

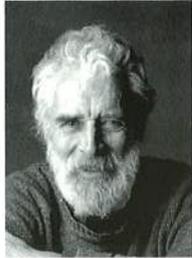
# Under Cover

Malcolm Wells talks with Andrew St. John AIA

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32



Malcolm Wells



Andrew St. John

**Malcolm Wells is one** of those rare people who live by a set of unvarying principles. This has far-reaching ramifications for him as a person and as an architect, governing how he lives, how he works, and the kinds of commissions he will accept.

His architectural life's work has been the advocacy of earth-sheltered housing. He has written a number of books on the practice, including how-to construction guides, design portfolios of earth-sheltered buildings, and visionary work on a world of buildings covered with plants. A remarkably prolific designer, artist, and writer, Malcolm lives with his wife, Karen, on Cape Cod. Together they work in the Underground Gallery, itself an earth-sheltered building.

Since the counterculture '60s, Malcolm has been an icon of the environmental movement, and his work is now regarded as a model of green, sustainable practice. Sustainable design addresses the "triple bottom line" of the environmental and social as well as economic aspects of development. Malcolm's designs are energy-efficient and affordable over the long run, and they reflect his efforts to repair the damage wrought by uncontrolled development. His approach is pragmatic, based on nature's proven capability to heal itself and on the excellent thermal properties of earth.

During a recent conversation at the Underground Gallery, we talked a little about the spiritual dimension of his work. Malcolm shied away from describing his work as based in reverence for the earth, although he was quite clear that his drive to repair the earth comes from his feeling for the intricacies and wonders of nature. He's not interested in engaging in a debate over the "right" way to do his work. From his point of view, he builds houses and draws, as he says, a blanket of earth over them. It's refreshing to find a dedicated person who doesn't need to know how many sustainable angels can stand on the head of the environmentally-correct pin.

Andrew St. John AIA



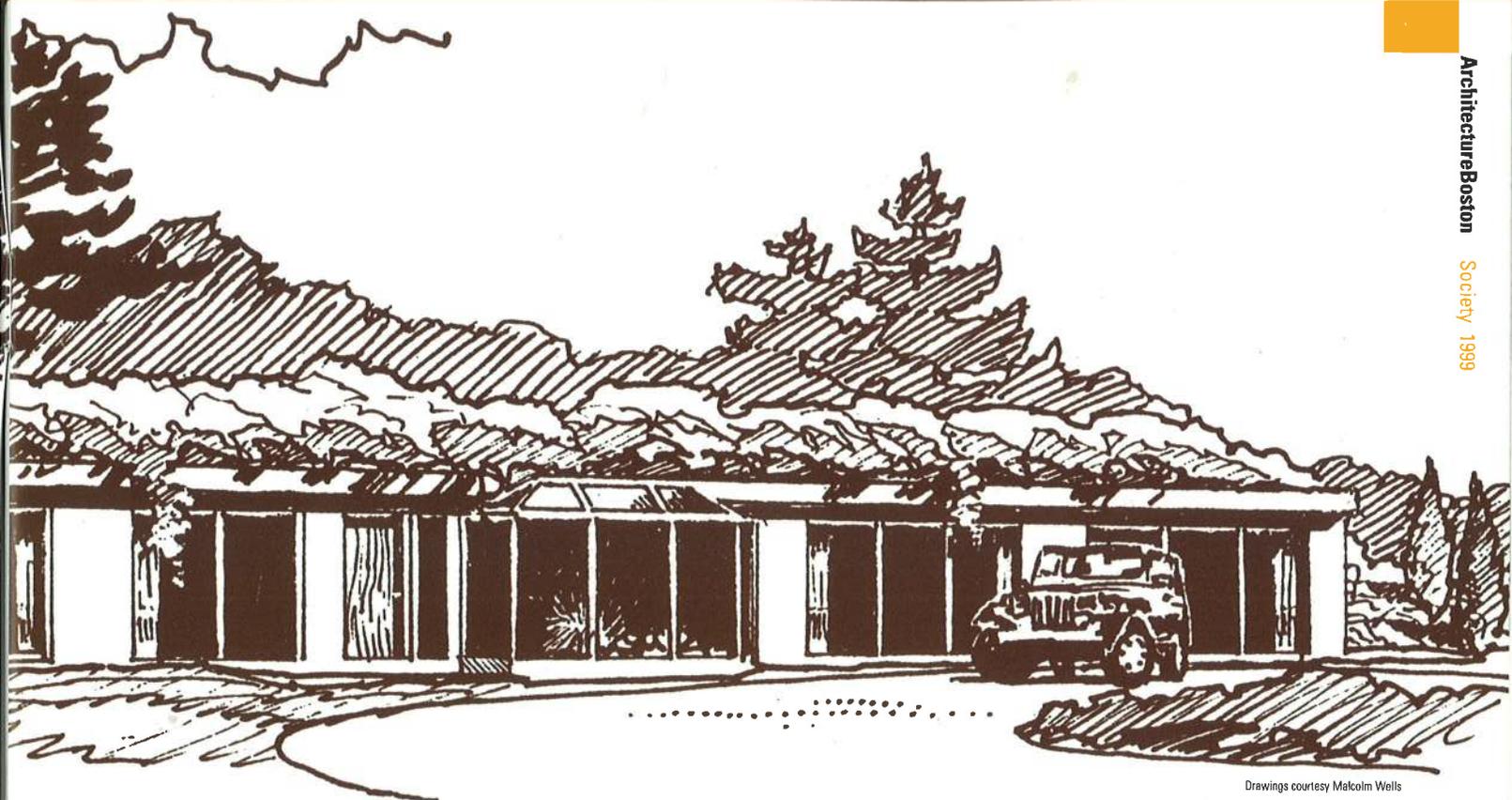
**St. John:** What led you to underground architecture? It's an unusual expertise and you've developed an unusual professional path.

**Wells:** I had started practicing in New Jersey in 1953. I never went to architectural school—I just had a couple of years of civil engineering. And after World War II, the New Jersey Architectural Registration Board was pretty lax. After I'd had a few years experience, they gave me a half-hour oral exam, and I was registered. My big client was RCA. I did factories and office buildings for them for about 10 years and made a lot of money. And then one day in the '60s I woke up and saw that I'd been spreading asphalt all over creation.

**St. John:** What pushed you toward environmentalism?

**Wells:** It was already gathering speed in the '60s. I started to look into underground architecture and decided that it had a lot of potential—it's warm and dry and energy-efficient. And it's permanent. Then, with the Arab oil embargo, people started talking about solar energy, which led to a wider interest in underground architecture. So I wrote and sold a lot of books on underground buildings and thought that would go on forever. But popular interest in those issues peaked. By 1982 or 1983 it was gone. Oil prices were down. I managed to get a lot of people to build underground, but relatively speaking, they're few and far between.

**St. John:** Do you maintain an active practice in anything besides underground buildings?



Drawings courtesy Malcolm Wells

**Wells:** I tried to do nothing but underground designs. But I don't have any active practice at all now. I gave up my license a few years ago—I just didn't renew it. Now I'm a consultant—I do initial designs for people and then encourage them to hire their own architects. And I give a lot of lectures, mostly at architecture schools.

**St. John:** You sent me an article written by someone you'd met at one of the schools. This person had taken environmental concepts and abstracted them so completely that it was impossible to understand what he was talking about.

**Wells:** Some people try to turn it into another language. It's a lot easier to talk about it than to do it.

**St. John:** Encouraging people to build underground is your primary aim. How do you do it? How do you push the environmental issues?

**Wells:** I have a lot of correspondence with people—often they're people who write to me because they've read my books and they want to know more. Every day I send eight or ten letters, telling people how to get started and why they should build underground.

**St. John:** When I was writing the *Sourcebook for Sustainable Design* [for the Boston Society of Architects], I was one of your correspondents. You wrote that you practiced with no computer, no copier, no fax. I just noticed a computer in the other room, so it seems you've made some bow to technology since then.

**Wells:** That's my wife's machine—I've never touched a computer, and I never will. I have a Web page [[www.solarnet.org/MalcolmWells](http://www.solarnet.org/MalcolmWells)], but I didn't put it there. But what led you to write the *Sourcebook*? How did you get interested in these issues?

**St. John:** As a practicing architect, I spent years looking for ways to build with greater environmental awareness. A number of us in a group called Architects for Social Responsibility were frustrated with the difficulty of finding "least harmful" materials. We started to do some research and it eventually grew into the book. Now there's much wider acceptance of what we call sustainable design and sustainable practice. And I think we're beginning to see an even broader approach—Americans already understand economic responsibility, and now they're learning to include environmental responsibility and social responsibility.

**Wells:** I think our motives are becoming a little less self-centered. We have a clearer understanding of the living world out there.

**St. John:** But people continue to get stuck on the technology of "environmental architecture." They always want to know, What materials should I use? What's the best way to do it? Right now I'm looking around your studio, and I see that your columns are undressed tree trunks.

**Wells:** The trees used to live here, but they were in the way. I did this to show that you can build with steel, concrete, wood—all sorts of different materials. This is a steel deck overhead with concrete on it. Architects love concrete. Most people hate it. But it works well in these buildings, and it holds a lot of heat energy.

**St. John:** Let's digress for a moment into the technical issues. What do you use for a waterproof membrane?

**Wells:** It's a butyl sheet,  $\frac{1}{16}$  of an inch thick. That's always criticized at first for being a high-energy petroleum product. But I try to justify it by the longevity of the building, which, if it lasts for a couple hundred years, makes the petroleum use negligible. Starting from the top of the roof, I have the plants and soil, and then six inches of Styrofoam insulation, which protects the membrane. And then there's the concrete and the steel. So I don't think much is going to happen to it. I use the same materials on the walls. I never use parapets at the edges of the roof. I think it's best to let the earth slip down and drip off—it holds itself at its natural slope.

**St. John:** Have you encountered resistance to the concept of underground structures?

**Wells:** Oh, yes. That's the whole problem, I think, more than the added cost of 10 or 15 percent. People don't like that *word*—they come here to the Underground Gallery, and at first they look a little frightened, and then they realize that it's just like any other building.

**St. John:** You've used some other terms—like "earth-sheltered."

**Wells:** Yes, but why kid around by calling it "earth-sheltered" or "terra-sol" architecture or whatever? We're underground; I want people to know that. People think sometimes that by putting earth around a building—berms—that they're underground. Or they think that if they live in a basement apartment, they're underground. To me, you have to have the ground above you for this to really work. Because it's the green footprint that interests me—what is seen from the sky.

**St. John:** So your definition of underground architecture would be a building with enough earth on top to grow things.

**Wells:** Yes. I have three feet here, but if I had to do it again, I'd put about 10 feet of earth up there, so it could be a truly natural habitat for all the plants.

**St. John:** How does that affect the groundwater? Wouldn't a building with only three feet of cover actually cut off the rain's access to the groundwater?

**Wells:** It interrupts it. But when the rain falls on the roof, it percolates through the soil until it hits the waterproof membrane. Then it runs out to the edge of the roof and drips into a giant, pebble-filled trench. So it finds its way into the earth, and it's been cleaned up quite a bit just by going through that rooftop filter. We never irrigate. Whatever lives up there, lives, and that's it. It's all volunteer stuff.

**St. John:** So you didn't plant anything.

**Wells:** No.

**St. John:** Tell me what's up there.

**Wells:** A couple of pine trees, now about four feet tall. Some shrubs I can't identify. Various grasses that have blown in. And of course, the wisteria has grown up from behind, but I guess that's cheating—we wanted it to grow up there. Wisteria is such a fierce demolition expert in most buildings. But here, it just spreads and apparently doesn't do any harm. And we get beautiful purple flowers on the roof.

**St. John:** Have you ever tried to introduce underground buildings into more urban situations?

**Wells:** I haven't gotten anywhere with that, but I think it has to happen eventually. We can't just keep asphaltting everything. There are, of course, underground parking garages in the centers of many cities—like the Boston Common Garage and Post Office Square.

**St. John:** What about commercial or institutional buildings?

**Wells:** Underground university libraries are fairly common. And there are more military and government buildings underground than we would ever imagine, but I don't know anything about them. Other applications haven't really caught on—it's mostly housing.

**St. John:** I have to ask you the most important question: Have you had any leaks?

**Wells:** Not yet. Not in 27 years, which is the age of my first underground building—my own office down in New Jersey. The things that hurt building materials are sunlight, freezing, weather exposure, climactic stresses. And they don't happen when the building's earth-covered. ■■■

