

# The Hospital as a Small City

George E. Marsh, Jr.

We are privileged to live and work in Boston, where nature is embedded seamlessly throughout the city, in the famed Emerald Necklace, the series of parks, greenways, and waterways laid out by Frederick Law Olmsted between 1878 and 1895. These green spaces bring delight to the city and are crucial for its health, providing a respite from the hustle-bustle and reconnecting us to the natural world. Interwoven with the pattern of streets and squares, they also help to organize the city, to make it comprehensible.

We think of the hospital in a similar way, as a small city. The analogy is a powerful one, a continual reminder that it is first of all a place of human relationships. We conceive of it as a community of neighborhoods, formed around gardens and plazas—moments of embedded nature—connected by streets and boulevards. The clarity of these patterns is a comfort in a place of high emotion. Patient and visitor alike know where they are, where they are going, and how they will return. Throughout the journey and in the clinical spaces themselves, they experience the healing power of sunlight and foliage; they can step out for a breath of fresh air.

## Roots in the American Tradition

This transparency to the natural world is paramount within our design process, yet it also revisits ideas that were essential to healthcare archi-

Hospital as a linked set of pavilions—  
Peter Bent Brigham  
Hospital, Boston, 1913



ecture over one hundred years ago. The evolution of American hospital architecture is rooted in the 1880s, when the most advanced models of the times were shaped by principles prescribed in Florence Nightingale's seminal book, *Notes on Hospitals*, of 1857. Hospitals of the late nineteenth century were organized around pavilion wards, based on Nightingale's prescription for health: sun, air, water, and evasion of infection. Nature was invited in for the health of the patient. Sunlight and ventilation studies of carefully placed beds within precisely dimensioned wards, conducted by Nightingale and, later, in 1905, by William Atkinson, were the precursors of today's performance models.

Hospitals of this generation were cadences of linked pavilions, on hills, in open fields, or by a river, and landscape architects significantly influenced their design. Olmsted had worked with H.H. Richardson on the Buffalo State Hospital of 1880, which followed the Kirkbride Plan asylum model. Based on theories of mental healthcare advanced by Philadelphia psychiatrist Dr. Thomas Story Kirkbride, this model sought healing through exposure to natural light and air, but it did so in a single, imposing building with long, narrow wings. Similar healthcare goals shaped McLean Hospital of 1895, but its form was much different. Olmsted and the civil engineer Joseph Curtis selected its site amidst the rolling hills and trees of Belmont, Massachusetts. Its patient cottages, surrounding a central administration building, were placed in concert with the land, not imposed on it. Between 1895 and 1912, Olmsted's sons, John Charles and Frederick, Jr., composed the same wonderful choreography of land and hospital at Butler Hospital in Providence, Rhode Island, to achieve a healing environment of nature, light, and air for the institution's psychiatric patient.



Typical mid-century  
hospital

## Retreat from Nature

The next half-century saw an evolution away from hospital design that opened outward to nature, toward hermetic, inward-looking configurations. Very few hospitals were designed by exemplary architects. Far too many were designed by doctors-as-designers—like Dr. S. S. Goldwater, who consulted on administration and construction for such hospitals as the Welfare Hospital for Chronic Diseases on New York City's Roosevelt Island—or by multiple generations of hospital architects with a solely technical focus.

Technological progress contributed to the turn away from nature. The invention of the elevator, while of enormous benefit, fragmented the experience of passage and helped turn the



Leonard Morse Hospital,  
Patient Unit, 1971

hospital into a disorienting, three-dimensional labyrinth. The advent of air-conditioning allowed hospitals to become increasingly internalized. No longer did they have to breathe. The midcentury French term *le plateau technique* summed up the situation: the hospital had become a platform of technology, packed with program, from diagnostic radiology to surgical suites, organized around its mechanical systems. Careless, ad hoc additions exacerbated the confusion, as hospitals expanded, filling city blocks and consuming what little outdoor space remained.

### Genesis of the Courtyard Hospital

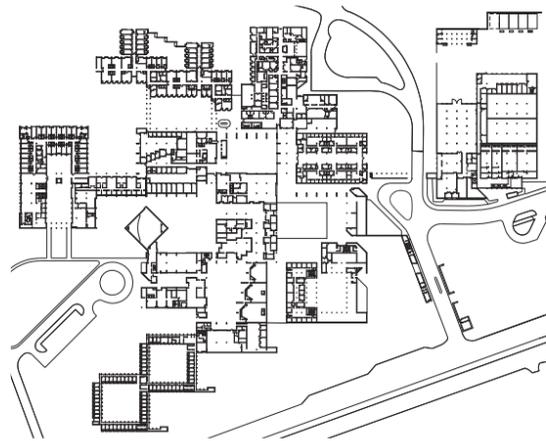
In 1969, Tom Payette began to reverse this trend with groundbreaking work at Leonard Morse Hospital in Natick, Massachusetts. In the fifty years preceding this project, the partnership of landscape design and building design had, with very few exceptions, been on sabbatical. Working with landscape architect Carol R. Johnson, Tom restored this relationship, and an idea about the landscape permeated Leonard Morse's planning. Its sloped site allowed for stepped courtyards at entry areas, merging inside and outside. The hospital's sawtoothed plan, with openings carved into it for small courtyards, reintroduced light and air. Corridors ran adjacent to these courtyards, so patients always knew where they were.

A detail of the patient rooms at Leonard Morse is representative of the firm's approach to design. The challenge—a perennial one—was to bring fresh air directly into the room without compromising the view with insect screening. The solution was to separate the two functions, providing large, fixed-glass panels for light and view, with opaque operable panels below, for natural ventilation. The opaque panels conceal the screening; the view is undisturbed. A simple but unexpected idea emerged from a process of questioning long-standing assumptions.

### Introducing the Cluster

Similar questioning led to a paradigm shift in the organization of patient floors, one that Tom Payette had been developing in a number of smaller projects and brought to fruition at Leonard Morse. At the time, most hospitals were organized in long bars with double-loaded corridors, with patient rooms and support spaces strung out along them. Travel times for nurses were inordinately long. Tom reconfigured these floors as aggregated clusters of rooms, spokes around a hub that contained both the nurses' station and

Aga Khan University and Hospital, Plan for a New Campus



medical support spaces. Gaps between clusters brought light into the hub, so that the new configuration changed not only how nurses worked, but also the ambience of the place. The complex geometries of the clusters engendered new possibilities of texture and detail, bringing a sense of human scale that had been lacking in the healthcare architecture of the 1960s.

Similar thinking led to a new model for ICUs at Emerson Hospital several years later: a dual-corridor layout, with an internal corridor for the medical staff and a perimeter corridor with light and views, where visitors can relax, separate from the hubbub of staff activities.

### The Courtyard Hospital Comes of Age

The successful innovations at Leonard Morse soon led to an even more radical rethinking of the hospital. In 1970 or '71, a selection committee from the Aga Khan University Hospital traveled through Europe and the United States, seeking an architect for a new hospital in Central Asia. Morgan Wheelock, landscape architect from Sasaki, Dawson & DeMay was on the committee; he had helped design Costa Smeralda in Sardinia, a resort for the Aga Khan, in which the landscape design was as important as the architecture. Wheelock recommended that the Aga Khan meet Tom Payette and visit Leonard Morse Hospital after his meeting with The



Joslin Diabetes Foundation, 1976

Architects Collaborative in Cambridge. Tom toured the hospital with the Aga Khan, who said, "Mr. Payette, this is a terrific hospital, but it is not anything that I want." Nevertheless, two days later, Tom received a letter inviting him to design the new Aga Khan University Hospital in Karachi, Pakistan. As he recounts, the Aga Khan "felt that I would listen, and that I would look, and that I would undertake to try to find a direction that would relate in a modern way to Islam."

In the Aga Khan University Hospital, the historic rules of Islamic architecture, incorporating cooling breezes and the interplay of shade and sunlight, led to an unprecedented union of building and landscape. The hospital became a choreography of landscape places, designed in collaboration with Sasaki. Courtyards are the focus, with buildings as their edges—the inverse of the platform hospital with courtyards carved into it. An oasis in the midst of one of the most chaotic cities in the world, its courtyards are its waiting rooms, with dappled shade, trees filled with birds, with cool air and cool stone benches. They provide clear entries to the clinics; orientation is easy. The idea of embedded nature had opened up the internalized hospital into a city of piazzas for health, and the idea of the courtyard hospital became an essential component of our practice.

Many commissions followed, challenging the monolithic hospital block. Most notable was the mid-1970s work at Joslin Diabetes Foundation in Boston, where a central courtyard, framed by the new building and two existing Joslin buildings, is a jewel in the city block. Also designed with Sasaki, this landscaped outdoor space allows natural light to suffuse all the buildings. It is a point of orientation for patients and a place of healing, sheltered from the urban surroundings.



Johns Hopkins Hospital with view to dome, 1996



Penn State Health Hershey Medical Center, 2009

### Restorative Urbanism

The idea of the hospital as a small city is particularly clear in Payette's work at Johns Hopkins Hospital. The original campus layout, envisioned by John Billings in the 1880s, with landscape design by E. W. Bowditch, featured a central green quadrangle on axis with the institution's iconic Dome. The edges of the quadrangle were defined by a series of sunny, airy pavilions by architects Cabot and Chandler.

In the 1970s, the quad had been largely filled in to form a continuous building, violating this wonderful campus parti and severing the view along the axis to the historic Dome. A clumsy, air-conditioned mass, the hospital had forgotten its roots as a healing environment in the landscape.

In the late 1980s, healthcare strategies were changing. Overnight hospital stays were being reduced, while more care was being provided on an outpatient, or ambulatory, basis. Payette was selected to design an outpatient center and parking structure across Broadway from the Dome. The new center—the first freestanding ambulatory care facility in the country—would house a number of outpatient programs, extracting lines of services from neurology to pathology to orthopedics from the density of the complex old campus.

The Payette scheme revived ideas of placemaking that had shaped the original campus. By closing a city street, we created a new, landscaped campus mall, on axis with and once again celebrating the Dome. This was the first of perhaps eight projects in which we replaced roads with pedestrian green space, to restore the idea of campus. The edge of the mall is defined by the Outpatient Center, which opened in 1996. Internally, a central spine, flanked by small courtyards, provides a clear, simple circulation path for patient and visitor. Extending under Broadway, this spine intersects a skylit subway station before continuing on to unite the new building with the original campus.

### Prefiguring the Healing Garden

In the early 2000s, the practice of healthcare architecture went through what was touted as a “revolution,” with the emergence of therapeutic, or healing, gardens. Suddenly and with great publicity, the profession “discovered” this idea, through “evidence-based design.” Our practice did not change its direction; embedded nature was implicit in all we designed, as was the formative use of evidence. The ideals of performance—air, sun, thermal comfort—that were now highlighted and studied in depth had been fundamental to our work since the 1960s.

We continued integrating architecture and landscape in large healthcare projects. Penn State Health’s Milton S. Hershey Medical Center Master Plan (2005), Cancer Institute (2009), and Children’s Hospital (2012), are united by an arc marrying land and building, together forming a garden hospital. In the continuous passage of the arc, patients and visitors understand where they are and where they are going. Woven between the building blocks that extend from the arc are six gardens, for six different patient audiences. The spirit of the early Payette courtyards is alive in these gardens, which connect inside to outside to form distinct places of healing—a garden for children, for chemotherapy infusion, for the hospital itself—piazzas in a small city.

The idea of special places nestled within the city is a theme of the Beth Israel Deaconess Medical Center New Inpatient Building, which is scheduled for completion in 2022. Adding to the 1980s Rosenberg Building, it completes a 300-by-400-foot block in the center of the Longwood Medical Area in Boston. The first five floors build the technical platform of surgeries, diagnostic imaging, and emergency services linking both buildings. The special place is the patient garden sheltered between the old and new patient wings, lofted above the city.



Beth Israel Deaconess Medical Center



Fifth Xiangya Hospital, Landscape Plan



Fifth Xiangya Hospital, Design Competition Model

The patient lobbies are all glazed—sky lobbies, streetscape upper connector, and main lobby—mirroring the famed Riverway landscape that bounds the hospital campus, part of Olmsted’s Emerald Necklace. The patient garden, the Francis Street gateway from the Riverway, and the landscape designed holistically for the city block are 2020 siblings of Olmsted’s Riverway ideals.

### The Sustainable Hospital

The largest hospital we have designed as a small city is the Fifth Xiangya Hospital in Changsha, China, which will open in 2020 as an eco-hospital in a garden. The complex is situated at the base of Xianguling Park. The landscape defines the architecture, the hillside park cascading onto the platform, a series of openings in the patient wings bringing light, air, and clarity of orientation to the lowest levels. They are a twenty-first-century reminder of the courtyards of Leonard Morse Hospital in the 1960s and Aga Khan University Hospital in the 1970s.

On the patient floors, dragon-like in plan, patient rooms face south and east. Their windows are sculpted into family niches that, expressed on the exterior, bring the huge complex—the size of Boston Common—into human scale. For Xiangya, as for Beth Israel Deaconess Medical Center and another current project, the Chelsea Soldiers’ Home, we mocked up the window element at full size, through many iterations, both to fine tune how it welcomes the visiting family and to optimize solar performance. At Xiangya, the windows provide natural ventilation—something that would be good to reintroduce into the American hospital.

Sunlight and air are key factors in human experience; they are key, as well, to designing sustainable buildings. Hospitals, along with laboratories—the other focus of Payette’s work—use far more energy than any other common building type. They share extraordinary technical

constraints, such as contamination control, and extraordinary demands, such as the energy loads of sophisticated equipment. To design a sustainable hospital is one of the great architectural challenges of our day.

Payette is meeting this challenge with the simultaneous creation of humane places and high-performing buildings. The two are equally dependent on the building’s relationship to the natural environment. We believe each advances further when they are considered together. Doing so calls for both cultivated intuition and rigorous calculation, the fusion of design and performance. This fusion can be seen in the family niches of Xiangya, where solar performance meets human comfort and interaction. They create a personal space for many different uses including a place of meditation, an area for a parent and child to be together, a space for relaxation, or just a framed view to the garden.

### Why Hospitals?

Since its earliest days, our firm has measured the things that can be measured, both to optimize those things and to better shape the important things that can’t, perhaps, be measured at all. When at their best, architects are both scientists and humanists; that, at least, is how we see it. The hospital offers a stern test of our capacity to be so. It is a test we welcome. We enjoy the technical and formal complexity, and we value the opportunity to shape buildings in which people encounter some of life’s most difficult challenges and most remarkable discoveries, some of its greatest joys and deepest sorrows. It is a privilege to bring the gifts of architecture to the moments when we are most vulnerable. The impact of design on these life thresholds is immediate and profound. No other building type can demonstrate, so consistently and so meaningfully, the effects of good design.

One measure of a society's values is the buildings it celebrates. Historically, hospitals were among our most celebrated institutions. Iconic in form, they were sited prominently not only to welcome in natural light and air, but also as places of civic pride. Today, cities look instead to museums as signs of stature. Hospitals, more often than not, are formless aggregations, disconnected from the city, sterile mechanisms of little symbolic value. The contrast is unsettling, and our priorities are unsettled, both as a society and as architects.

The museum's value is real and significant, but we visit it by choice, and many people don't visit it at all. By contrast, we go to the hospital because we have to, and sooner or later we all have to. More people experience hospitals, more regularly, than experience museums—or courthouses or city halls or DMVs or indeed any other civic building. There is no better or more important place to demonstrate the impact of good architecture.

We take pride in designing hospitals that are humane and sustainable and that, once again, represent core values of our society: service, compassion, healing, and a common spirit and vision. We find these values most fully realized in a place that embraces the natural world within the world we have made, the hospital as a small city.



Stunned by the devastation wrought by Haiti's 2010 earthquake, our healthcare group was determined to apply our expertise to help rebuild the country. This pro bono project, a new maternity hospital for a grossly underserved community, emerged from a multiyear, pro bono design-build relief effort initiated by the firm. Located in mountainous terrain three hours west of Port-au-Prince, the St. Boniface Hospital is the only hospital in the southern peninsula, and serves a population of almost twelve thousand inhabitants.



The Aga Khan University and Hospital complex is one of the largest philanthropic projects of its kind ever initiated in a developing country. It serves as the primary institutional focus for the healthcare efforts of the Ismaili Community, operating over one hundred primary medical and health units in rural Pakistan. Payette designed the original hospital and has continued to further AKU's vision through subsequent new buildings over the past forty years, setting a new paradigm for the network of primary and secondary healthcare facilities throughout the country.

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