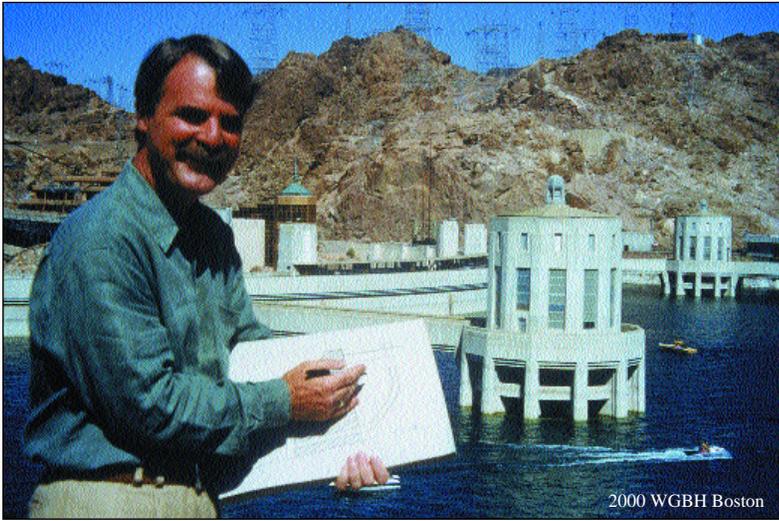


MEET THE MIRACLE MAN OF CONSTRUCTION EDUCATION!



2000 WGBH Boston

CONSTRUCTOR SPEAKS WITH **DAVID MACAULAY**—THE BEST-SELLING AUTHOR, ARTIST, AND ARCHITECT WHO MAKES KIDS LOVE CONSTRUCTION

Photo at left: Macaulay sketches on location at Hoover Dam during the filming of *Building Big*, Macaulay's five-part TV series for PBS. The series celebrates bridges, domes, skyscrapers, dams, and tunnels.

Anyone who picks up a David Macaulay book on Roman cities, castles, cathedrals, pyramids, or any number of other construction marvels is instantly hooked. Macaulay has a remarkable gift for conveying complex architectural and technological concepts with simple language and drawings. Raves one Macaulay admirer on Amazon.com, referring to his mega-bestseller *The Way Things Work*, "I have earned the reputation for being a genius who knows a bit about everything, and I owe it all (almost) to this book."

Although adults are by no means immune to his appeal, one of the most exciting things about Macaulay's work is its accessibility to young people. By generating enthusiasm about construction and technology, he is helping future constructors, architects, and engineers discover their callings and also helping to quash the die-hard stereotypes of construction as a dead-end field for the uneducated and the unintelligent.

KEEPING A CHILD'S PERSPECTIVE

In an online chat forum, Macaulay recently commented on the models he designed and built as a child, using paper, cigar boxes, tape, wood, and string: "I always wanted something in the models to move, whether it was an elevator that went up and down inside larger boxes or doors that would open and close by pulling strings." He's never lost his childhood sense of wonder about the world, which perhaps has something to do with why millions of children are magnetically drawn to his books, videos, and TV specials.

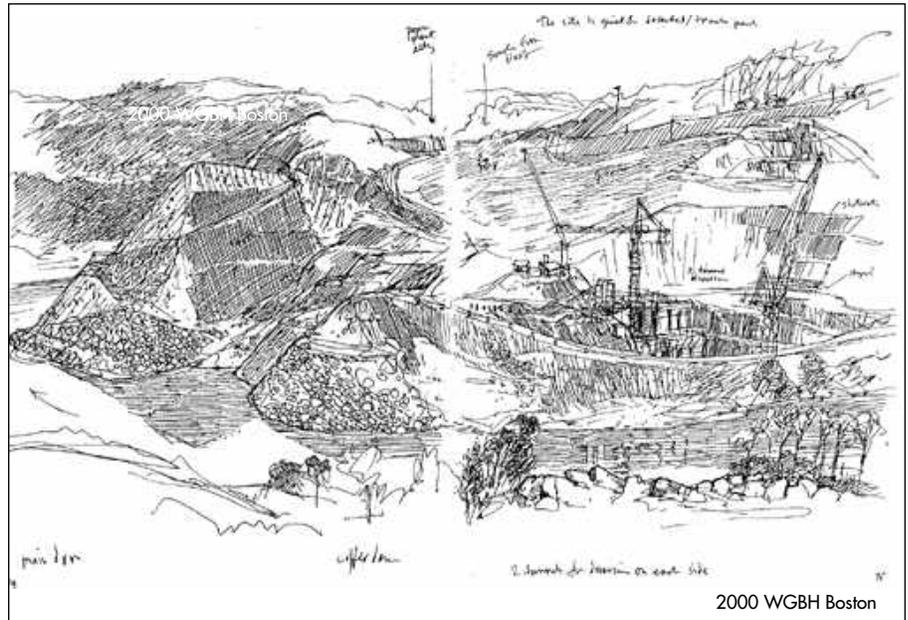
DAVID MACAULAY'S LIFE AND TIMES

Even Macaulay's life and career are inspiring. Born in northern England in 1946, Macaulay and his family moved to the United States when he was 11. He earned a B.A. in architecture from the Rhode Island School of Design (RISD), Providence, R.I. Following graduation in 1969, he worked in interior design, taught junior and senior high school art, and in 1973, took off to France, where he researched his first book, *Cathedral*, which was published that same year.

Macaulay ultimately returned to RISD,

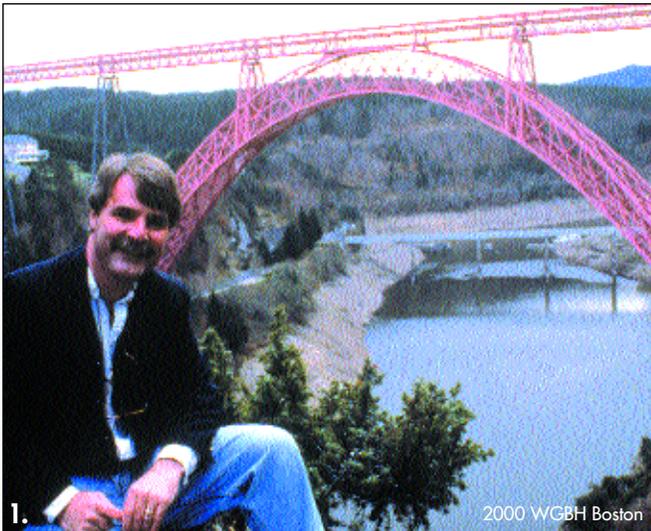
where he has served on the faculty for the last 25 years. His work has garnered many awards, including the Caldecott, for excellence in children's literature, and the *New York Times* and other media have recognized his books on best-of-the-year lists. To date—including the revised and anniversary editions of *The Way Things Work* and *Cathedral*—Macaulay has published 21 books for various grade levels, some of which have accompanying video versions or interac-

(continued on page 32)



2000 WGBH Boston

Doing research for the landmark *Building Big* series, Macaulay also went on location in Brazil. Above, two large dams under construction. When it comes to understanding construction, says Macaulay, computers are good but pencil and paper are better. "Drawing is particularly useful. You think about each line you put down."



tive CD-ROMs. He has also hosted the acclaimed five-part PBS series *Building Big* as well as programs based on his books *Cathedral*, *Castle*, and *Pyramid*. At least one AGC chapter, the Greater Detroit Chapter, sponsored the *Building Big* series on its local PBS station. “We were extremely pleased to support a miniseries that celebrated some of the greatest construction and engineering projects the world has ever seen,” says Michael Smith, executive vice president of the association.

The chapter has used copies of the *Building Big* companion book to the TV series to help promote AGC’s *Build Up!* and *On Site!* construction education programs for elementary and middle school students. “The books help build enthusiasm for our programs, and we show teachers how *Building Big* can be integrated into the *Build Up!* and *On Site!* curricula,” says Smith.

CONSTRUCTOR recently spoke with Macaulay to find out more about the means and methods of the “man who makes kids love construction.”

—By *Maria Williams*, senior associate editor

Q: Where do you draw your inspiration from?

Macaulay: Everywhere. Ideas and possibilities arise out of daily routines. Reading the paper, talking to people, even on occasion from watching TV. I am lucky enough to live in an old town in Rhode Island that is on the water and filled with lots of old buildings. Walking around town together, my wife and I see things through our three- and five-year old children’s eyes. Traveling at their speed means we often notice things we might otherwise have missed.

Of course it works both ways. I love seeing them get excited about the things

around them, building a vocabulary of images for the future and most importantly, having their imaginations fed.

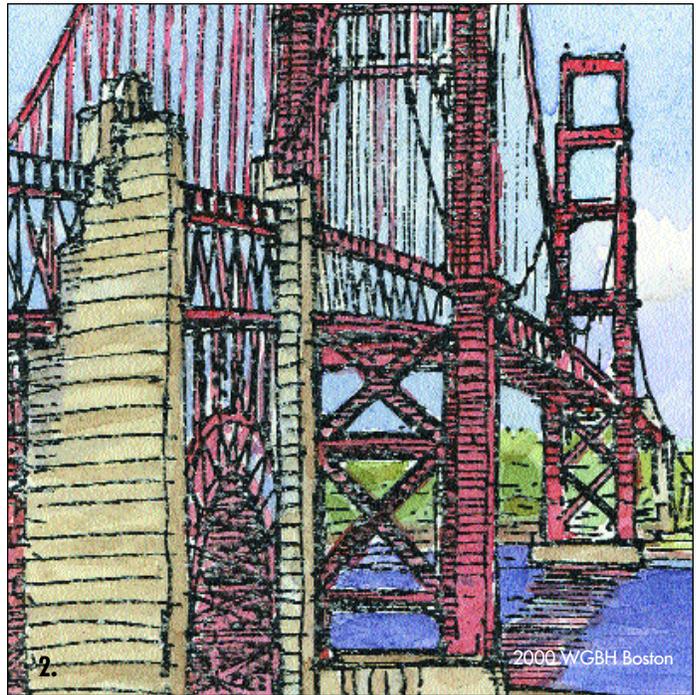
Q: Where do you start researching your topics? Is there one source that you routinely consult when you start a new project?

Macaulay: I have a pretty good library in my studio. I generally start with the books I’ve got. In the case of *Mosque*, a book I’m just about to begin, I had to start collecting books. That put me on the Internet. In doing *Building Big*, I found myself on the Internet using the engineering library at the University of California, Berkeley. So there I was sitting in my studio in Rhode Island looking at photos in the Berkeley library of a bridge under construction. I sat drawing in front of my computer screen just as if I were in front of the bridge.

I take lots of photos when I visit sites myself, but later it’s often difficult to make out many of the details. That’s why it’s so important to actually sketch the things as well. To draw them, I really have to look at them and that helps me understand them. If I don’t understand the subject matter, I’ll never be able to explain it successfully.

Q: Some of your books seem written from an almost archaeological perspective. Do you have interests in areas besides architecture and building that you have also considered writing about?

Macaulay: Yes, all areas. I love making books, and the picture books I’ve done are about books, about the way we read books. I’ll take very simple, conventional



1. The author/artist on location in France beside Gustave Eiffel’s Garabit Viaduct. The principles Eiffel would employ on this job, completed in 1884, would prove essential in the construction of his masterpiece, the Eiffel Tower, which was unveiled at France’s World Fair in 1889.

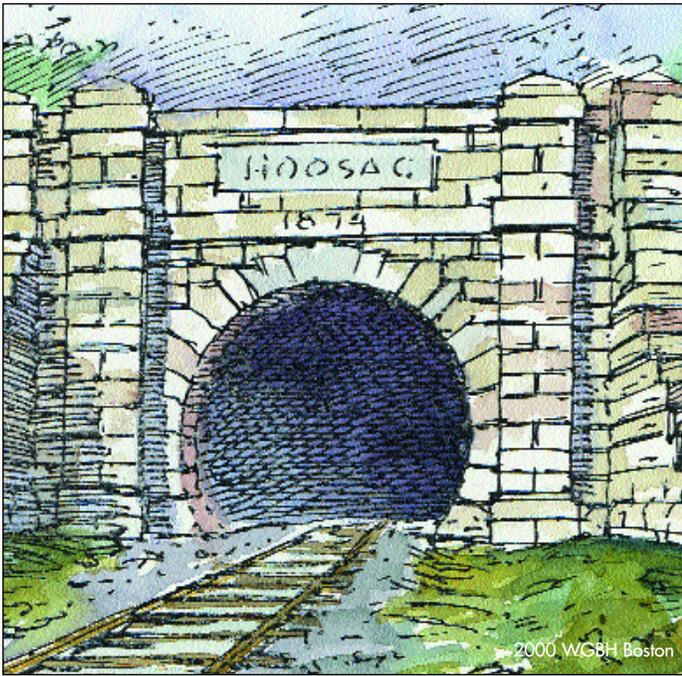
2. Under the gifted hand of Macaulay, even a bridge span comes alive with a magical life of its own.

little stories and wake them up. Put them together in a different way that forces you to read the pictures as you would read the words. You look at a story from different points of view. I write books that are fun and do, in a sense, teach. It’s all part of helping people become more visually literate by getting them to look at things more carefully. By “looking” I mean looking and questioning simultaneously, asking “What’s going on here?” “What’s happening?” “Why is that thing fastened to that the way it is?” It’s all interlinked.

Archaeology is perfect for asking these questions. It’s all about looking and thinking, not taking things for granted. Not believing everything we see and read but finding out for ourselves how things really work.

Q: At AGC, we’re really proud of our contractors who have been visiting classrooms more and more (over the past few years) to help teachers present AGC’s *Build Up!* and *On Site!* construction learning programs. Do you

(continued on page 34)



Another fanciful illustration for Building Big. Macaulay's renderings do more than instruct; they also enchant, inspire, and beckon.

have any advice to help contractors who are working with children?

Macaulay: When I talk to children, what matters most is that they know I respect them. I listen to their questions carefully. I don't talk down to them because, like them, I don't have all the answers. I'm as excited about the process of learning as I want them to be. I think my enthusiasm for the information and ideas I take on is contagious and that's why what I do seems to find a willing audience.

Q: Do you think it's important that contractors (not just teachers) try to present construction material to kids and get them interested?

Macaulay: Yes, definitely! Contractors have the inside scoop! Not only can they talk about the process, but they can break it down into pieces and show kids how each decision gets made! The other thing they have is when it didn't go right—when it got too cold to mix the concrete, the time it collapsed.... They can enliven the step-by-step approach with real life stories. What could be better?

The more professions can help teachers and schools integrate the fragmented stuff they teach into a greater appreciation of the physical world around us, the better for everybody. The more opportunities the students will have. The less

sleeping they'll do during class because they're involved.

An awful lot of schools are just limping by, and they can't do that forever. They'll have to change and become more imaginative. Someone's going to have to look at our educational system and say, "What is it we're trying to do here?" And the answer should be "teaching people to think."

Q: Do you yourself work with any educational organizations?

Macaulay:

I'm involved in a school in Philadelphia called the Charter High School for Architecture & Design (CHAD) that teaches mostly minority kids from inner-city Philadelphia. A colleague in art education at RISD introduced me to CHAD.

When I spoke at their graduation last June, I met the kids and spent part of a day with them. These are kids that have some feeling or instinct for design. They get a high school education interwoven with architecture and design. Suddenly learning becomes relevant; students begin to understand why getting a high school education is important to their lives because it is linked to their interests and talents. The whole experience at CHAD opens their imaginations to a kind of future they might otherwise never have considered.

Another organization I strongly support is the Salvadori Center in New York City. Through this program engineers, architects, and teachers, following the example of engineer and teacher Mario Salvadori, work together in a number of schools to make the opportunities in the classroom more engaging and relevant to the students. Both programs are all about putting meaning back into learning. Who wouldn't support such an obviously enlightened point of view?

Q: Do you have any thoughts to share on the future of building?

Macaulay: I'd like to think that all the building we do is as smart as possible.

Everything from more sensitively placing the building so that it not only satisfies the requirements of that particular structure inside, but also so that it impacts the land around it in the most constructive way possible.

Q: What do you think of recent advances in information-technology for the A/E/C industries? Things like Internet Plan Rooms, online blueprinting, automation of tasks, computer modeling, etc.?

Macaulay: They are only useful tools. They can be tremendous. But they can change things in negative as well as positive ways. The problem I see from working too much from the computer is that you still need to be able to understand the things three-dimensionally as early in the game as possible. That's why drawing is particularly useful. As you draw with a pencil, you think about each line you put down. The computer is such a seductive tool in that it allows you to develop a solution to the problem without understanding it.

I'm leery of the technology getting in the way of the tactile problem-solving. I think it can work together very well, but I don't want to see computers replacing the other media for solution-finding.

Q: Is there one structure in the world that you find more fascinating than all others?

Macaulay: The Gothic cathedral. Because when it comes down to it, it's just stone piled on top of stone. It's an astounding achievement. You're building 150 feet into the air with a material that doesn't bend and sway with the wind. How do you make sure it doesn't sway? The notion of being able to break it down to just the structure necessary to support the roof and enclose the space and have the areas open to insert the stained glass windows is just amazing.

—Interview by Stephani Miller, CONSTRUCTOR's former editorial assistant. Editing and introduction by Maria Williams, senior associate editor

TO ORDER DAVID MACAULAY'S BOOKS AND VIDEOS

Go online to the following URLs:
www.amazon.com/exec/obidos/search-handle-form/002-1518149-5978452

www.houghtonmifflinbooks.com/features/davidmacaulay/books.htm

FOR MORE INFORMATION ON MACAULAY AND HIS WORK

Go online to the following URLs:
www.pbs.org/wgbh/buildingbig/chat.html
www.asee.org/prism/oct00/html/primetime.cfm
www.wheatonma.edu/cr/96/MacaulayBio.html