime**: pornography in a postage-stamp sized window.

**shareware**: line of clothing from Sonny Bono's ex.

**Taligent**: Apple and IBM joining forces to battle the evil empire.

**TLA**: Three Letter Acronym; a device used to confuse the "common man" and make experts sound like they know something that other people don't.

**TrueType**: what Apple used to beat up Adobe; proof that Windows users are stupid.

**t-shirt**: the first step in the software development process; used to get venture capital.

**UNIX**: multi-user-hostile operating system.

**vaporware**: software that's heard (of) but not seen.

**virtual memory**: a ploy by Apple to sell more RAM.

**virtual reality**: buzzword for raising venture capital in the 1990s.

**Windows**: Macintosh circa 1983.

**WYSIWYG**: What You See Is What You Get; should probably be WYSISSTWYG (What You See Is Somewhat Similar To What You Get).

**Xerox PARC**: birthplace of the Macintosh user interface.

**Q:**

**Bob:**
You left Apple in 1987. How are things different these days?

**A:**

**Guy Kawasaki:**

"When I worked for Apple, the most important employees had names like Andy, Steve, and Bill. Now the most important employees have names like Trixie and Biff. You know what I mean?"

**Bob:**
Now I'd like to play a little word association game with you. I'll say a word, you tell me the first thing that pops into your head:

| **Bob:** | **Bob:** | **Bob:** | **Bob:** | **Bob:** | **Bob:** |
|---|---|---|---|---|---|
| Newton | HyperCard | Ashton•Tate | Quadra | *MacUser* | QuickTime |
| **Guy:** | **Guy:** | **Guy:** | **Guy:** | **Guy:** | **Guy:** |
| Fat-free fig | Bundle | Revenge | F15 | Conflict of Interest | Turn off INIT |

"Our goal is to put Macintosh in the hands of as many people as possible."

*John Sculley*

On January 24th,
Apple Computer will introduce:
Macintosh.
And you'll see why 1984
won't be like "1984"

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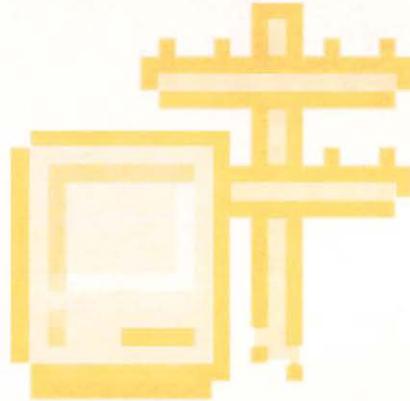
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## Dear Readers:

If you know that IBM sucks but you aren't sure why, read this book. If you still harbor the delusion that Steve Jobs was a nice guy who got screwed by Sculley, read this book. And if you aren't sure what virtual sex is, you should most definitely read this book.

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*-Bob LeVitus & Michael Fraase*

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