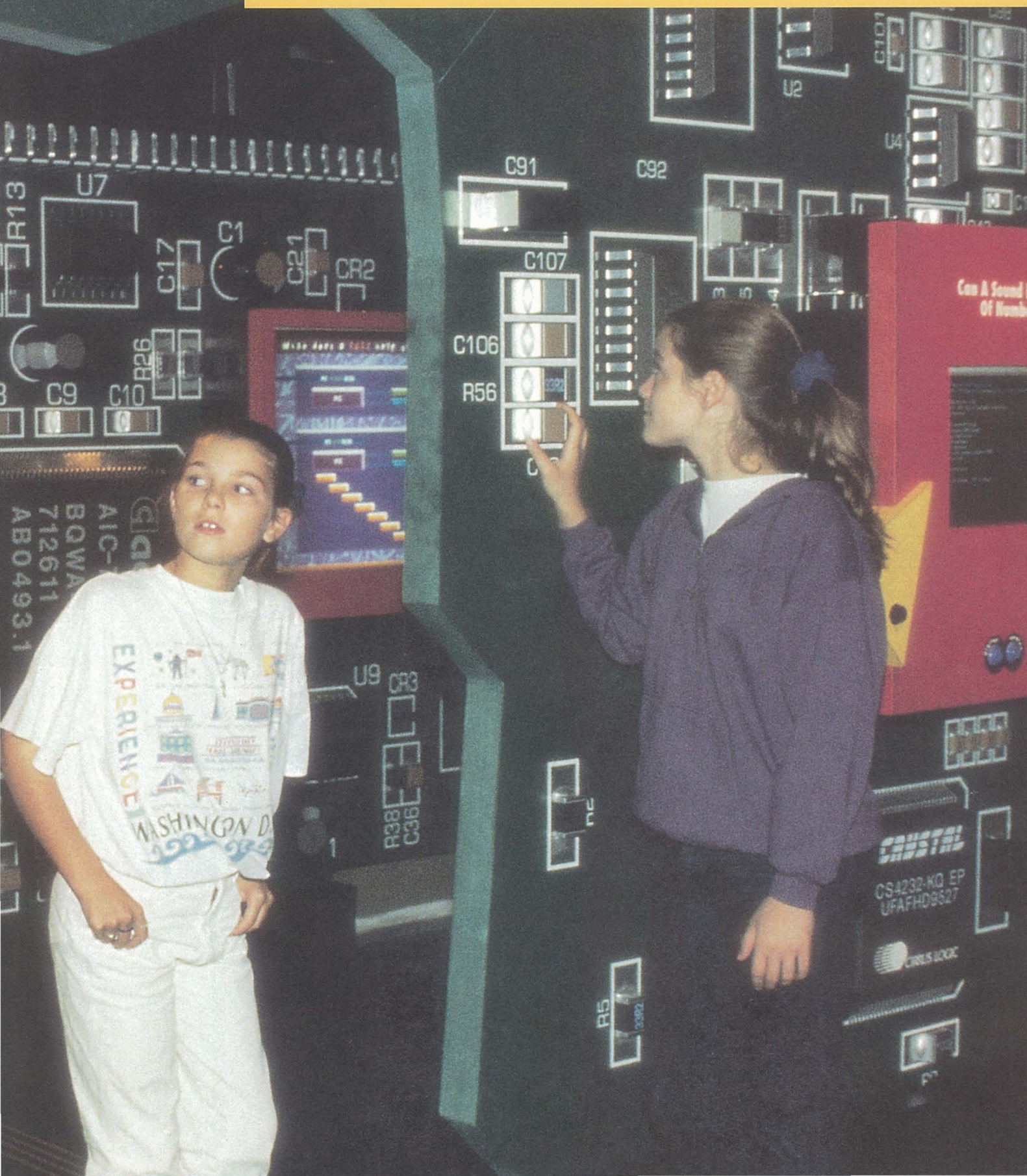
The Computer Museum

ANNUAL REPORT • FY 1996



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THE MUSEUM CELEBRATES CHILDREN

It's been a banner year for kids at the Museum. They have been at the heart of several initiatives that exemplify the Museum's educational philosophy: to inspire people about technology without intimidation.

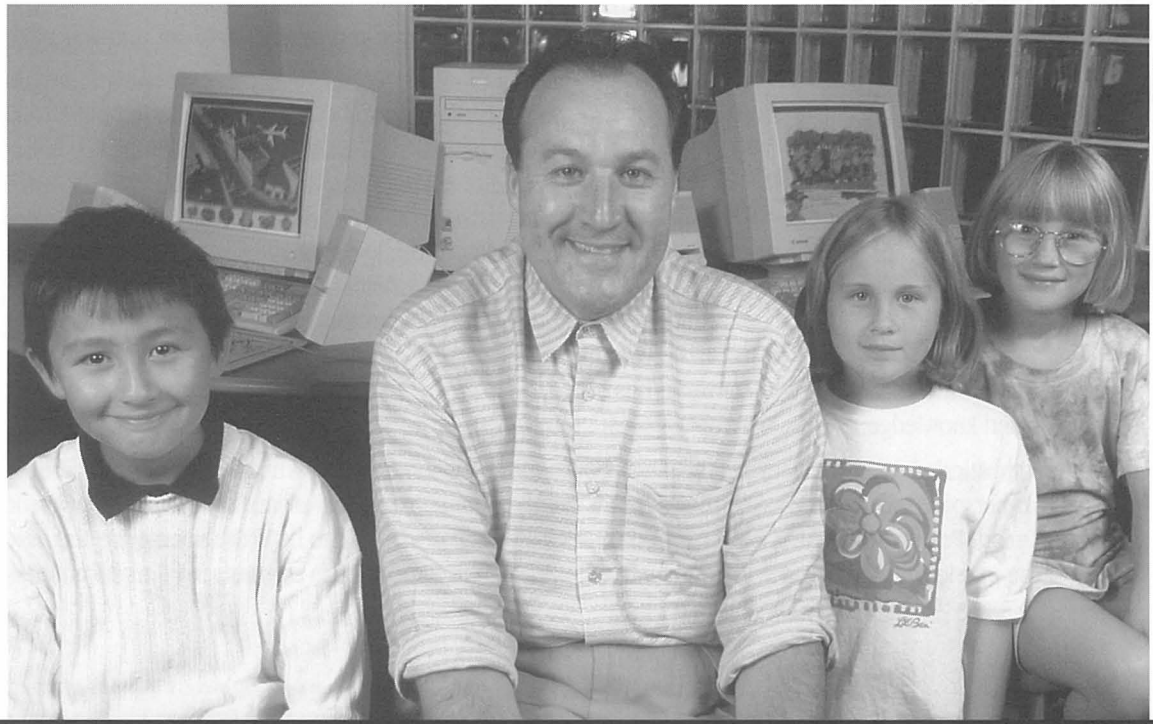
This year, the Museum published its first book, *The Computer Museum Guide to the Best Software for Kids*, to resounding reviews. Following this came the launching of the *Guide*'s companion exhibit, *The Best Software for Kids Gallery*. Like the book, the gallery has garnered enormous attention, its space packed with delighted visitors of all ages. Both *Guide* and *Gallery* offer beleaguered parents solid, highly digestible information about choosing children's software. The Museum was honored to receive a Best of Boston™ 1996 award from *Boston* Magazine, citing both the exhibit and the book's author-experts, Cathy Miranker and Alison Elliot.

The Museum also unveiled the upgrade to its flagship exhibit, *The Walk-Through Computer™ 2000*. In addition to the latest technological bells and whistles, the new exhibit radiates a whimsical, kid-friendly practicality. The monster keyboard, for example, is now sturdy enough to withstand the rigors of a multitude of tiny but energetic jumping feet.

I am gratified to have been involved in the promotion of *The Guide to the Best Software for Kids*. And as a parent of three small children, I am delighted that the Museum continues to dispel the notion of stodgy computing by offering a place where the entire family can learn while having fun together.

These achievements could never happen without the support of our many generous members, sponsors, and volunteers. On behalf of my fellow Board members, I thank everyone who has played a part in the Museum's progress this past year. And I invite new friends to join us and share in the excitement to come.

Larry Weber
Chairman, Board of Trustees



FAYFOTO/John Rich

THE NON-CYBER MUSEUM

This year I was fortunate to be able to take a six-month sabbatical. During my absence, Marilyn Gardner did an excellent job as acting director, and, together with our dedicated staff, successfully maintained the Museum's strong momentum. I returned in May to a Museum that looked better than ever. A few weeks later, *The Best Software for Kids Gallery*™ opened, and the exhibit has been packed ever since. A tremendous energy exists throughout the Museum as our visitor assistants conduct a wide array of gallery tours and theatrical performances.

Last year, I wrote about "The Year of the Internet." Since then, the Internet, with its ethereal "cyberspace," has grown by leaps and bounds. Yet the Museum kicked off the fiscal year with an extremely real-space, physical exhibit. *The Walk-Through Computer*™ *2000* exists in only one place and uses literally tons of atoms to convey its bits of information and knowledge.

As I left on sabbatical, the tension between the physical-space and cyberspace manifestations of the Museum was on my mind. People kept asking me if I feared the demise of the physical museum under the onslaught of an ever-more-capable global computer network. The sabbatical gave me a golden opportunity to tackle this issue.

The book *City of Bits*, by William J. Mitchell (MIT Press 1995), and subsequent conversations with the author helped my ideas to gel. Mitchell sees the Internet as one of a family of technologies that include storage and telecommunications. Storage technologies, from ink on paper to CD-ROMs, enable us to write information into a medium and retrieve it at a later time. This frees us from the need to convey information in real time. Telecommunications technologies let us share information without being in the same place. Telegraph, telephone, or video conferencing all allow real-time communication between people separated in space.

Storage and communications technologies can be combined so that people can communicate across both time and space. Traditionally, this has been accomplished with books and paper mail. The advent of the Internet makes this "ungluing" of space and time more practical, as the bits can be stored and transmitted with fewer, or even no atoms tagging along for the ride. More and more, the technology gives us a choice. Do we want to do things in the same space and time (face-to-face), or do we prefer to decouple space and/or time from our transactions?

Plenty of examples from every-day life show the trend towards the decoupling of life from the here and now. These include ATM banking, mail-order catalog shopping, and telephone airline reservations. Will the same thing happen to museums? Will people simply click onto our website, explore virtual galleries, exchange messages online with other visitors and staff, and check our online gift shop before they jump to another site?

I began to see the answer when Bill Mitchell and I discussed his analysis of the Economy of Presence. He pointed out that being in the same place and time as another person or object is a scarce resource. There are only a few cubic meters of real space around a person where one can be said to be in the same place and have a face-to-face meeting. In contrast, an infinite amount of

space is available outside that small sphere. Similarly with time: The present is fleetingly scarce compared to time past or future. The relative scarcity of high levels of presence in which time and/or space is shared creates value. So a high level of presence is appropriate for an interaction only if it can add value to the experience. Otherwise, lower levels of presence are preferred because they are more cost-effective.

Looked at this way, certain activities seem to shift into the lowest possible levels of presence. Banking, mail-order shopping, and travel reservations are activities for which the added cost of high presence (travel time and cost, parking, etc.) do not add sufficient value to justify the cost. But when interactions are not routine, but more subtle or sensitive, higher levels of presence become necessary. For example, we can conduct a great deal of business on the phone, but prefer a face-to-face meeting for delicate negotiations.

THE QUESTION FOR MUSEUMS NOW BECOMES: DO MUSEUMS BRING VALUE TO HIGH LEVELS OF PHYSICAL PRESENCE?

The question for museums now becomes: Do museums bring value to high levels of physical presence? If this question can be answered affirmatively, museums as physical entities will endure, just as live performance has prospered in an age of TV, radio, and hi-fi, and face-to-face meetings have not been rendered obsolete by the telephone.

I believe at least four aspects of museums thrive in real space, adding value that justifies the cost of the real museum visit. First, the artifacts. An unmistakable thrill comes from being close to an important artifact. At The Computer Museum, our visitors love seeing the actual "R2-D2"™ costume used to make *The Return of the Jedi*. Standing in front of part of the pioneering 1951 computer Whirlwind conjures up an awe and appreciation of the engineering imagination and effort that launched computing. It is simply a different experience from seeing a photograph, or even exploring a high-resolution virtual world of the object. Museums with collections will continue to attract visitors.

Second, physical museums can effectively convey physical scale—large or small. The giant *Walk-Through Computer* is exciting because it is larger than you; scale is harder to gauge in a virtual exhibit. The major draw to natural history museums are dinosaurs. Can there be a better way of appreciating the *Tyrannosaurus rex*'s bulk than by being dwarfed by its towering skeletal fossil?

Third, architectural spaces can convey an ambiance that heightens cultural experiences. Appropriate exhibit design enhances the content of a physical space, harnessing all the senses in concert to create a powerful impact on the museum-goer. Physical environments can evoke a feeling of having arrived at a destination, which adds a special sense of occasion to the visit.

Fourth, the social interactions of a museum visit are vital determinants of the experience. The simultaneous sharing of experience within a family or school group becomes part of the fun. Conversation stimulated by the exhibits helps build relationships and understanding of the museum's content.

So when people ask me if physical museums will disappear, I answer that they will not if they play to the strengths that physical space uniquely endows upon them. The Internet should be used to build complementary experiences that stem from the special assets of the physical museum.

As we enter the new fiscal year, we are moving ahead vigorously with programs that will further strengthen the physical presence of our exhibition galleries. We are also launching a major, complementary presence in cyberspace, called *The Computer Museum Network*. I look forward to reporting on exciting developments in both "spaces" next year.

Oliver Strimpel
Executive Director

THE COMPUTER MUSEUM, INC. STATEMENT OF FINANCIAL POSITION / JUNE 30, 1996

ASSETS

CURRENT ASSETS	
Cash and cash equivalents	$208,969
Accounts receivable	211,627
Pledges receivable	131,442
Inventory and prepaid expenses	65,227
TOTAL CURRENT ASSETS	617,265
PLEDGES RECEIVABLE, non-current	331,270
INVESTMENTS	724,763
LAND, BUILDING, EQUIPMENT, AND EXHIBITS - net of accumulated depreciation of $5,494,922	3,943,995
TOTAL ASSETS	**5,617,293**

LIABILITIES AND NET ASSETS

CURRENT LIABILITIES	
Accounts payable	230,411
Deferred revenue	24,035
Current portion of bond payable	80,000
TOTAL CURRENT LIABILITIES	334,446
BOND PAYABLE, net of current portion	269,333
NET ASSETS	
Unrestricted	3,414,118
Temporarily restricted	1,349,396
Permanently restricted	250,000
TOTAL NET ASSETS	5,013,514
TOTAL LIABILITIES AND NET ASSETS	**$5,617,293**

THE COMPUTER MUSEUM, INC. STATEMENT OF ACTIVITY FOR THE YEAR ENDED JUNE 30, 1996

	UNRESTRICTED	TEMPORARILY RESTRICTED	PERMANENTLY RESTRICTED	GRAND TOTAL
REVENUES, GAINS AND OTHER SUPPORT				
Contributions	$2,201,642	$1,079,396	$ -	$3,281,038
Membership	368,505	-	-	368,505
Admissions	560,555	-	-	560,555
Investment income	11,824	-	-	11,824
Auxiliary income	495,938	-	-	495,938
Total	3,638,464	1,079,396	-	4,717,860
NET ASSETS RELEASED FROM RESTRICTIONS satisfaction of program restrictions	497,658	(497,658)	-	-
TOTAL REVENUES, GAINS, AND OTHER SUPPORT	4,136,122	581,738	-	4,717,860
EXPENSES				
Exhibits	1,434,878	-	-	1,434,878
Marketing and membership	516,079	-	-	516,079
Auxiliary	518,954	-	-	518,954
General administration	227,873	-	-	227,873
Fundraising	724,959	-	-	724,959
Depreciation	902,683	-	-	902,683
Total	4,325,426	-	-	4,325,426
CHANGE IN NET ASSETS	(189,304)	581,738	-	392,434
NET ASSETS AT BEGINNING OF YEAR	3,603,422	767,658	250,000	4,621,080
NET ASSETS AT END OF YEAR	**$3,414,118**	**$1,349,396**	**$250,000**	**$5,013,514**

GETTING TRIVIAL WITH

THE OFFICIAL COMPUTER BOWL TRIVIA BOOK

By Christopher Morgan

When readers tell me my new book is trivial, I thank them for the compliment! That's because it's a trivia book—*The Official Computer Bowl Trivia Book*, to be exact—and it proves that computer "nerds" (and nerd wannabes) can have fun, too! The book (Crown paperbacks, $10.00) is available from The Computer Museum Bookstore (617-426-2800 x307).

The Official Computer Bowl Trivia Book was born when fans of The Computer Bowl™ began asking for copies of the questions. So we assembled the questions used in the first six Computer Bowls and the pre-game shows in book form, along with hundreds of additional questions. Half of the questions in the book are new.

With a foreword by Microsoft Corporation's Bill Gates, the book features chapters on computers in the arts; the PC revolution; fun and games; people in computing; the Information Highway; companies, business and money; tough questions for hackers only; minis, mainframes and supercomputers; software; and pioneering computing.

WHAT IS THE COMPUTER BOWL?

The Computer Bowl was born in 1988 when the Museum's founding president, Gwen Bell, saw a set of computer trivia questions compiled by Steve Coit. They inspired the idea for a good-natured battle of wits between colorful high-tech personalities on West and East Coast teams. The object: to answer tough computer trivia questions and win the title "Computer Trivia Champs of the Universe." Over its nearly decade-long existence, The Computer Bowl has entertained thousands of people in the studio audience and millions more on PBS's *Computer Chronicles* show. Though strictly for fun, the competition is fierce, transforming the Bowl into something of an institution, and raising millions of dollars for the Museum, thanks to generous corporate and individual contributors.

RADIO DAYS

I've spent a lot of time on radio shows this year promoting the book, including NPR's *Science Friday* with Ira Flatow, where I challenged callers from around the country with tricky questions. The listeners did especially well, but here's one that stumped them: "Who invented the mouse, and how many buttons did it have?" (Answer: Doug Engelbart; three buttons.)

WHERE DO THE QUESTIONS COME FROM?

I contributed many of the questions to the book, but the majority have come from Museum members and staff, ACM members, the media, and trivia mavens Gwen Bell and Steve Golson. The questions range from the light-hearted ("Is the divorce rate higher in Silicon Valley or in Boston's Route 128 area?") to the "tough-techie" ("The ancient Mayan numbering system was not a base 10 system. Was it base 5, base 12, or base 20?") (Answers: Route 128; base 20.)

My job was to collate and fact-check the questions, combing Internet byways and libraries for arcane bits of computer trivia, such as the identity of the computer pioneer who hated street musicians so much that he sued them. (Answer: Charles Babbage.) And what did computer pioneer Alan Turing bury in his backyard during World War II, and why? (Answer: silver ingots to guard against inflation.)

1988: THE FIRST BOWL

The first Computer Bowl was held at Boston's World Trade Center in 1988. I co-hosted with William Randolph Hearst III. We got off to a somewhat shaky start when we learned that the satellite upload was not established to beam the Bowl to a waiting West Coast audience. Fortunately, I had an extra set of questions with me and spent an unscripted half hour asking the audience to answer them.

The audience was more than up to the challenge, rivaling our Bowl contestants from the East Coast (Esther Dyson, Mitch Kapor, David Hathaway, Bill Poduska, and Dick Shaffer) and the West Coast (Adele Goldberg, Bill Joy, Casey Powell, Allen Michels, and David Bunnell). The link was eventually established, and the show went on without a hitch. (The East Coast won, by the way).

Look for reruns of past Bowls on PBS and the Jones Computer Network.

SOME TEASERS FROM THE 1996 BOWL

Are you up to a challenge? Try answering these 1996 Bowl questions:

1. *Toy Story* was the first full-length feature film to be completely generated by computer. Its director, John Lasseter, won an academy award for a previous computer-generated short film. What was it called?

2. One trendy term on the Internet these days is actually a Sanskrit word that means "the visible form that the gods take on earth." Is that word *agent*, *avatar* or *java*?

3. What was the internal code name for the Netscape 1.2 Internet browser? Was it Cheddar, Brie or Provolone?

4. Which of the following is not the name of a real website: The House of Sacred Squirrels, The Bureau of Missing Socks, or Wombats Who Speak Esperanto?

5. One of the earliest forms of mechanical information storage was an ancient Peruvian device consisting of a cord with knotted strings of various colors attached, used for recording events, keeping accounts, etc. What was the device called? A quipu, an atahualpa or a picchu?

SOME ALL-TIME FAVORITE BOWL QUESTIONS

Here are some of my all-time favorite Bowl questions, taken from past Bowl scripts. My choices are mostly whimsical or slightly wacky because I am mostly whimsical and slightly wacky. Enjoy!

1. According to *The New York Times*, what U.S. government figure once sent the following e-mail message: "Oh Lord, I lost the slip and broke one of the high heels. Forgive please. Will return the wig on Monday." Was it Oliver North, J. Edgar Hoover or George Bush?

2. What was the first rock group to go online on the Internet? The Rolling Stones, Severe Tire Damage, or Aerosmith?

3. In the movie *Star Trek IV, The Voyage Home*, Scotty makes a mistake in attempting to communicate with a 20th century computer by speaking into the wrong peripheral device. What was the device?

4. What leading man was attacked by robot spiders in the movie *Runaway*? Was it Tom Selleck, Tom Hanks or Tom Cruise?

5. What Looney Toons cartoon character once used a UNIVAC computer to solve a mystery? Bugs Bunny, Porky Pig or Sylvester?

6. In the comic strip *Doonesbury*, what computer did Mark learn to program? The PDP-11/70, the Macintosh or the IBM PC?

7. Sega is the name of a popular line of computer video games including *Sonic, The Hedgehog*, but it's also an acronym. What do the letters "SEGA" stand for?

8. Texas Instruments developed the first popular microcomputer-based toy. What was it called?

9. What famous economic advisor appeared in an ad for Apple Computer in 1985?

10. In *Star Wars* was "R2-D2"™ an actual working robot, a hollow robot operated by a midget or a computer animation image?

Photograph: Vera Zark

1994 Computer Bowl All-Star Game winners from the East Coast (from left): Neil J. Colvin, Foundation Technologies Ltd.; Bob Frankston, Microsoft; Team Captain Mitchell Kapor, Electronic Frontier Foundation; Pamela McCorduck; and David L. Nelson, Novell MultiMedia.

Photo, page 5: 1990 East Coast Captain Pat McGovern (left), of International Data Group, dukes it out with West Coast Captain John Doerr of Kleiner Perkins Caufield and Byers.

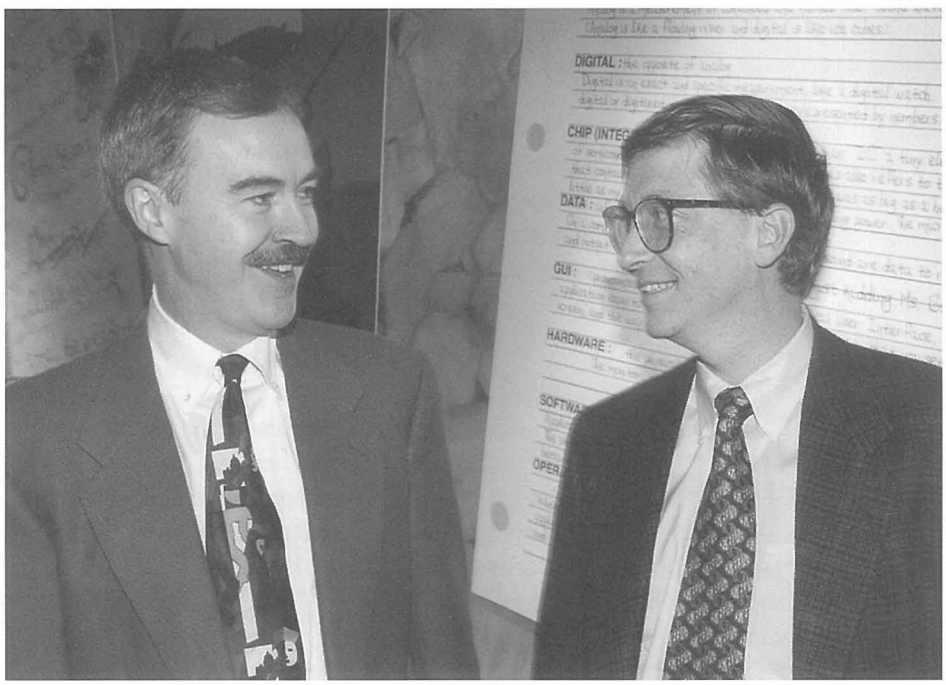
1996 BOWL ANSWERS

1. *Tin Toy* • 2. Avatar • 3. Cheddar • 4. Wombats Who Speak Esperanto [No one got this one right, by the way.] • 5. A quipu

ALL TIME FAVORITE BOWL ANSWERS

1. Oliver North • 2. Severe Tire Damage, according to *The New York Times*. The group performed November 18, 1994, on the Internet 20 minutes before the Stones began their first-ever online concert. • 3. A mouse • 4. Tom Selleck • 5. Porky Pig • 6. The PDP-11/70 • 7. SErvice GAmes • 8. Speak and Spell • 9. Alan Greenspan • 10. A hollow robot operated by a midget.

Christopher Morgan is president of Christopher Morgan Communications in Boston and a Museum Overseer.



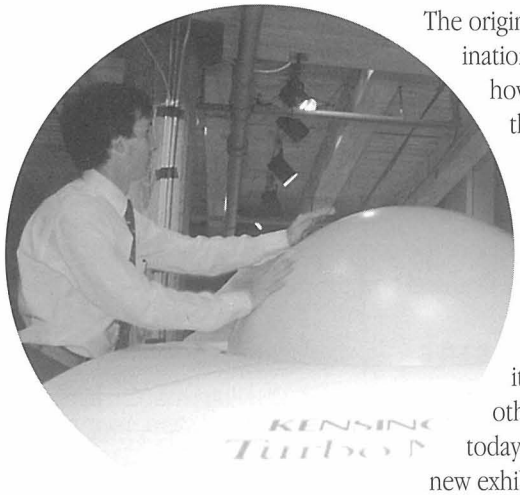
FAYFOTO/John Rich

Chris Morgan and Bill Gates at The Computer Museum in November 1995. Gates wrote the foreward to the Bowl trivia book.

The WALK-THROUGH COMPUTER 2000

MAKING A GREAT EXHIBIT EVEN GREATER

On October 21, 1995, The Computer Museum opened *The Walk-Through Computer 2000*, the networked, multimedia upgrade of its colossal, 50-times-scale personal computer.



FAYFOTO/John Rich

The original *Walk-Through*, unveiled in 1990, had captured the public's imagination, inspiring 750,000 Museum visitors from around the world to learn how computers work by entering and operating the huge PC. But over the next five years, rapid advances in technology had made *The Walk-Through Computer*™ obsolete. By 1995, PCs everywhere featured impressive multimedia, communications, and networking applications that were not available in 1990. They also sported faster microprocessors, more powerful hard drives, and lots more memory than the older models.

The Museum decided that it was time to upgrade its flagship exhibit. With the support of Cirrus Logic, Inc., Intel Corporation, and 12 other corporate sponsors—which all supply components used by today's PCs—the 1990 *Walk-Through Computer* was replaced by a totally new exhibit, packed with state-of-the-art technology.

The new machine is driven by a high-speed Pentium® processor, surrounded by multimedia boards, connected to a CD-ROM drive, and networked—at the same 50-times-scale as its predecessor. Over 100 people—sponsors, volunteers, the Museum exhibit and design team, and outside contractors—spent 18 months fabricating the $1 million exhibit, designing it to captivate a diverse audience including seniors and small children.

IMPROVING UPON THE ORIGINAL

To bring new life to its cornerstone exhibit, the Museum had to find innovative, exciting ways to explain how a computer works to an increasingly sophisticated audience. The upgrade provided a unique opportunity to improve upon the original model.

Ongoing evaluations of visitors' experiences had revealed specific instances where the old exhibit did not work for some people. At the same time, an advisory group of educators and marketing experts began to meet regularly and recommended that the new exhibit be more interactive, immersive, and fun.

UPGRADE HIGHLIGHTS

The Walk-Through Computer is state-of-the-art inside and out:

MULTIMEDIA

- The Philips Electronics CD-ROM player stores over 600 MB of data optically on a CD-ROM—enough for an entire encyclopedia set with graphics and sound.
- The audio/video board, loaded with Cirrus Logic processing chips, lets the computer process audio, video, graphics and text.
- The Adaptec SCSI adapter card allows the CD-ROM player to connect to the computer for rapid transfer of data.

NETWORKING

- A Hayes modem allows people at computers to send electronic mail or hook onto global networks like the Internet.
- A Cirrus Logic infrared transceiver chip provides communication via infrared signals between the computer and a cellular phone or personal digital assistant.
- The 3COM Ethernet card enables people at computers on a local-area network (LAN) to share information and messages.

MORE MEMORY

- The Quantum 4.2 GB hard drive (upgraded from 400 MB) is faster at reading and writing the vast amounts of information used in movies, animation, and sound.
- The 32 MB of random access memory (RAM) from Texas Instruments (upgraded from 4MB) enables the computer to have eight times as many files open at once as did the 1990 model. This means more multimedia applications can be used in real time.

MORE SPEED AND POWER

- The Intel Pentium® Processor is three times faster than the 1990 exhibit's 486 microprocessor, and handles the vast amounts of data needed for full-motion video and rich CD-quality sound.
- The Texas Instruments digital signal processing chip (DSP) speeds up the modem so that multimedia data travel over the phone lines faster.
- The American Power Conversion Uninterruptible Power Supply provides battery-backup power, and prevents electrical surges from entering the computer via an outlet, phone line, or network cable.

FAYFOTO/John Rich

The plan that emerged from both the advisors and visitor evaluations called for these changes:

- interactive activities built inside the oversized components that would bring each part to life and help visitors learn, as they move through the exhibit, what each part does and how it relates to the whole computer;
- a fanciful, oversized desktop environment that would immerse visitors as they explore the giant machine and its new, more life-like, 3-D components. It was decided that the desktop would belong to an imaginary teenager named C.J.;
- a new, more realistic application for the big monitor that would resemble the operating environment of computers people actually use nowadays for work and play.

Visitors enter the new exhibit through a colossal simulation of a bubble-jet printer and find themselves shrunk to crayon-size next to an eight-foot-long CD-ROM. Clicking and rolling a car-sized trackball on C.J.'s vast desktop, they answer e-mail from C.J.'s friends and explore full-motion video on a 12-foot-tall color monitor.

Once inside the giant machine, visitors discover ceiling-high printed circuit boards loaded with suitcase-sized chips accurate down to the number of pins on each. Bright flashing lights in the motherboard floor lead to a powerful seven-foot-square Pentium® processor, opened to reveal a photo of the actual silicon die.

THE INTERACTIVES

The new *Walk-Through* presents and explains each of the components by its role in the operation of the computer: Input, Processing, Storage, Communication, and Output. Most of the components feature interactive activities that enable visitors to experience firsthand how the parts work.

PROCESSING

At the heart of the new PC sits the table-sized microprocessor, with a cut-away view revealing how the levels of the chip are soldered to wires connected to pins plugged into the motherboard. The interactive program embedded in the processor shows how it converts instructions from English to programming and assembly languages, and finally to ones and zeroes. By operating a control panel, visitors take charge of the computer, fetching an instruction from one of three programs—sending e-mail, playing a sound, or making a picture. Each is designed to highlight the microprocessor's interaction with the computer's components. As visitors execute each instruction, it jumps off the screen into a fantastic display of lights and sounds racing from the microprocessor through buslines in the motherboard floor to each component.

A periscope-type device reveals an actual electron-microscope view of real transistor gates switching. For a simulated view into the heart of the microprocessor, the Museum used edited IMAX footage of a microprocessor fly-through, provided by Intel. A stunning, enlarged colorized image of a Pentium processor covers the processor's surface.

The audio/video board, loaded with Cirrus Logic processing chips, enables the computer to process audio, video, graphics, and text. To tell the story of the other chips inside the PC, a customized A/V board uses larger-than-life-sized replicas of audio and

video processing chips, supplied by Cirrus Logic. An exploded hole in the middle of the card allows entry. The interactive program embedded in the board's audio section lets visitors record their voice as an analog audio signal, convert it to a digital signal that the computer understands, and manipulate the numbers to hear how their voice changes. An interactive in the video section lets visitors capture a digital image of their face and discover how a computer mixes red, green, and blue to create a full-color image accurately on a screen.

STORAGE

At the hard drive, visitors use a giant read/write arm to flip magnets and write messages by setting eight bits of code. As the mammoth disk platters spin, visitors then see the bits read magnetically and decoded, with the results displayed on a monitor.

The interactive program embedded in the 8-foot-by-10-foot CD-ROM player reveals how a CD stores and retrieves vast amounts of data optically. By manipulating individual bits of information on a table-sized CD, visitors "write" a code, then see the giant mirrored disk spin past a laser that reads the code. A monitor displays the results. The CD-ROM player actually shoots a laser at pits and lands on the surface of the disk.

Creating these interactives was a challenge, since they had to work on spinning platters. The Museum worked with the New Curiosity Shop in California to develop the concepts for writing bits with magnets and laser light. Mystic Scenic Studios of Dedham, Mass., the exhibit's primary fabricator, developed the mechanics—a series of 96 bits that could be manipulated—while programmer Eban Gay created the software offering visitors feedback during the activity.

A magnified display inside the huge RAM modules lets visitors take "files" from a bin and "load" them into RAM. If visitors switch off the power, the files drop and the RAM "forgets" everything. Another display lets visitors discover how RAM stores information at the microscopic level by setting eight individual bits to form a single byte of information.

COMMUNICATIONS

In an Ethernet board, a lighthearted 3-D animation tells the story of networks. Created by computer animator Ed Hill, the interactive program reveals how messages are sent to all the computers on a local area network, but are delivered only to those with proper addresses.

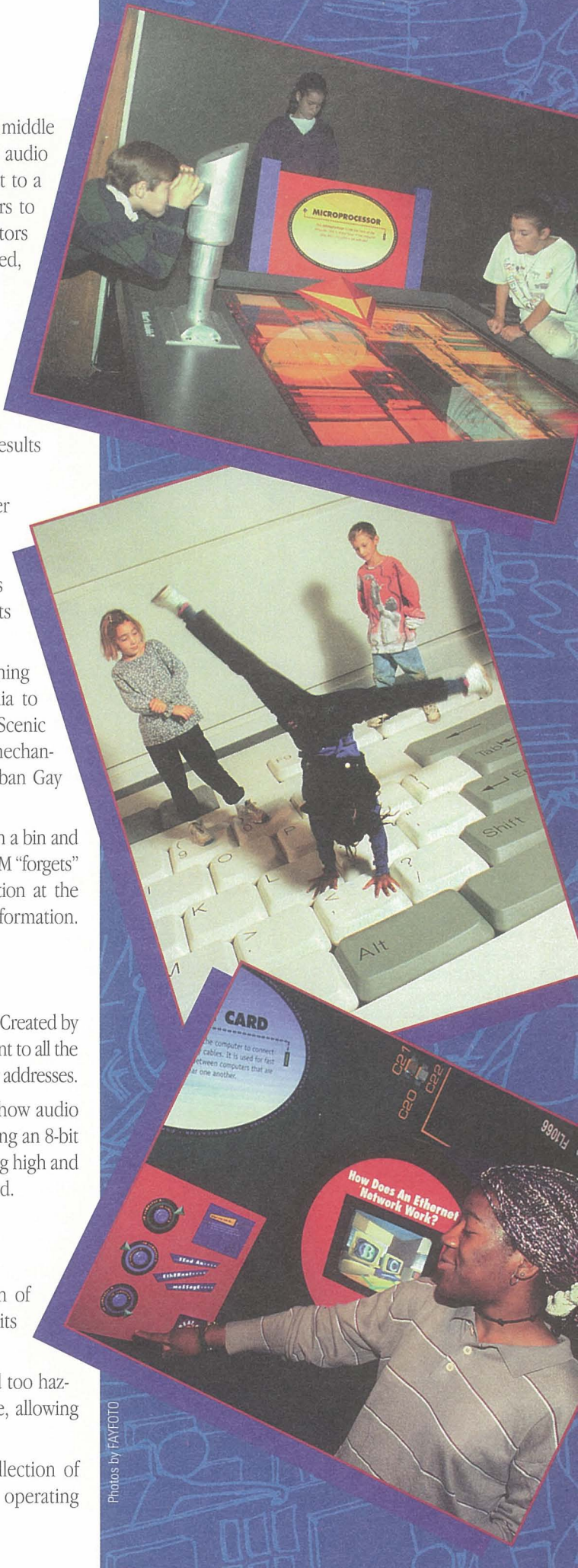
Behind and outside the PC chassis, the huge modem's interactive shows how audio tones are used to send and receive digital messages over phone lines. Setting an 8-bit ASCII code (one byte) using audio tones turns into a series of corresponding high and low tones as it is sent to a receiving unit to be read, decoded, and displayed.

INPUT AND OUTPUT

A spruced-up, car-sized Kensington Turbo Mouse 4.0 controls the action of the cursor on the 108-square-foot NEC color monitor. Since the new ball sits on a cushion of air, not on ball bearings, it is much easier to manipulate.

In the first version of the *Walk-Through,* the keyboard's steep keys proved too hazardous for little feet. The new streamlined keyboard is ergonomically safe, allowing kids (of all ages) to climb on the keys to their hearts' content.

The new application being output to the big monitor is a realistic collection of work-and-play-related *faux* programs, games, and files that simulate the operating



Photos by FAYFOTO

Some members of *The Walk-Through 2000* exhibit team. From left: (back row) Don Greene, Jennifer Brackett, Owen Mysliwy, Dennis Shea, Josh Hooten; (front row) Patrick Liddy, Ann Fraioli, Sari Boren, and Christopher Grotke.

environment of a typical multimedia computer. Programmer Dan Griscom and graphics designer Patrick Liddy worked with the Museum to create the interactive activities, which include e-mail, songs, movies, letters, and games—all relating to C.J., the computer's imaginary teen-age owner, and the upcoming visit of a pen pal.

R.I.P. WALK-THROUGH 1.0

On Sunday evening, August 13, the giant computer's lights dimmed for the last time. In the following weeks, the old *Walk-Through*'s insides were razed. As the opening date approached, Mystic Scenic Studios worked round the clock, as the Museum's carpentry and design shop prepared the exhibit space and completed a mammoth replica of a bubble-jet printer. At the crack of dawn and after dusk, the PC's huge components arrived (in 10 truckloads) from Mystic Scenic. Six-man crews carefully unloaded the oversized parts in sections and placed them in the exhibit. Meanwhile, local muralists finished painting the huge books and other details on C.J.'s desk that accentuated the big computer's scale.

Finally, on Saturday, October 21, *The Walk-Through Computer 2000* opened to the public. Jim Blessing, 9, of Concord, Mass., was the first person to operate the upgrade. The last to use the old exhibit in August, Jim returned in the fall, eager to try out the new version. (He gave it a big thumbs up.) As of July 31, more than 100,000 visitors had explored the new PC.

EXHIBIT ADVISORS & SPONSORS

The upgrade would not have been possible without the support of its sponsors.

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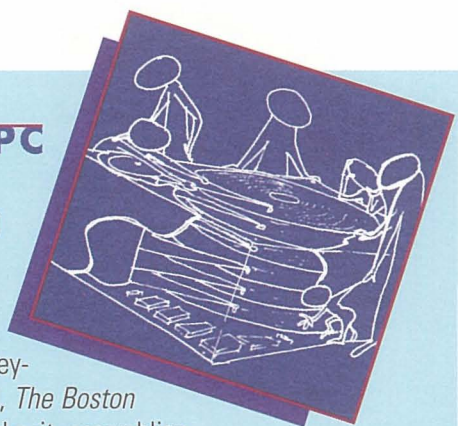
EXHIBIT ADVISORS

The following individuals offered valuable insights throughout the planning and implementation of the upgrade:
- Daniel Dennett
- Clif Gerring
- Jan Liziak
- Christopher Morgan
- Mitchel Resnick
- Lee Sproull

THE PRESS AND THE CELEBRITY PC



News of the original *Walk-Through Computer* traveled quickly around the world, generating media coverage in 63 countries, including spots on the *Today* show and *Sesame Street*.

Not to be outdone, the new *Walk-Through* has already prompted interest worldwide. The exhibit turned into a mini-United Nations last summer, as film crews from Japan's NHK-TV, the BBC, and Germany's ZDF-TV arrived to shoot the giant computer for educational programs—all within the same week! A long feature in the German news magazine *Stern* prompted *The Times* of London to fly a photographer across the Atlantic to capture the giant PC for a cover.

On the home front, Bill Nye, PBS's "Science Guy," was filmed using the keyboard as a giant teaching tool. *Weekly Reader* put the exhibit on its cover to help teachers excite young children about computers. *Washington Post* writer John Schwartz was inspired to reflect on the nature of obsolescence for *Wired*. For a page-one story on Sherry Turkle, *USA Today* photographed the MIT psychologist-sociologist on the giant keyboard. In April, *The Boston Globe* followed suit, assembling 11 owners of successful computer companies—all women—for a "power" pose on the keyboard that ran on the front page of the *Living/Arts* section.

The big PC has also proven popular with corporations and event planners. In May, Microsoft Chairman and CEO Bill Gates introduced his company's Internet Discovery Kiosk program nationally at the Museum, simulcasting images and sound to the The *Walk-Through*'s screen. And on a lighter note, the giant PC made a guest appearance as "Boston's Favorite Byte" in a Papa Gino's television commercial highlighting local attractions.

THE BEST SOFTWARE FOR KIDS

A BOOK • A GALLERY • A WEBSITE • & MORE

The Computer Museum this year elevated the notion of a traditional exhibit to a new level by offering Museum-goers several mediums through which to explore a single subject. The subject was choosing the best software for children, and the Museum wrapped it in a comprehensive package that included a best-selling book, a vibrant on-site exhibit, and a constantly refreshed website.

THE BEGINNINGS

The spark for *Kids Software* was kindled a few years ago, when Museum staff began to realize the same question was surfacing time and again from Museum callers and visitors: What software should I buy for my kids? What's educational? What's worth the investment? Sensitive to the public's confusion and need for an answer, staff and volunteers began to brainstorm about how the Museum, as a source of accurate, reliable knowledge about technology, should respond to the question.

THE GUIDE TO THE BEST SOFTWARE

First to emerge from the brainstorming sessions was the concept for a book. Then began a search to find the right authors. Founding President Gwen Bell remembered Cathy Miranker and Alison Elliott, long associated with the Museum as members and supporters. California mothers with backgrounds in the computer industry, Alison and Cathy had discovered independently that no good sources of impartial information about software for kids existed. Gwen persuaded them that their collective experience in the areas of education, journalism, the computer industry, and parenting, as well as their belief in the Museum's mission of informal learning, made them the perfect pair to become authorities on the subject.

The match was thus made: Cathy and Alison would author the book, and the Museum would lend its expertise and objectivity. The result was *The Computer Museum Guide to the Best Software for Kids*, an informative, insightful collection of reviews published by HarperCollins in October 1995.

Cathy and Alison first worked with Museum staff to develop exacting standards by which to judge the software. They then tried out close to 1,000 titles for ages 2-12 with a group of test families. The *Guide*, which contains their final selection of 215 software programs, shows that the best titles are not necessarily the most popular on the best-seller lists.

Each title in the *Guide* is evaluated in rigorous detail, based on what the authors call the three L's: learning, looks, and longevity. A program, for example, should fit children's developmental needs and interests and have such a distinctive look and feel that they will want to play with it over and over again. The *Guide* met with immediate acclaim, and plans were put in place to publish an updated version each year.

THE WEBSITE

Meanwhile, the authors worked with Web developers and designers at the Museum to complement the print edition of the *Guide* with "electronic pages" on the Museum's website. Now people could choose the best

FAYFOTO

Some of the education staff. From left: (back) Patrick Mungal, Rina Granizo, Tanya Morris, Sheila Sibley, Andrea Browne; (front) Ann Fraioli, Jennifer Rich.

KIDS SOFTWARE GALLERY FUNDERS

The Best Software for Kids Gallery couldn't have happened without the generous support of these sponsors:

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- Macromedia
- Measurement Techniques
- Quantum Corporation

of both worlds: the reassuringly low-tech book and its high-tech counterpart, the website (http://www.tcm.org/), for new information not included in the original *Guide*.

The website offered several sections to browsers:

- "Reviews" provided periodic new-product assessments, using the same categories and criteria developed for the book.
- "Parent Tips" delved into topics such as kid-proofing your computer and choosing reading software.
- "Best Lists" enumerated such things as the best programs for kids and parents to use together, or the best programming activities for kids.
- "Talk to Us" invited browsers to share their thoughts and opinions. Comments from kids, parents, teachers, and programmers helped to shape subsequent reviews.

Colorful icons of the book jacket (for information about the *Guide*), balloons (for Parent Tips), a mailbox (Talk to Us), and a propeller beanie (Best Lists) guided Web browsers as they made their selections.

THE EXHIBIT

While attention swirled around the *Guide* and website, exhibit and design staff were hard at work readying *The Best Software for Kids Gallery,* which opened in June. A logical outgrowth of the book, this permanent companion exhibit exemplifies the Museum's hands-on approach, as well as its belief that the best software will inspire kids to create, explore and learn by doing. Press and public response to the exhibit was immediate and substantial—parents and educators (not to mention kids!) never had a destination quite like this before. Their collective enthusiasm can be measured in the constantly high decibel level found in the gallery.

Copyright Mary Merrick

***Guide* authors Alison Elliott and Cathy Miranker with their kids. From left: Katie Blank, Alison Elliot, Emily Miranker, Sarah Blank, Cathy Miranker, and Molly Miranker.**

Illustrations courtesy of Soleil, Edmark and HMI Inc.

Exhibits staff chose 50 of the best titles in the *Guide* for the gallery, with representative selections on arts, animation, reading, math, story-telling, history, science, geography, and games. Sound effects, 3D graphics, and video abound, and the space is decked out in vivid kids' colors, adding to the exhibit's overall cheerfulness and energy.

Each of the gallery's 14 computer stations offers all of the unabridged titles, making software surfing easy for visitors. Once they sit down at a station, visitors can look for a specific title by name or type in a child's age and subject interest to obtain a unique list of the best titles in that category. In addition to downloading the program, they can read a short review that includes the suggested age range, assessments from the families who tested the software, a summary of the criteria used to evaluate the program, and a final recommendation, along with the publisher, platform, and price.

The stations also contain a checklist of criteria to gauge a program's learning, graphics, and replay value; purchasing tips; titles in Spanish and Japanese; software suitable for the hearing-impaired; and detailed information on computer viruses, made possible by support from Symantec Corporation. All the software is stored in two powerful, custom-made network servers, and all the stations, which were donated by Canon and Hewlett-Packard, are networked to a central file server using software by Novell.

The *Kids Software Gallery* is evaluated and updated regularly, and an expanded exhibit is planned for next year.

EDUCATIONAL PROGRAMS

Education and exhibits staff continue to implement special educational programming to help visitors get the most out of the gallery. For example, a "Play Group" for parents and toddlers (ages 18 months to five years) allows adults and kids to explore the software together.

For those a bit older, a "Software Discovery Group" (ages 10 and up) leads participants through half-hour tutorials about some of the gallery's expecially challenging titles. Each class focuses on one program in depth and is small enough so that everyone can play.

Visitors in search of more than skill-and-drill exercises and arcade games can sample "Selecting the Best," 15-minute demonstrations with tips on buying the best family software, using examples from the gallery.

THE COLLECTION

Kids Software also touches other areas of the Museum. As Cathy Miranker and Alison Elliott continue to review vast amounts of software, they continue to acquire mountains of packages—all of which currently reside in Cathy's basement. These will eventually become part of the Museum's permanent software collection.

LOOKING AHEAD

The fiscal year ended with a greatly expanded gallery and a brand new book in the works for next year. We're pleased to offer you a peek at the latter in the following pages.

GREAT SOFTWARE FOR KIDS & PARENTS

The Computer Museum continues its rewarding association with children's software gurus Cathy Miranker and Alison Elliott as they ready their second book, *Great Software For Kids & Parents,* for publication by IDG Books Worldwide, Inc. in early 1997.

Part of a new *...For Dummies* series for IDG, the book expands on the review-and-rating format of the original *Guide*, helping parents understand what kids of different ages can and should be doing with the computer. *Great Software For Kids & Parents* features chatty, personal reviews, with each chapter liberally peppered with snippets of practical yet inventive advice.

A sampling of reviews and snippets follows.

●●●

More than three dozen special software profiles provide an in-depth look at the best kids' titles. Here's a profile from Chapter 3, "Playing to Learn":

BUILD-A-BOOK WITH ROBERTO

This product is perfect for preschool-age children because of its unique focus: friends and feelings. If your preschooler is at the stage when you're constantly saying "Don't hit so-and-so, use your words," or if your child needs help putting words to feelings, consider *Build-A-Book.*

The hero, Roberto, is a hippo with a classic kids' problem. Hovering at the edge of the pool, he desperately wants to join the other hippos in a game of "hippo ball." But when Roberto asks, "Can I play with you?" his *friends* tell him to get lost. What's a hippo to do?

Kids help Roberto decide how to make his way into the game. Animated thought-balloons pop up over Roberto's head every time he gets an idea, and kids choose one. Sometimes the possibilities are emotional ("I could get angry" or "I could pout"). Sometimes they're imaginative ("I could amaze them" or "I could give them popsicles"). Sometimes they're outrageous ("I could pump all the water out of the pool"). When kids click their choice, the story resumes, and they watch the consequences. Sometimes, Roberto's strategy works. Sometimes the choice fails miserably, and then Roberto conjures up some more ideas, and kids make another choice.

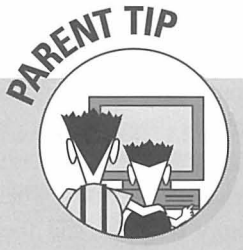
SOLVING PRESCHOOL PROBLEMS

Playing with Roberto is great for preschoolers who are just becoming aware of how their behavior affects others. Kids get to experiment with different emotions and watch how others react. When Roberto throws a temper tantrum, for example, he scares the other hippos right out of the pool. And when he pouts, the others simply ignore him.

At any point, kids can choose to watch or print the story they have created. They can also experiment with emotions in an art room. By clicking on Roberto's face, they can watch his emotions change from angry to silly to surprised, and more. Print the face, and you have a perfect-sized mask for a small child. Kids can color the mask on the computer or print and color it by hand. Depending on their choice, kids can also create Roberto puppets that skip happily or scowl angrily. The Parents' Guide has some great tips about assembling Roberto books, masks, and puppets. (Theatrix Interactive, Ages 2-4)

Whatever the topic, readers of Great Software For Kids & Parents *will find sensible Parent Tips for getting the most from their kids' software.*

If your child is not ready for telling time, don't push it. Remember that kids have an internal developmental clock (please forgive the pun) that governs their readiness to learn. They need to develop a sense of time first—understanding today, tomorrow, and yesterday; morning, noon, and night; school days versus weekends—before they're interested in actually telling time. When they're ready, remember *The Time Twins in Trudy's Time* and *Place House* (Edmark). Even though the rest of the program may seem babyish to them, the clock activity may strike exactly the right note for kids in the second or even third grade.



The book is packed with special ideas for helping kids over the hurdles of schoolwork. Here's a sample from Chapter 6, "Using the Computer to Help Kids Master Math":

THE "I DESPISE MATH" SYNDROME
(& THREE WAYS THE COMPUTER CAN HELP)

An Ounce of Prevention

Cure the problem before it starts. Make a fun, no-pressure math program one of your child's first software titles. Read children's books that give you a chance to "talk math." (We especially love these authors: Mitsumasa Anno, Eric Carle, Tana Hoban, and Pat Hutchins.) That way, kids will have happy "math memories" by the time they reach elementary school. And they'll be less likely to pick up bad math "vibes" from older kids.

Try Togetherness

Talk to your children about how you handle math, whether you're checking the change from a purchase, keeping score at a game, or mortgaging property in Monopoly. Play with your kid's math software. It'll give them a chance to see you having fun with math; and it'll give you a chance to talk math in a no-pressure context.

Instead of hovering while your kids do their homework, hang out while they play a math CD-ROM. And play together, too.

Lighten Up

Humor helps. In one of our ventures onto the Web, we found a collection of math cartoons. Nothing fancy. The cartoons look as though they've been clipped from newspapers over the years and then scanned into the computer. But some are hysterically funny, and older kids may especially enjoy them. (www.csun.edu/~hcmth014/bamdad.html)

Each chapter of Great Software For Kids & Parents *introduces Classroom Connections that show parents how different software titles dovetail with the school curriculum or build school skills.*

Writing or dictating stories helps kids get ready to read. As they watch their ideas take form as words on a page and hear them read aloud, kids make the connection between speaking, writing, and reading. They also encounter story-writing basics like settings, characters, and actions. And children sense the classic patterns—beginning, middle, and end—that make stories so satisfying.

Great Software For Kids & Parents *contains scores of Family Fun suggestions for cooperative (and sometimes competitive) gameplay that extends software fun with off-the-computer activities.*

Just for fun, shelve the almanac that comes with your *Carmen* CD-ROM and don't touch the *World Wiz*. Play the game alongside your kids with you as the reference, instead. Share your geography know-how by thinking aloud as you puzzle out clues. (It's also a good way to show kids how to make an educated guess when you don't know the answer!) When you're right, your kids will be impressed. But be prepared for heckling when you're in the dark and the crook gets away!

●●●

In every chapter, practical Checklists help parents make choices among software titles. Here's one from Chapter 11, "Using the Computer for Explorations Back in Time":

How to choose among the scores of history titles available for home computers:

• • • First consider your kids. What are their personal interests? Egyptian pyramids? The gold rush?

• • • Next consider their schoolwork. Is this the year they tackle state reports? Are they studying colonial America?

• • • Here's the most important of the criteria. Make sure that the history titles give kids lots of experience with the "4 Rs"—Reading, Research, 'Riting and Reenacting:

✔ **Reading.** "Real" words from original sources and literature can attract and personalize kids' interest. Reading (or hearing) words written or spoken in the past tells kids that history is about real people, real places.

✔ **Research.** Kids need to "do" history as well as read about it. When they uncover information on their own about events and people, it really sticks with them.

✔ **'Riting.** For kids, writing history as they read and research hammers home the facts and flavors of times past. Good software invites kids to pretend on paper—writing diaries, newspaper accounts, imagined debates.

✔ **Reenacting.** Stepping into someone else's shoes is a powerful way of experiencing the hopes, hardships, and challenges of historical figures. Don't put this down as mere playacting! Envisioning how (and why) other people felt and acted is as important for understanding the world today as it is for grasping the significance of historical events.

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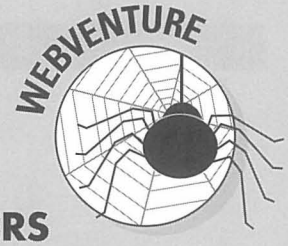
Kid-friendly Web sites can be a real educational bonus—if parents can find them! WebVentures point out worthwhile sites that relate to reading, writing, history, science, geography, and more.



GREAT SITES FOR WORD LOVERS

Chances are kids (and parents!) who like codes also like anagrams and puns, knock-knock jokes, and crossword puzzles. Here are some Web sites to surf in your quest for wordplay:

Palindromes

A palindrome is text that reads the same backward as it does forward, like "Madam I'm Adam" or "Able was I ere I saw Elba." If your child finds those silly sentences intriguing, check out this amazing site for links to hundreds and hundreds of palindromes. You and your kids will find such gems as: "Flee to me, remote elf." "Was it a cat I saw?" "He did, eh?" "No lemons, no melon." (www.rdg.ac.uk)

Anagrams

An anagram is a word or phrase made from the letters of another word or phrase. Ideally, the new word(s) should also shed some light on the meaning of the original word(s). Because it's an exercise in mental agility and good for vocabulary, teachers often have students practice making anagrams. They're fun to do at home, too. Start kids off with simple words, and after they get the hang of it, have them compete with each other or with you by using longer words or names. We surfed the Web for inspiration and found these examples at www.geocities.com:

• The Morse code = Here come dots

• England's Queen Victoria = Governs a nice quiet land

• Funeral = Real fun

For an instantaneous anagram generator, check http://csugrad.cs.vt.edu/~eburke/anagrams.

Word Searches

Every week this site posts new crossword and word-search puzzles that are just right for third through sixth graders. (www.smartcode.com/isshtml/weekwsk)

Word Finds, Analogies & More

This site (http://syndicate.com) features word find puzzle contests (how many words of four letters or more can you make from "trestles" or "charisma," for example); word analogy puzzles (child is to mother as symphony is to x), rebuses (pictures that stand for letters or words), and more.

Illustrations courtesy of IDG Books Worldwide, Inc.

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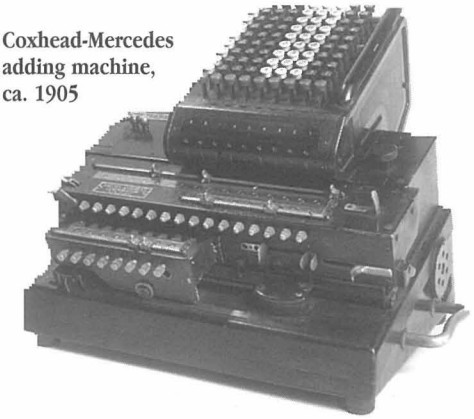
You'll find *Great Software For Kids & Parents,* which comes with a CD-ROM, in The Computer Museum Store (617-426-2800 x307) starting in January 1997 at a cover price of $22.99. You can also order the book on the Internet via e-mail (store@tcm.org) and The Computer Museum Web Store (www.tcm.org).

COLLECTIONS



Coxhead-Mercedes adding machine, ca. 1905

COMPUTERS

Altos Computers
Altos C8000, 1985
One of the first multi-user machines to use Digital Research's MP/M-80 and a large hard disk.
Donated by Andy Johnson-Laird. X1283.96

Apple Computer, Inc.
Apple Lisa
128K
Donated by Boston Computer Society. X1255.96a

Apple Computer, Inc.
Apple II, 1977
This was the first Apple computer sold in New England, specifically at the Harvard Coop in Cambridge. As Apple monitors were not made until 1978, this unit relied on a Sylvania TV, serial number A12142.
Donated by Boston Computer Society. X1262.96a

Apple Computer, Inc.
Apple IIc Plus
Donated by Boston Computer Society. X1255.96b

Apple Computer, Inc.
Apple IIe
Donated by Boston Computer Society. X1262.96b

Apple Computer, Inc.
"Black Apple," ca. 1980
Commissioned by Bell & Howell, this unit is equipped to play videotapes.
Donated by Boston Computer Society. X1263.96

AT&T 7300 desktop computer, ca. 1984
AT&T's first foray into the desktop computer market. It runs a proprietary version of Unix with telephony extensions.
Donated by Andy Johnson-Laird. X1278.96

Atari, Inc.
800 XL computer
Donated by David Dellinger. X1258.96

Coleco Industries
Coleco Adam
Donated by James Patriquin. X1269.96

Compaq Portable Computer, Model 1, 1982
One of the very first off the assembly line.
Donated by Compaq Computer Center. X1234.96

Compaq Computer Corporation
Portable IBM PC-compatible, 1984
Donated by Frank W.Winne. Associates. X1227.96

Cromenco Z2, 1977
Donated by Andy Johnson-Laird. X1279.96
2Mhz/4Mhz Z80 CPU with 65,536 bytes of RAM

Data General Corporation
Data-General One, ca. 1984
Donated by Andy Johnson-Laird. X1281.96

Digital Equipment Corporation
Digital Rainbow, 1984
Donated by William Davis. X1274.96

Electronic Associates, Inc.
Pace 48 Analog Computer
Donated by Aeronautics Lab, MIT. X1248.96

Epson Apex Computer
Donated by Stephen Levine. X1268.96

GM Research
First patented portable computer, 1979
Invented by James Murez, includes patent.
Donated by Leonard Massey. X1243.96

Heath 161 portable computer
Donated by Mr. Micha Ronen. X1272.96

International Business Machines Corporation
IBM PC (first model), ca.1982
Donated by William Wachenfeld. X1261.96

International Business Machines Corporation
PC jr., ca 1983
Donated by Thomas Burchill. X1259.96

Kaypro 10 Computer, 1984
Donated by Neil Karl. X1231.96

NEC Corporation
8201a laptop computer, 1983
With miniature printer, tape recorder, cables, software tape.
Donated by Al Marsh. X1247.96

North Star Computers, Inc.
Advantage Computer
Donated by Connie Ducey. X1253.96

Olivetti ETV 260 word processor, ca. 1980
CPU built into printer.
Donated by Boston Computer Society. X1232.96

ON Computer
Donated by Jim Kahnweiler. X1242.96

Onyx Computers
Onyx C5000, ca. 1982
Donated by Andy Johnson-Laird. X1282.96
One of the first "professional" personal computers used in US businesses. A descendant of the Altos C8000, it uses a 5" hard disk manufactured by IMI and features a non-streaming tape drive from DEI for backup purposes.

Osborne 1 "luggable" computer, 1981
Donated by Joe Santangelo. X1226.96

Processor Technology, Inc.
Sol-20 Computer, ca. 1978
Donated by Richard Pence. X1254.96

Tandy Radio Shack
TRS-80, Model I, 1977
The TRS-80 (affectionately known as the "Trash-80") was a hit on the home front for those without the wherewithal to tackle the homebrew kits on the market. The set contained a monitor, keyboard, and already installed BASIC software and relied upon a standard issue cassette recorder to record programs or load taped programs. Word length was 8 bits. 16K memory.
Donated by Mark Corigliano. X1238.96

Tandy Radio Shack
TRS-80, Model 100 (laptop), 1983
Donated by Charles Zraket. X1233.96

Texas Instruments, Inc.
TI-99/4a, 1979
Donated by Susan McDougall. X1235.96

Texas Instruments, Inc.
TI-99/4 with speech synthesizer, 1979
Donated by Walter Tincher. X1245.96

Timex-Sinclair 1000 (ZX81), 1981
Donated by David Dellinger. X1240.96

Victor Computer Corporation
Two Victor 9000 computers, ca. 1982
One with internal hard drive, one with external hard drive.
Anonymous. X1293.96

Zenith laptop computer, ca. 1983
Donated by KSNW-TV, Wichita, KS. X1270.96

Zenith Z-100
Donated by Ruth Sheridan. X1257.96

SUB-ASSEMBLIES AND COMPONENTS

Amdahl Corporation
Integrated circuit with cooling tower element, embedded in lucite cube.
Donated by Rita Saltz. X1277.96

Cromenco, Hayes, et al.
Eight S-100 boards used in the Cromenco Z2, 1975-1978
(1) EPROM burner; (2) early PC speech synthesizer; (3) Tarbell audio cassette tape interface (made by PC pioneer Don Tarbell); (4) Speech-lab speech recognition board; (5) DC Hayes modem card (300 baud); (6) Digital/analog board from Cromenco; (7) S-100-based logic analyzer (connected to oscilloscope for test/diagnosis work); (8) 2 dazzler boards.
Donated by Andy Johnson-Laird. X1280.96

Intel Pentium Chips, 1995
Ten chips in tray, measuring 12 1/4" x 5 1/4".
Donated by Intel Corporation. X1289.96

Prime 9655 CPU board set
Donated by Paul Sliney. X1273.96

CALCULATORS

Burroughs Adding Machine Corporation
Portable Adding Machine, ca. 1940
Donated by Mrs. Eleri Gulliver. X1228.96

Contina Ltd. Mauren
Curta calculator, ca. 1950
Donated by Thomas A. Hundt. X1275.96

Coxhead-Mercedes adding machine, ca. 1905
Donated by John Hancock Financial Services. X1244.96

Otis King
Helical Slide Rule, ca. 1930
Serial Number R1807
Donated by M.L. Petterson. X1265.96

MEMORY

Digital Equipment Corporation
Unused 1" PDP tape (1 box)
Donated by Walter Beesley. X1241.96

Ferranti
Cathode Ray Tube, ca. 1950
Suspended in wooden crate - 21"x11" x11"
Donated by Philip E. Fox. X1286.96

International Business Machines Corporation
Magnetic Core Plane Parts, 1955
These experimental parts represent some of the results of Dr. Hans P. Luhn's study of the core-plane winding problem. A green plastic plate was designed to hold 3-hole cores then being considered for a higher-speed memory. The tan and gray plastic strips held conventional cores for winding as is illustrated by several cores on one of the strips. A number of these strips were to be stacked so that an additional wire could be put through each core perpendicular to the wires that ran along the strips. These approaches were dropped when improved techniques for handling and winding toroidal cores were developed by MIT Lincoln Labs and IBM Poughkeepsie Manufacturing.
Donated by Philip E. Fox. X1285.96b

International Business Machines Corporation
Two IBM 704 Magnetic disks, ca. 1955
36 cm in diameter, hole in middle 18 cm in diameter.
Donated by William Meyer, Inc., IBM. X1230.96

International Business Machines Corporation
Unused IBM punch cards (1 box), ca. 1962
Donated by Shag Graetz. X1267.96

James Millen Manufacturing Company, Malden, MA
Electrostatic Memory Unit, Type 706, 1953
Each unit holds 2 type IBM-85 3 inch cathode ray tubes, which were specially designed for Williams' storage use.
Donated by Philip E. Fox. X1284.96

MIT Whirlwind computer, ca. 1951
Plug-in circuit boards, 4X4 core memory planes, paper tape and peripherals (spoolers, transports).
Donated by Bill Wolf. X1256.96

Tandem Semi-memory Board, 256 KB, 1979
This board was used in a NonStop computer and once sold for $20,000.
Donated by Shanghai Tandem Division. X1290.96

LOGIC

International Business Machines Corporation
IBM 701 pluggable logic units, ca. 1950
Donated by Philip E. Fox. X1285.96a

International Business Machines Corporation
Two IBM 704 Plug-In Logic Modules, ca. 1955
Donated by William Meyer, Inc., IBM. X1229.96

TRANSDUCERS

Dataproducts Corporation
Dataproducts Printer, 1962 Serial Number 1
Donated by Dataproducts Corporation. X1295.96
Includes a 500-page thesis by Rick Forman on the First 10 Years of Dataproducts.

Digital Equipment Corporation
VT100, 1981
Donated by Dr. Thomas Altshuler. X1237.96

Hayes Microcomputer Products
Smartmodem (300 baud)
Donated by Dr. Thomas Altshuler. X1236.96

International Communications Corporation
Two 24 LSI modems, 1976
Donated by BBN. X1292.96

MICROPROCESSOR-BASED DEVICES

Bally, Inc.
Pong Game (home TV version)
Donated by Stephen Levine. X1251.96

ROBOT

Heathkit Hero Jr. Robot
Donated by Steven Reich. X1260.96

CARD DATA PROCESSING EQUIPMENT

International Business Machines Corporation
IBM 603 Multiplier Chassis, ca. 1946
The 603 was manufactured for a short time in 1946-1947 before it was replaced by the Type 604 Calculating Punch.
Donated by Philip E. Fox. X1285.96c

Wright Line
Model 2600 Manual Card Punch
Donated by Joe Fisher III. X1271.96

SOFTWARE

Internet worm source code, 1988
Programmer's decompilation of the worm that brought the Internet down in 1988. The code was written by Robert T. Morris, Jr., then a student at Cornell University.
Donated by NASA Ames Research Center. X1294.96

OTHER

Data General
College Campus Recruiting Poster, 1977
Executed in comic book style, this poster portrays four action superheroes, each bearing a Data General product or product name on his or her uniform.
Donated by Charles Polachi, Jr. X1287.96

IntelliChoice, Inc.
***The Complete Car Cost Guide*, published in April, 1987.**
The first database-published book to be computerized and automated.
Donated by IntelliChoice, Inc. X1276.96

International Business Machines Corporation
Teakwood coaster holder with metallic IBM 360 logo, ca. 1964
Donated by John Esbin. X1266.96

Ungermann-Bass
Access One 11/slot chassis (router)
Autographed by Ralph Ungermann, this is the 1000th Access One produced.
Donated by Microsoft Corporation. X1291.96

Hermann Zapf archive, ca. 1970-1990
Two linear feet of business-related material of the noted typographer. Collection includes design and printing examples; corporate information on his company, Design Processing International; format manuals; and miscellaneous clipped articles.

STUDY COLLECTION

The study collection is administered and stored separately from the artifact collection. The items in this collection are used for educational, exhibit, and research purposes. They often duplicate items in the artifact collection.

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Commodore PET
Donated by Stephen Levine. S#1250

Epson HX-20 portable computer, 1982
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Donated by Alan Bowler. S#1252

Tandy Radio Shack
TRS-80, Model 1, 1977
Donated by Khaled Ahmed Soliman. S#1288

Tandy Radio Shack Corporation
TRS-80, Model 100, 1980
Donated by Ed Robin. S#1249

Timex-Sinclair Spectra 1000 (ZX81), 1981
Timex-Sinclair, Inc.
Donated by Khaled Ahmed Soliman. S#1264

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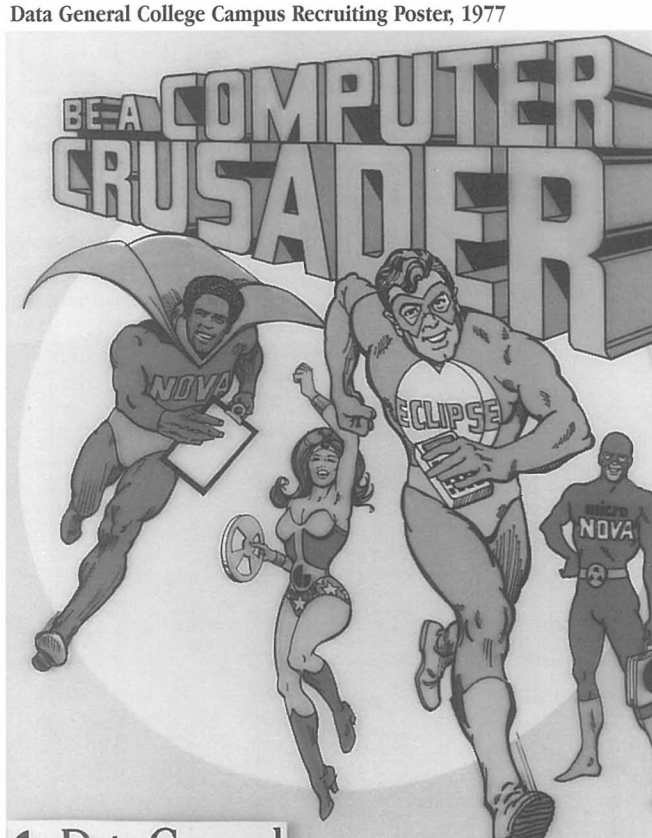
Data General College Campus Recruiting Poster, 1977



THE 1996 COMPUTER BOWL

A unique fundraising event to benefit the Museum's educational programs, The Computer Bowl™ plays out the legendary East/West Coast high-tech rivalry in a contest of computer knowledge. The 1996 Bowl marked the release of the Museum's *Official Computer Bowl Trivia Book* (see page 5), and videotaped cameo appearances by industry leaders. The score was the West 240, East 200. Since 1988, the Bowl has raised $2.5 million in donations and in-kind support. It attracts hundreds of sponsors and volunteers, and media coverage around the world. The Bowl would not have been possible without the support of those listed below.

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The East Coast Team (from the left): George Colony, Judith Hurwitz, Paul Gillin, Ted Leonsis and Steve Mills.

Joe Czop

Joe Czop

The winning West Coast team (from the left): Dave Anderson, Magdalena Yesil, Captain Steve Blank (hoisting the trophy), Gordon Eubanks and Eric Schmidt.

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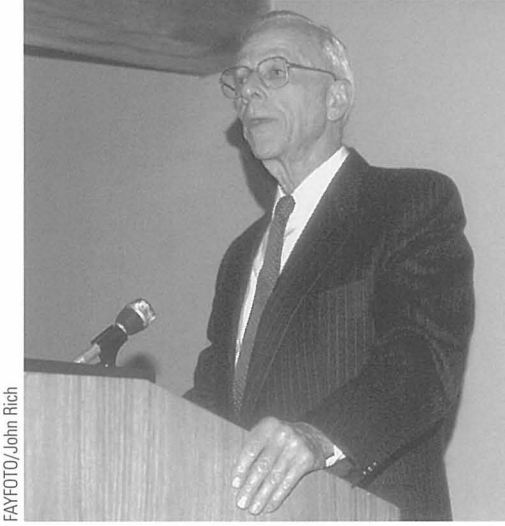

FAYFOTO/John Rich

Jay W. Forrester addresses The Friends of The Museum at their first annual dinner. He was named a Museum Fellow for his contributions to computing, i.e., the design and construction of the Whirlwind computer.

FAYFOTO/John Rich

Computer Museum Founding President Gwen Bell (left), Marabel Lopez-Howard, and Andrew Dod of Hayes Microcomputer Products discuss *The Walk-Through Computer* upgrade, which includes a giant replica of a Hayes modem.

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Cathy Miranker, co-author of *The Computer Museum Guide to the Best Software for Kids*, joins Museum members' children for the *Kids Software Gallery* ribbon-cutting.

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From left: Christopher Grotke, Computer Museum exhibit developer; Suhas Patil, Cirrus Logic Inc. chairman of the Board; Charles Zraket, Computer Museum chairman of the Board; and David House, Intel senior vice president, unveil *The Walk-Through Computer 2000*.

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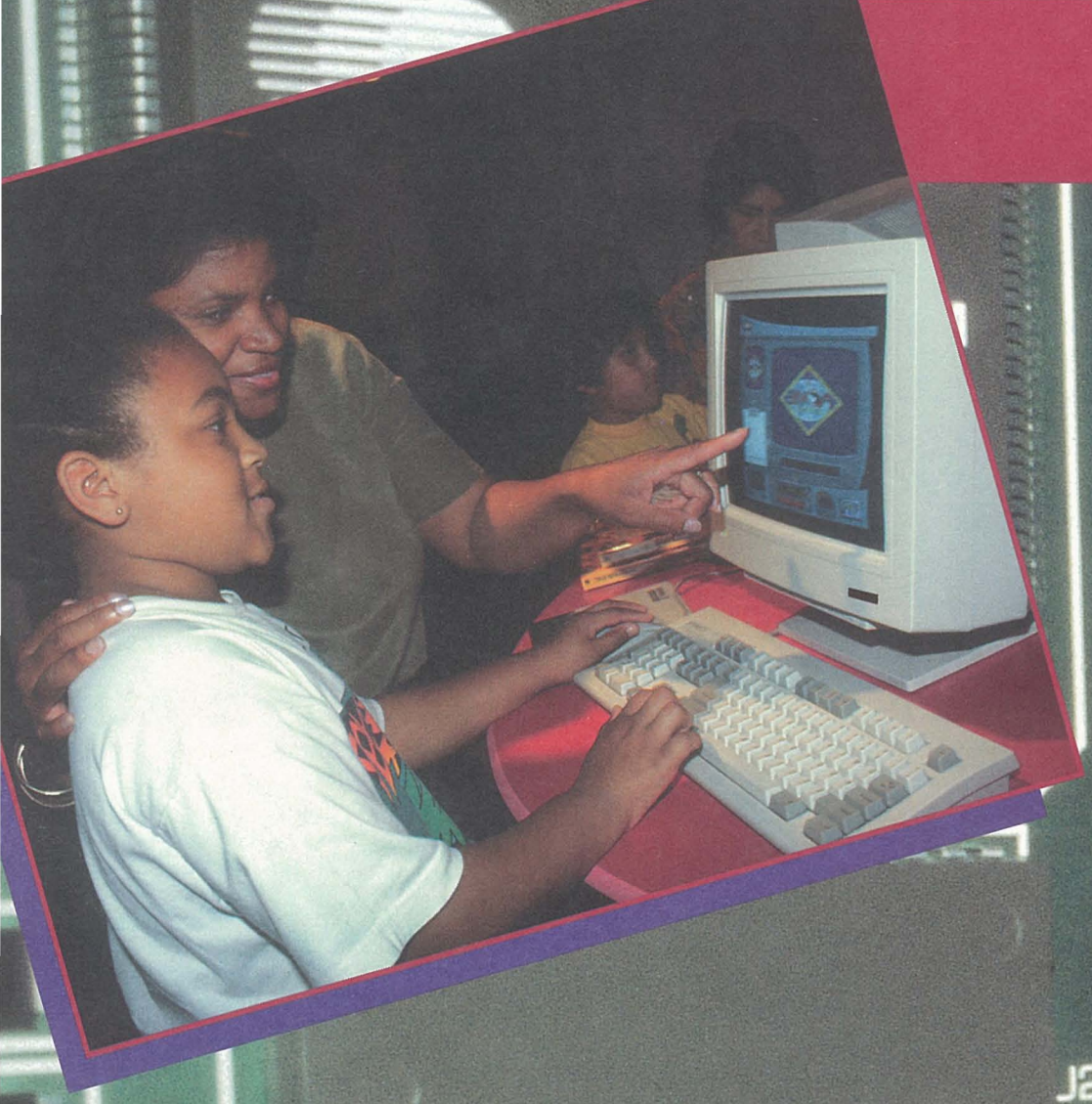

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