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HASSAN FATHY

Hassan Fathy 1900-1989: The Prophet of Mudbrick

Contents

In this cold time when the earth
Transcends human dust and is so sad,
I want to knock on every door,
And beg pardon of I don't know whom,
And bake them slices of fresh bread
Here, in the oven of my heart….!
--Cesar Vallejo, Peruvian poet

Hassan Fathy of Egypt, The Architect with a Social Vision

Hassan Fathy was a modern architect rooted in the silt of the Nile Valley, formed in t he Beaux Arts tradition, and a champion of the human scale. His personal responsibility, his vision and his work inspired, and often transformed, students and scholars-at-large, from the disenfranchised to heads of state. (1) His sensibilities surpassed those of a builder, extending to those of the philosopher, the poet, the anthropologist and above all the social reformer. (2) To place him in history Fathy was 31 years younger than Frank Lloyd Wright, 13 years younger than Le Corbusier and two years older than Louis Kahn. He did not break with the past or concentrate solely on urban conditions as did the founders of the Modern Movement, his contemporaries. (3)

His life began in Alexandria in a comfortable nest of artists and scientists, the son of a noted jurist and of a mother who loved song, animals and gardens and who he quoted frequently. He graduated in Engineering and Architecture from the University of Cairo and eventually taught there. After publication of his book *Construire avec le peuple* in 1970, (published as *Architecture For the Poor*, Chicago, 1973), he was invited to lecture throughout North America and Mexico, Europe and the Middle and Far East. Late in life he was awarded a profusion of prizes and citations, including the first Aga Khan Award in 1981.

Hassan Fathy built an oeuvre of quality rather than quantity, in the Southern Hemisphere especially. It includes palaces and opulent villas in the Middle East, schools and other institutional structures, and the planning and design of entire settlements, villages and towns. (4) He is considered today the ethical Master (5) of architects, builders, and planners committed to the poor or ,more precisely, to housing those who live outside the cash economy. Fathy considered his ideal clients to be those who, in his words, “are condemned to an early death due to inadequate housing – the economic untouchables” (6)

It is Fathy’s very first job that changed his life. He was to build a school in a remote farming area of the Delta. On reaching the village site he was revolted by its ugliness, by the very smell of poverty, and by “the hopeless resignation of these peasants to their condition”. (7) He was overwhelmed by how unnecessary this misery appeared to be, and then shaken on realizing that the lands belonged

to his father. He later wrote, “I suddenly felt terribly responsible. Nothing had been done out of consideration for the human beings who spent their lives there: we had been content to live in ignorance of the peasant’s sickening misery. I decided I must do something.” (8) Thus began his quest for a means of rebuilding peasant communities that would allow people to live with self- respect outside the consumer system. He never turned back or, as a French film maker, Nadine Descendre, wrote, that is the moment when he sold his soul to the people. (9)

Loss and Continuity

Much like elsewhere, the system in Egypt scorned the poor whose dispossession in the early 19th century was decreed by the Ottoman Khedive Mohamed Ali who appropriated the fertile lands from traditional owners and made of the dwellers tax-paying tenants.

As a result villagers forgot their skills within 3 to 4 generations of indenture and adaptation to the changes brought by the importation of western economic and industrial systems. In rural areas traditional buildings ceased, methods were lost but, more critically, these people were disoriented by the loss of their very cultural identity.

An optimist early on, it took Fathy years to realize that it is fatal to lobby at the Ministries of Housing and Health. The action of serving the poor did not benefit

the vested interests of banking, the manufacture of building materials or those of contractors. Fathy's lack of ulterior motive and political self-interest undermined attempts by developers to fatten an infrastructure looking for contracts financed by world organizations or the United States Agency for International Development whose accounting and accountability did not grapple head-on with, or alleviate, the miserable plight of the poor.

Meanwhile, to redress poverty Fathy applied contemporary technical means and the most up-to-date community organizing skills to re-orient his adopted clients culturally. He turned to the very soil of Egypt. "Fathy always looked for continuity", (10) and kept alive his dream to empower people to build their own, to spread this gift of building craftsmanship like a contagion, neighbor to neighbor until all will again enjoy a roof and, above the courtyard, " a private piece of sky." (11)

Mud Roofing: A miracle of Rediscovery

Fathy soon realized that the concrete housing solution was not only inhumane but also costly since it requires skilled labor, expensive equipment and industrial materials produced abroad. Using the training he had received at Cairo's Higher School of Engineering, he decided to design decent dwellings using locally available bricks made of mud and straw. Testing for maximum durability, he engaged the technical advice of soil mechanics engineers. He had opted for sun baked mud brick on observing that mud vaults and domes ten centuries old stand

“with splendid assurance and style” at the Fatimid cemetery in Aswan; (12) that Ptolemaic granaries 3400 years old, of mud brick, still flaunt wide vaults. In short, the solution was to be found in Egypt’s history and not at the drawing board. It was no problem building mud walls; but Dr. Fathy’s early attempts at mud brick vaulting resulted in collapsed roofs. Since his clients can’t afford to buy one beam nor one sheet of corrugated galvanized iron—a thermally uncomfortable expedient that went against his canons of esthetics – how would he find the technique in mud brick vaulting used so successfully in pharaonic times? Fathy feared that after a century of colonialism the secret had been lost until, two years later, in the Nubian village of Abu el-Rish, he rediscovered the technique. Here, village masons still build a clean vault of bricks that can rise two stories high, twelve feet wide and to desired length. The craft demands that one first erect the back wall, or kick wall, of the house higher than the intended roof level. Then, starting at the base of a catenary parabola traced with mud mortar onto the wall, the first adobe brick is inclined against the wall, providing support for the next course of two bricks and so on until the arch is completed and the uppermost brick is placed horizontally. Interstices are filled with chips of dry mud and packed with wet mortar. Course after course is built onto the arch with a simple adze, a trowel with hammer handle; it takes two masons about a day and a half to complete a twenty-foot room. This type of roof is climatically comfortable, will not fall in earthquakes, can be used anywhere in the world and costs the price of labor. The discovery changed Fathy’s life. The miraculous simplicity of the ancient methods meant that Fathy could now restitute to the

peasants the skill which their ancestors had refined over generations not as a conscious science but as a craft that grew out of their need.

Mastering adobe building techniques guaranteed the safe-keeping of architectural esthetics: Structure dictates form, the material imposes the scale and, Fathy wrote, “buildings take on a satisfying and natural shape. Within the limits imposed by the resistance of materials – mud, here—and by the laws of statics, the architect finds a sudden freedom to shape space with the building, to enclose a volume of chaotic air and to bring it down to order and meaning to the human scale so that, in one’s house, the structural elements provide endless interest for the eye.” (13)

Fathy remained loyal to mud not only because of its eminent durability over tens of centuries, evident in the *jacal* of prehistoric Amer-Indian structures, (14) but because it maintains temperatures soothing to the body in a range of no more than 3 to 4 degrees Celsius within 24 hours; further, it is mercifully plentiful when one considers that one-third of the planet’s inhabitants live in houses made of earth.

Architecture Without Contractor

Fathy pushed further to solve the problems of grinding poverty. He elaborated organizational systems which did away with the contractor. With his crew of two master masons and one administrator-social worker, he sat with each family to

learn in private of their personal aspirations and needs in house-design. “No two persons are alike,” he wrote, “Not even identical twins because they will differ in their dreams. Architecture emerges from the dream and this is why in villages built by their inhabitants no two houses are alike. It is the architect’s job to make his village as charming as possible. If the architect is to offer any excuse for his arrogance in dictating what his fellow men shall live in , that excuse must be that he can surround them with beauty. It would be grossly discourteous of an architect whose imagination has been enriched amid the loveliness of Siena or Verona, or the Cathedral Close of Wells, to scamp his work and fob his clients off with something less than the most beautiful architecture he can create.” (15)

Participatory planning of this sort plus the need for public service structures determined the plan of the village for New Gourna, for example, and the aspect of each house. “My irregular plan made for variety in design,” he wrote, (16) “constant visual interest and precluded the building of those boring ranks of identical dwellings that are often considered all that the poor deserve.”
After completion of the analysis of client requirements and the planning and design stages, actual building is carried out in two phases: First, the architect and masons hire from the village laborers-in-training who will build the public service structures under the tutelage of the skilled masons. Second, the mud is dug out from an area which customarily is destined for a pond. It is mixed with vegetation -- leaves, straw or grasses—to strengthen the material. This process, known as stabilization of the mud, can be entrusted to a soil mechanics engineer anywhere

in the world where traditionally skilled builders are lacking. Once walls and roof are up a structural engineer can be consulted for their strength.

At this point the trained builders draft one worker per family. The laborers are divided into teams of twenty to then build the private dwellings which generally encircle the public service structures. Twenty people, therefore, invest sweat equity, sweat being an asset of measurable worth which humans share relatively freely. In Fathy's experience, twenty can build twenty houses faster, better and more happily than one person building a single house. Beyond twenty anonymity is introduced leading to abstraction of the individual and hindering cooperation. One team of two masons and four laborers can build a house in 45 days, and where a neighborhood of 20 families can raise a team of 20 young men and women, the entire neighborhood could be built in 8 months.

One correct answer to the economic dilemma is to release the productive potential of the villagers through cooperation and a modicum of organization. Here we have seen that planning, like charity, begins at home, on the family level and expands to activities that include the neighborhood, the village, the city until mass needs are rendered manageable while societal ecology remains in balance.

Fathy proved his point elegantly in 1946 when the cost of each house with kitchen and bath amenities amounted to $500, where the least expensive unit

recorded using the architect-contractor method came to $1,200, providing neither the harmonious modulations nor the extraordinary thermal comfort offered in Fathy's sensitively created village of New Gourna, on the west bank of the Nile opposite Luxor.

Natural Energy and Vernacular Architecture

In his book of the same title (above) Fathy wrote, "Modern science can develop human capabilities to use natural sources of energy far beyond what has been achieved in vernacular architecture. If science and technology are to revitalize architecture through a systematic and comprehensive comparison of new and traditional structures, the principles that produced the solutions must be respected. This is the only way we can surpass in human and ecological quality the achievements of traditional architecture in the hot arid regions of the world. Such an effort can only enrich human thought and culture. "(17)

This treatise was published decades after Fathy had successfully incorporated in his architecture vernacular devices which considerably enhance thermal comfort by lowering temperatures indoors and outdoors—appropriate technologies which had disappeared from fashion for being considered arcane and pejoratively indigenous.

Prince Charles of England, citing Fathy's ability to provide architecture of great beauty regardless of the clients' means, praises him as a traditional architect.

(18) Indeed, Fathy valued tradition for its appropriateness but certainly not for its own sake. He used it as a tool and "a contributing factor to a continuing process."(19) He had a *pudeur*, a native restraint guarding from hubris, and a ferocity against anachronism. If tradition, like technology, can be placed at the service of the human being instead of the reverse, so would he use elegant and effective vernacular solutions for the greater psychic and physical comfort of his clients.

That is how he re-introduced the *mushrabiya*, the carved wood window screen, into contemporary architecture, and the graceful claustra which carries cooling breezes from room to room—a gesture both respectful to the clture he shared with the fellahin, and a satisfying thumbing of the nose to the Europeanized advocates of high-tech air-conditioning in costly concrete construction.

The inner courtyard of a house is the most efficient air conditioner for it traps the cold of desert night air, releasing it gradually during the day to adjoining rooms through in-built claustra. And if the walls are thick and of adobe, they too store the night's coolness, and gain heat slowly during the day, yielding the higher temperature many hours later, when it is needed. Plantings purify the air further, protecting dwellers behind courtyard walls from the foul-smelling fumes of car-infested streets.

The *mushrabiya* is used from Morocco to Pakistan, allowing air, wind and humidity to enter openings. " As every organic fiber has hygrometric value," Fathy explained, "wood absorbs humidity. When the *mushrabiya* is directly heated by sunlight, this humidity is released to any air that might be flowing though the interstices" (20). For climates where the rays of the sun are intense, it is the most effective window shade for it blurs the light. As light falls on a plane surface it bounces at right angles, but when it touches curved surfaces it diffuses with splendid subtlety into a fuzziness of radial reflections. The *mushrabiya* is a latticed grid made of dowels which intersect at carved wooden spheres. Over the centuries they have been created with great inventiveness of design; woodworkers perfected their skills to produce entire panels many meters high of apparent lacework in wood. It was replaced during the self-conscious colonial mimetic era before Independence by the brutal *brise-soleil* which to Fathy's mind serves to accentuate rather than dim the contrast between shadow and light. Once again in vogue, the *mushrabiya* is being adapted in contemporary architecture abroad, in New Mexico by architect Antoine Predock (21) and at Jean Nouvel's 1990 *Instutut du Monde Arabe* in Paris.

Fathy was mindful to use and create *mushrabiya* with interstices narrow at eye level, in order not to dazzle the eye with light, compensation being provided by enlarging the openings just below the ceiling. The smallest interstices come at the bottom where air entering narrower passages at a faster rate creates a cooling rush -- the Venturi principle.

Another cooling device is the windcatch, or *malqaf*, which Fathy used structurally in a magnificent repetitive pattern at the town of Bariz, which he planned and designed in entirety. The *malqaf* was invented in Kashan, Persia. It is composed of a shaft rising above a building with openings facing the prevailing wind. It catches the cooler winds above and traps them down into the interior, sometimes channeling them over a pool to further decrease temperature. When affordable, Fathy installed fountains centered in an octagonal configuration as in classical Arab houses, often echoing the eight sides of a dome above.

Culture and Community

Looking at the Arab house as an expression of culture, Hassan Fathy asked in what ways the environmental forces that molded the desert-dwellers' character affected domestic architecture. "The desert has formed the Arabs' habits and outlook, it has shaped their culture. To the desert they owe their simplicity, their hospitality and their bent for mathematics and astronomy. Because the experience of the desert can be so bitter, because the surface of the earth and the landscape are for the Arabs a cruel enemy, burning, glaring and barren, they find no comfort in opening the house to nature at ground level. The kindly aspect of nature for the Arabs is the pure sky, clean, promising coolness and life-giving water in its clouds. It is no wonder that for the desert-dweller the sky becomes the home of God. With the adoption of a settled life, the Arabs began to apply architectural metaphors in their cosmology, so that the sky became a dome supported by four columns. This notion gave a symbolic value to the house,

considered to be a microcosm of the universe and the metaphor was extended further to the eight sides of the octagon that supports, on squinches, a dome symbolizing the sky. These eight sides were held to represent the eight archangels holding up the holy and the most soothing face of nature. The Arabs naturally want to bring it into their own dwelling. The means of doing this is the courtyard. It becomes the owner's private piece of sky. "(22)

Fathy loved his country and his people. He delighted in watching them change in the embrace of safe and beautiful architecture. Having rescued the structure of their spiritual tradition, he gave them back the disrupted continuity of their cultural identity. In doing so he had modulated his own voice in the very soil and history of Egypt.

In his work Fathy suffered loss, opposition, betrayal and even exile. His remarkable architectural successes in self-help housing in New Gourna and Bariz were "thwarted with prejudice against mud-brick as well as the red-tape and ill-will of petty officialdom. His relationship with the architectural establishment inside Egypt was just as frustrating, his ideals dismissed as romantic, anachronistic, controversial, irrelevant, or non-lucrative."(23)

But Hassan Fathy never stopped thinking, writing and teaching in witty and endearing terms, the vision that stayed with him until the end. He had character, and many followers. Today's cataclysms in the Middle East and beyond, the

misery before his eyes, all enhance the likelihood that his heirs will apply his teaching. “His thought, experience and spirit constitute a major international resource.”(24) As we witness today millions of our fellows abroad and at home being hurtled aside and swept away by power play, the work of Hassan Fathy grows uncannily relevant.

Hassan Fathy’s last work was a clinic of 14 beds for women and children in Siwa Oasis in the desert on the Libyan border. As he was showing me the plans, an architecture student from Paris was ushered in for tea -- a Laotian from Vientiane. He asked the ancient sage what is the most important practice for an architect to learn. Hassan Fathy paused gazing out his window over the minarets of Cairo’s Sultan Hassan mosque, and answered, “The most important thing for an architect to learn is to work in community.”(25)

Notes

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13. Fathy Hassan, ibid 7, p 11
14. Scully, Vincent, *Pueblo Architecture of the Southwest*, 1971, p. 83. "Jacal is a technique older than Egypt and some of Egypt's major architectural forms in stone grew out of it."
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17. Fathy Hassan, Natural Energy and Vernacular Architecture, pp. 69-70
18. Charles, Prince of Wales, Visions of Britain, p.11
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