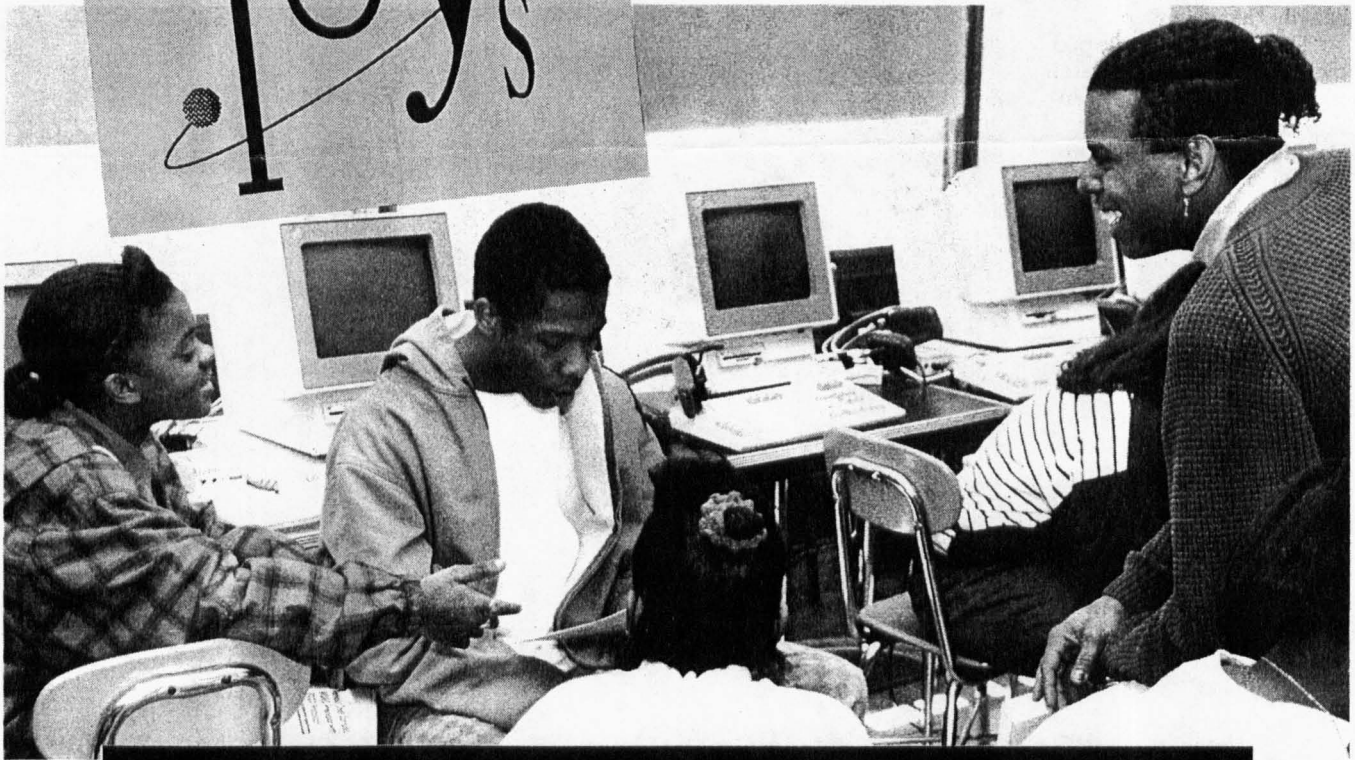


TOOLS & Toys

Teresa A. Martin
Photos by Neal Hamberg

Noah Southall of The Computer Museum's Education Department discusses the text of exhibit signs with Martin Luther King School eighth-grade computer students.



The Amazing Personal Computer

A new "can do" exhibit computes the possibilities

(BOSTON) I grew up B.C.—Before Computers. Well, technically speaking, computers did exist, but they lived in some distant cave where they crunched numbers, spit out names, and never, ever made a mistake. They were mysterious, they were awe-inspiring, they were powerful, but they were most certainly not fun.

In the years since, computers have worked their way into most of our lives. Today, there are over 120 million personal computers worldwide, and one out of every three people in the United States uses one. A computer hums in 27 million American households, one rests on the desks of 28 million American workers, and 95 percent of American schools have used computers as teaching tools.

But even though they've become smaller and are a near-ubiquitous fixture on our desks (and even on our laps), by and large the computer still represents work and responsibility and is capable of generating more than a little anxiety, even for those of use who work with one from day to day.

The Computer Museum in Boston wants to change all that—or least give us a leg up—and with its newest exhibit, it just might succeed. When *Tools & Toys: The Amazing Personal Computer* opens to the public on June 13, it puts the ever-present desktop computer front and center.

The new 3,600-square-foot, \$1 million project uses a touch-and-feel approach to illustrate the vast possibilities of the machine's capabilities. Its origins lie in the decade-old BCS-sponsored Computer Discovery Center concept of demystifying computers for the non-technical user, and it draws on a combination of intriguing activities and easy-to-understand explanations to make the sometimes-fearsome computer feel friendly.

Built with funding from, among others, Microsoft founder William H. Gates III, the Kapor Family Foundation, Apple cofounder Steve Wozniak, Apple Computer Inc., Digital Equip-

ment Corporation, Raytheon Company, Cabot Corporation Foundation, and 3Com Corporation, as well as the expertise of dozens of volunteers, the exhibit successfully combines everyday computer tools and exciting but not-yet-widely-available technologies such as pen interfaces and virtual reality to vividly show the versatility of the personal computer for work, learning, communication, and—last but certainly not least—fun.

Reach Out and Touch Some Bit

The focus on the exhibit is on “doing it”—using a computer, that is. Interactivity is the watchword, and visitors have 35 different work areas to go heavily “hands-on” in.

“The idea is to inspire people, to let them experience all the different things they can do with a computer,” says David M. Greschler, exhibit developer. “We want them to get onto the machine and actually use it as a tool and get results from it. You can draw and print out pictures. You can make up a song and listen to it play back. It’s not just interactive, but creative. We want people to say ‘I did it.’”

Greschler points out that this exploration fits in neatly with the museum’s other offerings. “We have exhibits on the history of the computer, on artificial intelligence, on high-end graphics. The Walk-Through Computer shows how a computer works. Up to this point, we haven’t really answered WHAT can I do with this computer?”

Tools & Toys, offers a clear answer: You can do just about anything. During a visit, one can do the following:

- Create a picture
 - Make a video starring yourself
 - Talk to the computer
 - Play computer games
 - Perform explosive chemical experiments
 - Plan an ant colony
 - Plan a wedding
 - Explore virtual reality
- And that’s just for starters.

Septet of Exploration

In developing Tools & Toys, The Computer Museum wanted to encourage visitors to draw, pound, type, and playfully explore the range of possibilities brought about by the computer. To do so, it divided the exhibit area into seven “rooms,” each dedicated to one type of computer work. As befits the title word “toys,” these rooms aren’t small grey computer cells. Instead,

they’re the sort of rooms you’d expect to find inside an animation cell. Angled windows, slanted walls, vivid reds and yellows and teals and blacks, coupled with curved clear glass block walls create an exciting environment that feels larger and more open than its square footage alone indicates.

Each area houses multiple workstations, representing a wide cross-section of hardware and software—some not yet commercially available—and demonstrating variations on the room’s theme. Work areas are set up so that small groups can easily share each



MAKING PICTURES



Nancy Boland, education assistant at the museum, asks students what their concept of a computer would be.

other’s experiences and take turns using the computers.

In the first room, *Making Pictures*, the emphasis is on creating images—drawings, pictures, and video. Computer graffiti lets

you draw on the wall without penalty. Video capture and image manipulation lets you walk on the moon and star in your own movie. Always wanted to make cartoons? Now you can. And be sure to set aside time to sample the world of interactive graphics through the wonders of virtual reality.



MAKING SOUND

Images lead naturally to text, and *Writing* is the second stop. Here, you can work with a pen-based system, test the grammar

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of famous quotations, check out alternative input devices that let computers adapt to the needs of disabled individuals, and print your name in different typefaces—or even in hieroglyphics or braille.

Exhibit developer David Greschler shares a pizza "power lunch" with students at the Martin Luther King School Library as they discuss the "Tools & Toys" exhibit.



As you write the Great American Novel or the script to Broadway's Next Big Hit, you can hear music emanating from the room next door. When you're ready to record the soundtrack to your literary work-in-progress, move on to the *Making Sounds* area. Here, you become a musician, a sound engineer, and a music producer. Through MIDI technology, you create, record, and play back your own musical masterpieces. Voice synthe-

sizers and sound samplers give the growing area of sound technology a new beat. *Adding It Up* lets you fantasize on where and how you'd spend a million dollars and along the way shows you the tools people use to keep track of numbers—from the abacuses, slide rules, and adding machines of the past to the spreadsheets and other software of the Information Age. Weddings and chemical



Issues of the Hour

Because computers are so much a part of life, another goal of the exhibit is to make people stop and think as they work. For example, merging a picture of yourself with a picture of the lunar surface is fun to do, but should it be done? What if you pub-

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The exhibit successfully combines every-day computer tools and exciting but not-yet-widely-available technologies.

.....

lished the picture and said you were on the moon? How easily can we make pictures lie? What about the merits of computers—do they really help us do our work better? Does a spell checker create a better book or just a lazier writer? If we have multi-media, do we need printed matter?

The BCS Connection in Tools & Toys

The exhibit that opens at The Computer Museum on June 13 is the realization of over a decade of planning by The Boston Computer Society.

According to BCS chairman and founder Jonathan Rotenberg, the original mission of the BCS when it was started in 1977 was to demystify computers for the non-technical user and to help people figure out what they could do with a computer in their home or business.

The organization grew, and by 1980, the BCS Board of Directors realized that most of the BCS's services were geared toward the more sophisticated user, and, thus, were not meeting the original goal set forth by the Society. For several years, the group wrestled with the problem, considering, among other solutions, setting up storefront facilities where people could

come and participate in inexpensive workshops.

Around the same time, Jim Zien, one of the founders of the Museum Wharf version of Boston's Children's Museum, had been thinking about a center where people could come to learn more about computers. He envisioned something that would do for computers what science museums did for science and technology. His vision and the BCS vision seemed to mesh; it was agreed that Zien would do fundraising and planning while the BCS would provide some initial seed money for the project, which was named Computer Discovery Center.

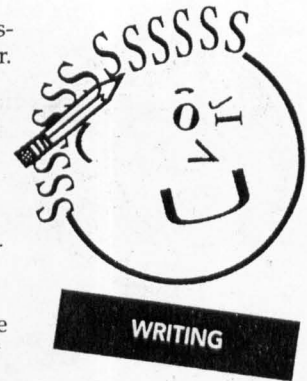
The group began the process of assembling a committee and searching for a site at little or no cost. Meanwhile, out in Marlboro, Mass., Digital Equipment Corporation had given over a lobby in one of

"We also wanted to raise questions and issues," says Greschler. "We have debate panels throughout, which raise topics such as 'can/should computers replace books?' There are little thoughtlets of opinions that people can read and take as a starting point for having discussions themselves. For school groups, we want to have these debate questions available to the groups before they visit, so they can discuss them, then explore them further here."

Other presentations intermixed with the live computers explain basic computer topics, such as hardware versus software, what is an operating system, what is a word processor, and what makes a computer virus. These are underlying areas of knowledge that many people don't fully understand and want to learn more about, explains Greschler.

User-Tested

Visitors to any museum are not exactly endowed with great patience when an exhibit doesn't work—they've paid their money and want the goods. Software being software, support



its buildings to display computer and corporate artifacts. As the collection grew, it became clear that there was a real need to build a computer museum so that these artifacts would not be lost.

In 1984, all three pieces—the BCS, Computer Discovery Center, and the Digital collection—came together when the Transportation Museum moved out of Museum Wharf, opening up prime museum space. It was an opportunity that could not be passed up. The Computer Museum, with its historical slant, fit very nicely with Computer Discovery Center. The museum as we know it today was founded, and planning began for what would ultimately become *Tools & Toys: The Amazing Personal Computer*.

"It took a little bit longer than we originally planned, and it has changed names

once again, but the concept is very much intact as being a place where people can discover all the things personal computers can do, and, specifically, what the computer can do for them in their lives," says Rotenberg. "It is what we had envisioned."

Rotenberg notes that much of the development of the concept came from BCS volunteers. "It is something that is very much the product of the vast energy and talent of BCS members," he notes.

He also points out that BCS members get a free admission pass to The Computer Museum in their membership package—and that many members don't take advantage of it.

"Go to the museum!" he urges, "If you haven't seen it since it first opened, you'll be surprised how much it has changed."

—T. A. M.

explosions may or may not have anything in common, but in *Exploring Information*, it becomes clear that the computer can help plan both. The focus of this area is working with data in its many forms. Project planners, database software, data searches, and online research are terms that take on practical overtones as you use them for real.

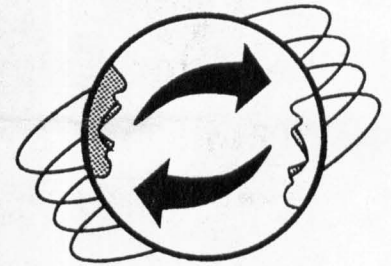
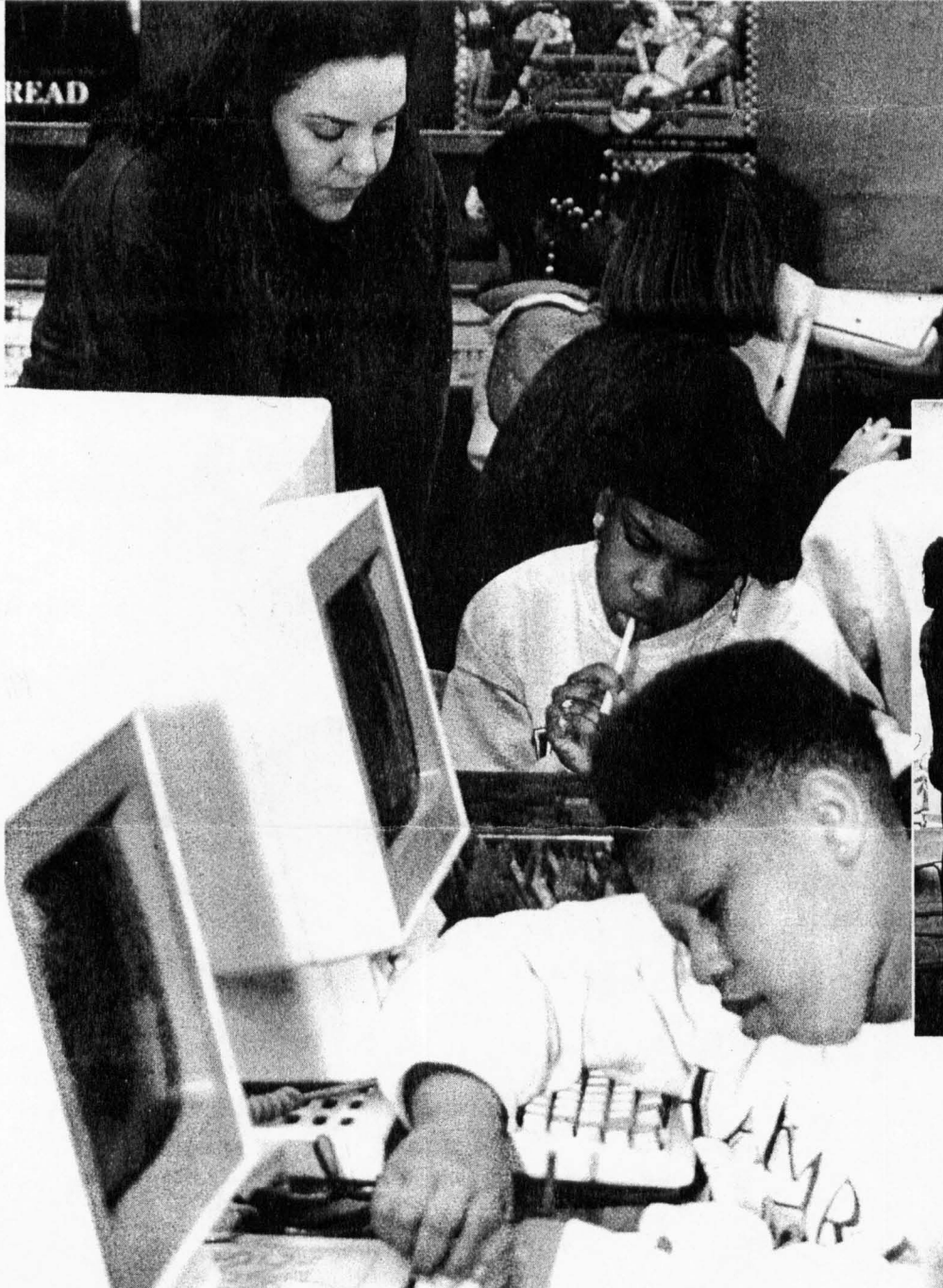
Sharing Ideas profiles networking and the power of "groupware." Instead of encouraging people to blow each other out of the electronic universe, this area encourages cooperation and group puzzle-solving, as well as showing the fun of E-mail.

Finally comes the category that's just for fun. *Playing Games* includes a variety of games, including a custom-created flight simulator (early reviews give a big "wings up" to this one), as well as several arcade-style and thinking-style games.

Is That All There Is?

If the bulk of the exhibit is dedicated to the principle of "I did it," the final stop is designed to make visitors ask, "What else can I do?" *Where Do I Go From Here?* offers a place to browse through computer-related books and magazines as well as databases that list computer organizations (such as the BCS) and other computer resources.

"The idea of a resource center was there from the beginning," says Jonathan Rotenberg, BCS founder and chairman. "We always saw discovery as the first step, and the Discovery Center as a place whose job wouldn't be complete unless people went away knowing what the next steps are."



SHARING IDEAS



Above: Ted Groves, exhibit designer, goes over the fine points with one of the carpenters.

Left: Designer Asa Chibas looks over the shoulders of Martin Luther King School students reviewing text for exhibit signs.



**EXPLORING
INFORMATION**

of an interactive exhibit this size was a very real concern for museum staff. After all, a computer installation incorporating IBM and DEC PCs, Apple Macintoshes, an Apple II, Amiga PCs, a GRID system, notebook computers, and a host of peripheral devices, used by hundreds of different—and often novice—users daily, would give even the most intrepid system manager a few worry-filled sleepless nights. That's one of the reasons that the software has undergone an unusually arduous test—by real

users in the museum environment.

This type of testing is called formative evaluation by those in the education industry. Formative evaluation goes beyond the traditional computer industry alpha/beta site to examine not only how a product works, but also how users respond to it. It applies to both the functionality and the contents of a product. This type of research is itself a tried and true concept; one of the reasons *Sesame Street* has been so continuously successful with its audience is its extensive use of formative evaluation.

"Evaluation is a fundamental part of design," explains exhibit designer Greschler. "You design up to a point, then you test it."

In Tools & Toys' case, evaluation took place in an area named Exhibit Lab. For nearly six months, the sparsely-decorated, modest prototype area located on the museum's fifth floor was home to the Tools & Toys road test and open to the general pub-

lie. If something could possibly go wrong, it did. If a twist or turn could leave a user behind, someone found that twist. If a problem or presentation was dull, the museum heard about it. Hundreds of evaluations later, the software has been altered to reflect what its users wanted, and its shakes and rattles have been repaired and tested in triplicate.



The BCS User Interface Group came twice and acted as a focus group for many of the exhibit's presentation ideas.



"We watched how people used the software," says exhibit designer Greschler. "We put it on the floor and watched what people did with it. Exhibit Lab was a wonderful way to evaluate the functional issues, but more important, to see if the activity worked as a concept. For example, with the image processing concept, I knew within two days that it worked. But there were other things that we had to go back and redesign."

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Going to School, Too

The museum also turned to outside advisory groups for help. For example, the BCS User Interface Group came twice and acted as a focus group for many of the exhibit's presentation ideas. But the most unusual advisory group was a class of eighth graders from Boston's Martin Luther King Jr. Middle School.

The 22-student computer class served as the exhibit's official student advisory team throughout project development. They tested software and gave feedback on the planned physical layout, and, in return, received a year's family membership to the museum.



WHERE DO I GO
FROM HERE

"The kids were great," says computer teacher Karen Fitzpatrick of her class's work on the project. "They'd say this is so soooo boring or this is really fun but the screen's too small. The bilingual kids wanted to know why everything was only in English. When we came back to the museum a month later, the museum had made several of the changes. They really took the kid's advice into the development of the exhibit, and the kids were impressed that adults actually listened to what they had to say."

"It's been a terrific experience for us," says the museum's director of exhibits, Greg Welch, adding that he'd like to see a similar advisory group on future projects.

"Their feedback has been really eye-opening. For example, we tried to simplify everything, but the kids came in and said 'it's too easy, make it more challenging.'"

"So many times, a museum will create an exhibit without consulting the people for whom it's designed. Then when it opens and it doesn't work, it's difficult to know what to do. But here, we're getting feedback while we are still able to make changes. This has proven to be one of the most spectacularly successful collaborations we've ever done."

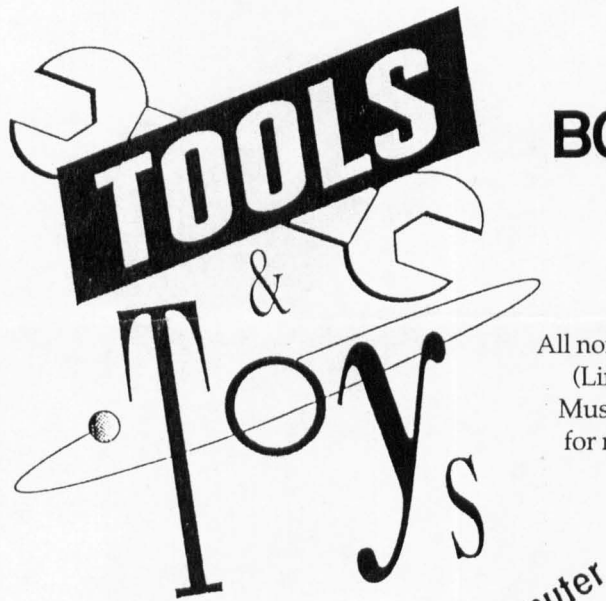
Happy Tenth

Tools & Toys would be an exciting addition at any time, but it is especially relevant this summer—its debut kicks off a year of special events marking the museum's tenth birthday.

It is only fitting that The Computer Museum should celebrate its first decade by going back to its roots and asking the question that launched it in the first place: Why care about computers at all? With Tools & Toys, the answer is there on the fifth floor—because they are great tools *and* great toys and they've changed our lives forever. ☐

Teresa A. Martin is a Medford, Mass.-based freelance writer who reports on a variety of computer, technology, and societal topics. Copyright 1992 by Teresa A. Martin.

Neal Hamberg is a professional photographer. Photos Copyright 1992 by Neal Hamberg.



The AMAZING Personal Computer

In celebration of the BCS's 15th Anniversary
and the opening of "Tools & Toys,"
we invite you and your family to:

BCS Day At Tools & Toys

Sunday, June 21, 1992
The Computer Museum

All BCS members will be admitted free to the museum that day with their membership card.
All non-members will receive \$1.00 off regular admission prices.
(Limit 5 non-members with every member. June 21 only.)
Museum hours are 10:00 a.m.–5:00 p.m. Join fellow members for refreshments in the auditorium from 1:30 p.m.–3:00 p.m.
Hope to see you there!

The Computer Museum

300 Congress Street
Boston, MA 02210

Admit One BCS Member

Must be presented with a valid BCS membership card.

Present your membership card at the museum shop for a special gift!