



Environmental Health

A conversation with Derek Parker of Anshen + Allen

One of a series of collaborations between Herman Miller and leading architecture and design firms

Herman Miller: How has healthcare architecture in the West developed? Was it always as important in culture as it is today? Healthcare as we know it today is really a relatively recent development isn't it?

Derek Parker: Though I wouldn't profess to be a historian, I have only a general working knowledge of how various communities and societies have taken care of the sick. I suppose things began with Hippocrates and then Galen and the remnants of Greek hospitals. The Romans were mostly interested in repairing their wounded soldiers and putting them back on the front lines. Nothing changes as the centuries go by, and then for years, hospitals were really places for the poor, for the mentally insane. Warehouses, really.

Herman Miller: And wealthy people stayed at home?

Parker: And wealthy people stayed at home. The buildings were public and civic structures, designed mostly from the outside. Nothing really dramatic on the inside, because there wasn't much you could do with people except feed them and bathe them. Nobody knew very much about the human body and medicine; the technology was simple.

The first hospices were probably established by the Knights of St. John, part of the Crusades, places where wounded soldiers and knights on their way to the Holy Lands could be taken care of. Those buildings were impressive from the outside, but really nothing resembling a modern hospital on the inside. And then, of course, Florence Nightingale changed everything in the Crimean War. She was the first one, really, to think about new ways of taking care of patients, the profession of nursing, designing the 30-bed Nightingale wards. I've been a patient in one of those—they're not bad, even today. And they were classic—single-corridor wings with 30 beds in them, solarium at one end and the head nurse's office at the other end so she could control the coming in and going out.

Herman Miller: Sounds like a bull pen office.

Parker: It was, yes. And patients would be lined up on each side, and the patients did a lot of the caring for other patients. I remember having my appendix out when I was 14 years old in a Florence Nightingale ward. Florence Nightingale made a major difference in terms of how people were being taken care of, but again, we didn't have antibiotics, complicated surgeries, and we didn't have imaging or technology. What happened architecturally is very interesting. The hospitals of that period were mostly beds, with very little support space. There might have been a little laboratory, a little pharmacy.

The next major shift came after World War II, an enormous learning period for people in medicine. Gradually the portion of space devoted to beds became comparatively less and less, and the amount of space being devoted to the various interventional diagnostic technologies grew. At the time that medicine was changing, biology was changing, public health was changing. You could even make an argument that the greatest advances in healthcare in the western world haven't come from doctors at all, but from civil engineers and from public health people. Clean water, safe disposal of waste water, highways, transportation, economics, education, electrical power—all civil engineering advances. These developments have had the greatest significance in terms of life span—

Herman Miller: — a huge issue in healthcare and hospital planning and society in general —

Parker: —yes, absolutely. The socio-economic changes we're seeing are having a serious impact on healthcare, the technology of healthcare, and this filters down into the design of the actual facilities.

But to finish with our history—Florence Nightingale, then World War II, the explosion of technology, particularly in imaging, which had influence on what could be done surgically to correct folks, the explosion of diagnostics space, which is continuing today. I think now maybe two-thirds of a hospital might not be beds at all—maybe more than two-thirds. And of course, better diagnosis can help keep people out of hospitals, something everyone would like to see.

So what's going on today in healthcare architecture? A continuing interest in the technologies, continuing interest in how to spend hundreds of millions of dollars of your community's money and get the most value for it. How do you design for what you don't know and what is unknowable?

Herman Miller: Is that because healthcare is such a different enterprise from commerce or education or any other activity?

Parker: Healthcare is the only service—hotel or restaurant or whatever—where you bare your soul, you bare your body, you leave your pride outside the door. It's very personal. In no other service industry that I know of is there such a gap in understanding between the provider of the service and the receiver of the service. Patients do not understand, for the most part, the language, the technology, or the biology. And yet, here you are, exposed—often literally—to something you don't know.

I sometimes compare patients to detectives looking for clues to explain what they cannot see and they cannot understand. A healthcare building offers a torrent of clues. From the moment a patient gets out of the car—in

the garage where they're lost—you only have one chance to create a good first impression, and we often forget about that. The first impression is lousy in most cases. You come in feeling confused, you come in feeling depressed, you come in feeling stressed, and it's downhill from there. The very first impression should be, here's somebody who cares. They care about the environment, they care about flowers, they care about their staff, and they might even care about me. That's the first impression I want. After considering things in this light, you approach everything with a completely different frame of mind.

Herman Miller: A building plays a huge part in creating that first impression.

Parker: No doubt about that. This is what got me interested in architecture for health 40 years ago. The American philosopher John Dewey said health is the "first liberty," and that rang a bell with me. I asked myself, can architecture help health? Can architecture contribute to liberty? Healthy people we can educate, and healthy, educated kids are the foundation of civilization, right?

Herman Miller: At least in democracies.

Parker: Absolutely. Recent research is showing that architecture is a legitimate therapeutic modality. It creates that all-important first impression. It can relieve stress and communicate clues that this place and the people who work here care about you.

Herman Miller: What connections beyond this first communication that "we care" can healthcare buildings make for patients or their families or the staff?

Parker: One can answer that in several ways. First, most hospital boards and senior managers are spending hundreds of millions of dollars of their communities' resources, and they're scared to death. They're scared to death that they're not going to do it right, and most of them have never done it before, and most of them will never do it again—an awesome responsibility. A huge risk—lots and lots of money. Second is design. The design of a hospital facility is a great opportunity to rethink your culture and your organization while you're designing the building. So you put a new play on a new stage. It's a tragedy when you get a new stage and it's the old play.

I think Peter Drucker said, "Culture eats strategy for lunch." Changing a culture is extremely difficult, and yet designing a \$300 million hospital for your community is a wonderful opportunity. It focuses your mind. What a great opportunity to re-think what we do, how we serve our customer, how we make this a safe place.

Herman Miller: When you say culture, do you mean the culture of healthcare, the providers, or our culture in general?

Parker: No, I'm talking about the culture of healthcare organizations, which hasn't, I want to say, changed very much since the Middle Ages. There's the hierarchy. I have a physician friend who says that 95 percent of the time when an error is being made in the operating room, somebody in the operating room realizes the error and doesn't say anything because it's not culturally acceptable to do so. So here's a brilliant Harvard-trained neurosurgeon and a Filipino nurse, and this guy's screwing up. Is the Filipino

nurse going to say, Dr. So-and-So, you're screwing up? Absolutely not. That culture has to change.

The guru in this area is Don Berwick of the Institute for Healthcare Improvement in Boston. Don has said this problem cannot be solved by evolution. There has to be a revolution. We spend 40 percent more on healthcare than any other developed country without any demonstrable improvement in outcomes. Males live longer in Europe, and the neonatal mortality rate here is worse than in many countries. There's tremendous waste in our system.

Herman Miller: And yet healthcare is the biggest industry in the U.S.?

Parker: Yes. No other industry could survive with the error rate in healthcare. Actually the only industry I know of with a higher error rate is the French wine-making industry. Twenty percent of their corks fail. Think about a 99.9 percent success rate—at San Jose airport, that would be one crash a day—nobody would fly. We are nowhere near 99.9 percent in healthcare.

Herman Miller: Tell us about how architects can help. Can you?

Parker: There's no doubt. First, in my opinion, to be a good healthcare designer, you have to know the industry. You've got to know how it's organized, what's going on, the issues. It's an extremely complicated industry, and it's carrying a lot of historical baggage that has to be changed. Isaac Stern has to know the notes in order to play the music. After he knows the basics, he doesn't worry about the notes anymore. He plays the music. If you want to be a good healthcare architect, you have to be convinced that healthcare architecture is a worthy way to spend your career, a way to make a contribution to our society in general. You have to learn the notes so that you can play the music of architecture.

Herman Miller: Who's doing the best job now?

Parker: I don't know. I think you'd have to say Scandinavia is doing a good job, but like everybody, they've got their own baggage. They're still building multi-bedded wards in Scandinavia. In my office, we will never build another hospital with multi-bedded wings unless it's specialized, like long-term care or children. In general, multi-bedded rooms are for the birds. They're expensive, there's no privacy, and they're intrusive. We know the communication between the patient and the caregiver is reduced because everybody's aware of the family next door, and so on. And of course you have nosocomial infection—this patient is contaminating that patient. When you move patients because they are disrupting people around them, the chance of an error goes up 75 percent. Someone forgets to tell the pharmacy, and the pill goes to the wrong room.

Yes, architecture can make a difference. Until about six years ago, that answer would have been based on intuition. Now we know that architecture can help make positive connections and have a positive impact because of the Pebbles Project and the Fable Hospital. Now there's enough research—peer-reviewed research—for us to know without a shadow of a doubt that the built environment plays a significant role in errors, costs, infections, stress, waste, and satisfaction—all of which are factors in the delivery of quality and safe care.

Herman Miller: You sound a little heated about this subject. Do your colleagues at Anshen + Allen share your conviction?

Parker: Yes, they do. In the early 1960s, we decided architecture had a role to play in health. We realized it was so complicated you couldn't do it in your spare time. You can't be designing hotels and condominiums—I would have a hard time turning down a yacht club in the Bahamas—but that isn't what we do.

Herman Miller: Is there a healthcare specialty in architecture schools?

Parker: Two schools that I know of do have that specialty. Texas A&M and Clemson turn out graduates interested in healthcare. It's tough, because the general feeling among architects is that to get design in healthcare is very difficult.

Herman Miller: Why?

Parker: Well, because it's so complicated. The buildings are large, for the most part. You've really got to know your stuff. There are many constraints, but I believe—and my partners here believe—that it's those constraints that are the kernels of good design.

Herman Miller: As Charles Eames said, "Constraints are liberating."

Parker: That's exactly right. I don't subscribe to the notion that you can't have good design in healthcare architecture. On the contrary, I believe constraints and technologies and the drive to give architecture meaning and purpose are the essence of good design.

Herman Miller: Tell us more about the Pebbles Project.

Parker: Pebbles started at the Center for Health Design, a not-for-profit organization that I helped found about 16 years ago. For the first 10 years, we had an annual symposium and trained about 25,000 people from around the world on issues of design and color and texture and vegetation and daylight. About six years ago, the board of the Center for Health Design, a wonderful group of people—two architects, doctors, hospital presidents, researchers, academics—asked, "Why don't we now move from a symposium—the education base—to a research base?" One of our board members said it would be like tossing a pebble into a pond. Our research would become like ripples—have a wider effect.

Our first project was the Children's Hospital in San Diego. Jim Varni, who was on the staff at Children's Hospital—he's now at Texas A&M—led the research effort. Jim developed 32 measurable hypotheses. Would these kids, in the new environment that we were designing, go more or less frequently to the emergency room? Would they have more or fewer epileptic fits? Would their parents visit more frequently? Would they stay longer? And so on. That was our first Pebble.

Our second Pebble was Bronson, in Kalamazoo, Michigan, a recent Baldrige winner. We now have 40 Pebbles around the country. We've got long-term care, we've got kids, we've got cancer, we've got cardiac. Each place is measuring different things. Some are measuring nosocomial infection rates, patient falls, staff retention, medication errors, and so on.

Six years ago, the Center funded a researcher at Johns Hopkins to do a

literature search on outcomes from the built healthcare environment. We found, in this research, only 80 acceptable papers in the field. A repeat last year, funded by the Robert Wood Johnson Foundation, found 640 peer-reviewed articles. We've now cataloged these into issues like light, noise, stress, daylight, landscape, distractions, patient falls, and medication errors. There's now no shortage of evidence to show that the built environment plays a part.

But the built environment is only one part of the care-delivery system. How do you align all the parts so they don't stumble over each other? That alignment requires a cultural redesign, an organizational redesign. You've got to think through communications, you've got to think through IT. Communication's a big, big part. Noise is a major problem. The noise outside a patient room at the time of shift change is two decibels more than a jackhammer! Just imagine that.

Herman Miller: You seem to be advocating a holistic redesign of our entire system—buildings included.

Parker: Yes, and that's why the Center of Health Design is important. It's multidisciplinary—physicians, nurses, designers, administrators, managers.

Herman Miller: Is there an analogous effort in any other field?

Parker: I'm sure this has gone on in the aircraft industry. The safety record of the aircraft industry is phenomenal, and it's because the right people sat down and designed the right systems, from the design of the aircraft, to how you service them, how you build the engines, how you design the terminals, how you develop a structured language between the pilot and the air traffic controller. A survey shows that only 25 percent of surgeons know the first names of the nurses in their operating rooms. How can you run a team when you don't even know who you're working with? Small things like that add up—for good or for bad.

Herman Miller: How is the Pebbles Project related to your Fable Hospital?

Parker: About three years ago, I was due to make a presentation, and the night before as I rehearsed in my room, I thought the presentation was boring, dull, and really not compelling. Earlier that evening I had had a drink with Kirk Hamilton, who told me about a presentation that day by a doctor who talked about the power of stories in dealing with his patients. That resonated with me. We all remember Peter Rabbit and Wind in the Willows. So I thought what I'm going to do tonight before I go to bed is write a story—I'm going to take all the data from the Pebbles Project and create a Fable Hospital, a completely theoretical 300-bed hospital using evidence-based design. The next day I completely confused my co-presenters when I announced to the audience that I was going to talk about a project I'd just finished—a 300-bed hospital, a terrific board of directors, a wonderful president, value-driven people, visionaries—the best group of clients you could ever have. We incorporated all the best research about daylight, art, landscape, room for the family, and many safety features.

Herman Miller: By this time they were on the edge of their seats.

Parker: They were. Then, I cost-estimated the project. Daylight's free, but windows are not. My 300-bed hospital, using national average numbers, came to \$240 million. Then I cost-estimated all the things I'd done

differently—special features, bigger windows, bigger rooms, and so on—and I came up with \$12 million, 5 percent. Not much, but \$12 million is a lot of money.

So just imagine a CEO going in front of his board—hospital's finished, it's now occupied, it's now running, it's five years later—and he says, "Guys, I spent \$12 million that I didn't have to spend. But what were the benefits of doing the things we just did?" And then, using the evidence from the Pebbles Project, I calculated the benefits of the larger windows, the special features, the larger rooms. Here's the kicker: Our imaginary Fable Hospital reduced nosocomial infection rates by 20 percent, patient falls by 80 percent, and so on. Then using numbers from the American Hospital Association and extrapolations from those data, I found in the first year I saved \$11 million—in the first year! I had something like a 90 percent return on investment in year one, and after that it was money right to the bottom line.

Fable is a business case for a better hospital.

Sitting in the audience was my friend Len Berry. Len wrote a wonderful book called *Discovering the Soul of Service*, and he at the time knew little about healthcare. Len is a professor of marketing at Texas A&M. He might be the nation's guru on marketing service organizations. He called me the next day and said, "Derek, that was a very powerful story. Would you mind if I write about that?" I sent him my rough notes, and then gradually Len, Blair Sadler, the late Russ Coile, Kirk Hamilton, Dave O'Neill, and I co-authored essentially the business case for a better hospital, which was published last year in *Frontiers*, the journal of the American College of Healthcare Executives.

Herman Miller: It seems like the power of going into depth in a subject. It's looking at the architectural process of hospitals as only a small part of the whole issue.

Exactly. Architects, to provide value to their clients, have got to come not talking architecture—they've got to come talking health. I would say my clients get architecture for nothing. What they get from us, I think, is advice about a variety of things which you wouldn't think of as being traditional architecture. Because we're working around the world, we're looking at best practices wherever we can find them. So I can find something in Edinburgh that I can introduce to my client in North San Diego County. Or here's an opportunity to start talking about how to organize nursing, and how you organize nursing means how you organize the physical space.

Herman Miller: You're making connections for your clients. Only people with a great deal of self-confidence can loosen up and listen to advice from people in other fields.

Parker: You know, I'm now almost 72 years old. When I was 60—60 seemed to me to be a reasonable sort of age—I'd been in healthcare a long time. I thought maybe I should go fishing or something. Then I got a book from my friend Panos Koulermos—a wonderful, wonderful guy. He sent me a book on European rationalism, and he said, "Derek, architecture begins at 60." I thought about that. I decided, yes, he's absolutely right. Around the age of 60, you start to develop confidence. For one thing, you learn how to communicate. Besides communicating better, I became confident around the age of 60 for the first time in my life.

Now I think architecture is an older person's profession. If I were a physician, I'd see 20 patients a day or something like that. As an architect, I'll be lucky if I do 60 buildings in my whole career. Each time I go into a building that I've been involved with for 5 to 10 years, I see something new. So the feedback loop in architecture is very slow, and unless you've had a few feedback loops, you're not going to know how you're doing. Architects have to learn to be humble and confident at the same time. We're working with, for the most part, well-intentioned, good people. But we have a role that nobody else can play.

Herman Miller: What should hospital administrators or boards of directors expect of healthcare architects? Or any architects, for that matter.

Parker: Well, you can only have a good project when you've got a good client. A good architect can produce only an acceptable building with a mediocre client, but a truly good project requires a truly good, intelligent, open-minded client. Part of being a good client is providing the organizational vision for their architect.

Clients—whether they're good ones or not—should expect their architect to be aware of evidence-based design. If they don't know the evidence, they shouldn't be allowed on the scene. At the last presentation I made to the Academy of Architecture for Health in Los Angeles, an attorney in the audience came up to me afterwards and wondered whether evidence-based design—this is really what I'm talking about—was actually raising the bar of the standard of practice for hospitals. Now that's interesting and scary.

Clients should expect an architect to challenge them, to raise their expectations. You may never have built a healthcare facility before, and you may never do it again. You need somebody to challenge you, to challenge the status quo—not just in building terms. Why are you doing this? Why are you doing it that way? Do you know someone is doing it a different way? And always remember, as one of my friends says, "The plural of anecdote is not data." I want to be data-based.

I expect doctors to be practicing evidence-based medicine, so that when they prescribe something for me, it has to come with a protocol. You should expect your architect to have evidence.

I like the story about Michelangelo. When that enormous block of Carrara marble was delivered to his studio, he said, "David is in there, and all I've got to do is take away all the excess marble." I say that about architects and building projects. The wind is where it is, the sun is where it is, the topography is what it is, the trees are where they are, the organization is what it is, the community is what it is—all you have to do is find the building that's inside all those forces.

Herman Miller: Should a client for healthcare architecture expect their architect to teach them something they don't know about medicine or healthcare?

Parker: They should. Healthcare architecture, any architecture, really, is an opportunity for mutual education. We won a project with Children's Hospital at Stanford. Lucile Packard—a wonderful lady, unassuming lady, smart as a whip; put \$40 million of her own money into this project—spent two days a week in my office for about three years. We educated each other. We took

a look at architecture throughout history and from around the world. We asked questions like, Is the building in context? Do I like the scale of the building? Does it relate to the environment? We also had many informed discussions with the other board members. I believe the design of Packard's Children's Hospital is one of the best buildings we've ever done. I believe it is a direct result of a logical, mutually open-minded process. But not many clients are willing to put in that kind of time.

Herman Miller: Is "patient-focused design" your term?

Parker: No, it isn't. I don't exactly know where it came from. It's been around for about 15 years. I absolutely subscribe to that idea—putting yourself in the patient's position. Now we've returned to the "clues" we were talking about earlier. I see hospitals all the time that are not patient focused. So here you are, your gut aches, your knees are killing you, your hips, you're on crutches, and you're parking in the farthest point of a multi-storied parking lot. It takes you 15 minutes to find the front door, and what do you see but a sign right by the front door "Reserved for the Surgeons" or the president. What does that tell you?

Sometimes we think our job is to turn the organization inside out. We're not here for the doctors, we're not here for the board of trustees. We're here for one purpose only, the patient and patient's family. That's what it's all about. And if you forget about that, the whole purpose is missing.

Herman Miller: What about the future of hospital design or healthcare architecture? Are hospitals going to get bigger, are they going to get smaller? What are healthcare architects going to have to grapple with in the future? What should be their goals?

Parker: I would like to see us expand the understanding of architecture beyond building design to system design. We need to understand culture, organizational culture. That's number one. Only then can an architect transform architecture so that it's more relevant, so that it makes more of a real contribution to the functioning of a system. We have to completely redesign the healthcare system in this country, and I would hope architects can play a major role in the process.

A completely redesigned system will have profound implications for the physical infrastructure. I think we'll see more care being delivered at higher levels close to where we all live, especially as the Baby Boomers age. At the center of what you might think of as a hub and spoke will be a highly technical care facility, which might be quite small, intensive care only, with sophisticated technologies, sophisticated information systems, good communication.

There is absolutely no reason why we shouldn't be in e-mail contact with our physicians. It's a better use of their time. We've got to leverage highly educated, highly experienced, talented people in a better way. We're doing care right now pretty much like we did in the 19th Century. It's just that now physicians have bigger bags and they don't travel as much.

Herman Miller: Do you ever think that the design of homes or apartments or condominiums will become a tool for preventative healthcare?

Parker: Yes. The same data we apply to the design of hospitals could apply to homes. A lot of injuries occur in the home environment. I know every

time I use the emergency room, it's because I did something stupid at home on Saturday afternoon. The home is a health environment. We ought to be able to do our urinalyses at home. We ought to be able to do our own blood analyses at home. We ought to have dietary consultations at home. We've got to beat this obesity epidemic, diabetes, and so on. As a result, exercise at home. That's where you always start. That's absolutely right.

The same goes for the workplace. We need to incentivize healthy behavior at work, and we need to incentivize healthy behavior at schools. This should all be part of a complete redesign of the healthcare system. It has implications, not in grand architectural terms, but at home, at school, at work—especially in the community clinic where you go to get your chronic things taken care of—either do it through videoconference, e-mail, or contact with a highly trained nurse who doesn't need 15 years of medical school to tell you you've got an ear infection. She should be tied in through communication systems to people who can support her and can get you into the system at the appropriate level.

Herman Miller: Do you know any community or country or state that's doing a good job with the entire system of healthcare?

Parker: Yes, the Dutch are doing a good job, the Germans and Scandinavians—all doing a better job in terms of centralized planning. It's easier to a large degree because they have a more homogeneous community. With the diversity of the U.S., it's tough. I think Oregon has been doing good things. We're not doing very well in California.

Herman Miller: We mentioned an aging population in the U.S. and everywhere. Besides just the number of people with chronic conditions, will there be an effect on healthcare design or architecture?

Parker: Yes, I think there will be. The objective has got to be to die young as late in life as possible. How do we stay young? How do we make those later years more useful, more meaningful? Just think what an asset experience and education are to any civilization. We will need to find ways to take advantage of them.

One of the things we have to be thinking seriously about more often is how to design for an uncertain future. We don't really know what will develop, and that's true in medicine, in healthcare delivery, in politics, and in design. And yet we're spending millions on healthcare facilities. Over the next decade, we're going to spend \$300 billion in new healthcare construction in the U.S. We're probably going to spend a similar amount around the rest of the world. We can't just rebuild the hospital we built in 1950. We've got to do it right. No one of us is smart enough to know how to do everything. I believe this redesigned system and the facilities it will require involve new thinking, new organizational design, industrial designers, systems designers, information technologies, architects in the traditional sense—an entirely new relationship between builders and designers.

How do we architects develop a design philosophy that extends the value of this huge investment over a longer period of time, so that it doesn't become obsolete the day you open the doors to the buildings?

Herman Miller: It's not just about flexibility.

Parker: No, it's not just about flexibility. It's an attitude about design. It requires courage, because we might slightly de-optimize the short term but allow for built-in flexibility so you can do something more productive and valuable 10 years from now. It's a matter of vision and communication.

A very few visionary clients get it. They not only get it, they want more of it. They ask questions, they ask probing questions, they challenge you. They don't accept the status quo, they ask about tomorrow. They push, push, push. Sometimes they're just downright irritating, but you know you're going to do something much better as a result. The good clients are going to get the best architecture. They're going to get the best design. It's funny, in this office everyone knows who the best clients are. People will lie, steal, rob, bribe to get on those projects. You always end up with the best architects vying to work with the best clients. That's one of the reasons I say the best clients always get the best results.

Herman Miller: We're going to end with a very practical question. Where should people go to see your idea of a good healthcare facility?

Parker: I would say Bronson in Kalamazoo, Michigan, The National Hospital of Norway in Oslo, Griffin in Connecticut. I think you need to see Packard Children's Hospital in Palo Alto. And maybe Mary Hitchcock Medical Center in Dartmouth. That was a good project. I think you could look at those five hospitals and then ask, "Do I like this place? Does it feel right?" The feel of a place is very important. My guess is that good places feel right and that spills over to the staff, the body language, the voices, the vase of flowers, the valet parking—"Nice to see you again, Mr. Parker"—it all goes together. Magic happens at places like that.

Derek Parker has designed and planned hospitals, diagnostic care centers, hospices, and medical research institutes at the firm Anshen + Allen in San Francisco for 45 years. He speaks to, shares his good humor with, and designs projects for groups around the world.