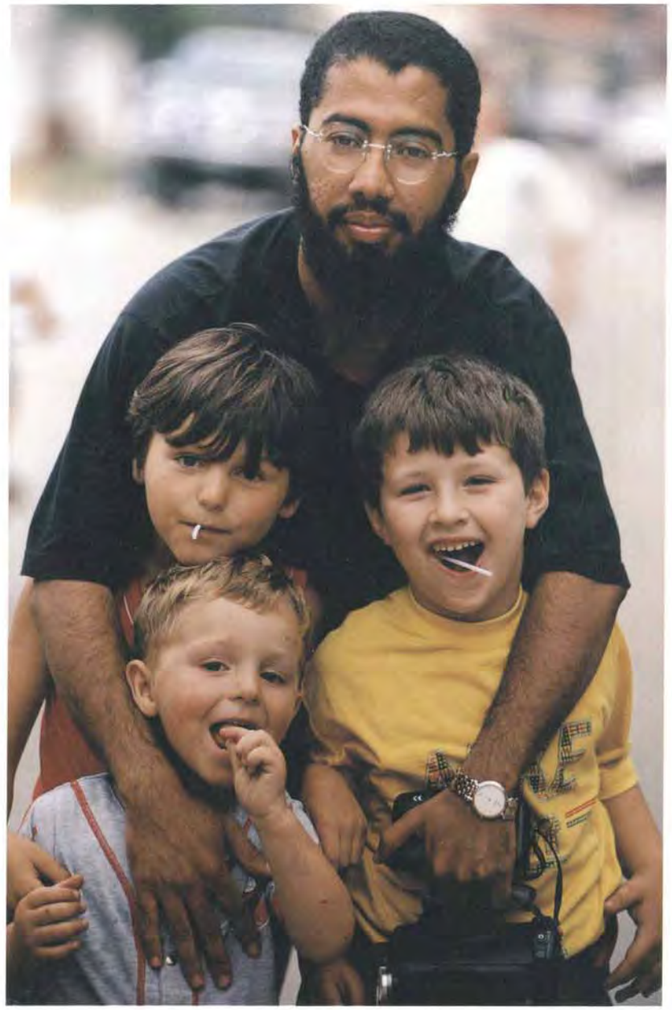

ARAMCO WORLD

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JULY/AUGUST 1999

HASSAN FATHY'S
Elegant
Solutions

Contents

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Published Bimonthly Vol. 50, No. 4

July/August 1999

2 UNSUNG HEROES
By Hussein Saud Qusti
In what may be the least-publicized relief effort of the Kosovo crisis, Saudi Arabia and seven other Arab countries mobilized public and private resources to support more than a quarter of the Kosovars who found refuge in Albania. In July, Arab agencies began accompanying refugees back into Kosovo to help them rebuild.

AN ARAMCO WORLD BRIEF: THE IDEAS, WORKS AND LEGACIES OF ARCHITECT HASSAN FATHY

16 ELEGANT SOLUTIONS
By Simone Swan
For much of his 50-year career, Hassan Fathy's articulate belief in indigenous motifs, natural thermodynamics, local materials and peasant self-help made him an outcast. Now, a decade after his death, he is acknowledged internationally as a pioneer and a force of conscience.

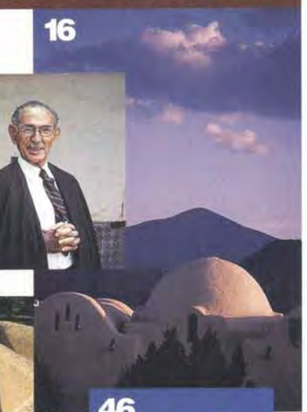
28 BUILDING FOR THE 800 MILLION: AN INTERVIEW
By John Feeney
In excerpts from an unpublished 1981 conversation, Fathy talks about what inspires his love of old Cairo, and the relationships among architecture, music, society and the human soul.

32 AL-'UDHAIBAT: BUILDING ON THE PAST
By William Facey
Built with the advice of two of Fathy's leading students, a reconstructed adobe farmhouse near Riyadh is a unique synthesis of tradition and modernity. Its owner, HRH Prince Sultan ibn Salman, discusses with *Aramco World* his hopes that al-'Udhaibat will inspire "a generation that needs its heritage."

46 FROM THE NILE TO THE RIO GRANDE
By Dick Doughty
The towns along the US-Mexico border share their climate, their insecure economies and their use of adobe with the Nile villages to which Fathy was committed. Bringing that commitment to America, former Fathy assistant Simone Swan also brought Nubian vaulting to present a new option in environmentally sound, low-cost housing for the region.

54 THE LEGACY OF HASSAN FATHY: A DISCUSSION
For all their inspirational power, only a few of Fathy's principles have been widely accepted. *Aramco World* and the University of Texas at Austin brought together three experts to explore their understandings of Fathy's contradictions and his profound, enduring challenges to our future.

64 EVENTS & EXHIBITIONS



COVER:
Fathy's gouache renderings of some of his architectural designs, exhibited in 1937, have a dreamy serenity that may come from their use of multiple, flattened perspectives, a technique also found in ancient Egyptian wall paintings. Fathy painted such watercolors—this one of a house designed for the Abd al-Razik family—as he moved away from the modernist and Art Deco style of his earlier work toward more indigenous forms and details. Photograph by Chant Avedissian/AKTC.

OPPOSITE:
Craftsmen from the Najd to the Nile to the Rio Grande know that it takes simple materials and sophisticated techniques to make good mud bricks. The proportion of straw to earth, the period of "fermentation," and the shape of the bricks themselves are all important factors. Photograph courtesy of Al-Turath.

BACK COVER:
A Saudi relief worker befriends a group of Kosovar children who have returned to their home village. Photograph by Thorne Anderson.

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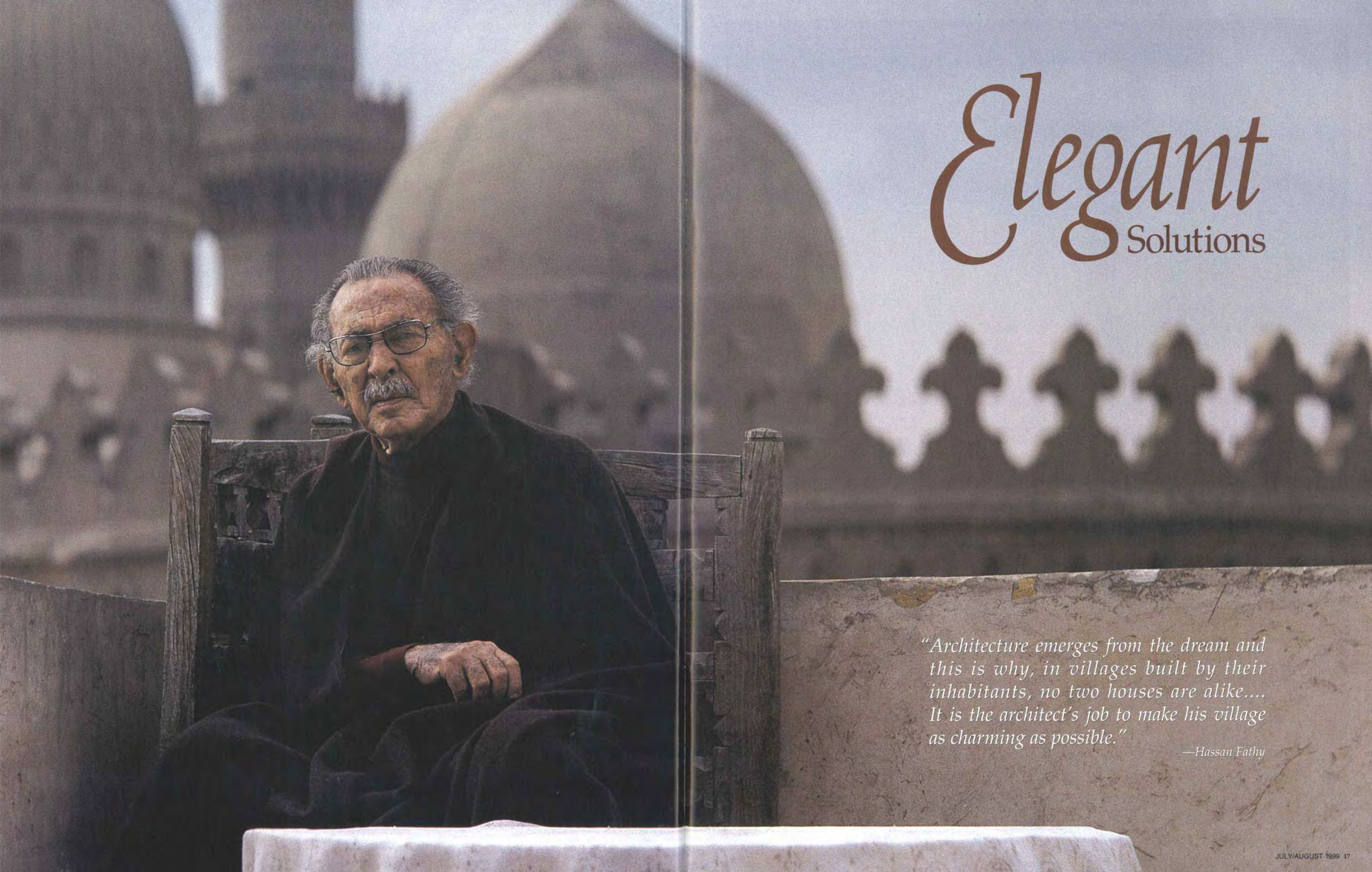


Elegant Solutions

"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."

—Hassan Fathy

Written by Simone Swan

Hassan Fathy's gouaches courtesy of the Aga Khan Trust for Culture

It was during a dinner party in 1972 that I heard my host announce the completion of a film on "the greatest architect of the century, Hassan Fathy."

All I could think was, "Hassan who?" Yet I was then director of the philanthropic Menil Foundation in Houston, which was active in art and architecture, and I considered myself well-acquainted with the leaders of contemporary architecture.

"Hassan F-a-t-h-y," he spelled out, "from Cairo. He's designed and built superb villas of adobe and stone, but mainly he's grappled head-on with housing the poor. And he has proposed elegant solutions! His central concern is rural low-cost housing; he organizes residents to build cooperatively."

Inspired and curious, the next day I read Fathy's seminal book, *Construire avec le peuple* (*Building With the People*). The book is Fathy's detailed account of his experience in planning and building, with its 7000 residents, the village of New Gourna on the west bank of the Nile, opposite Luxor, in the late 1940's, under the auspices of the Egyptian government.

This reading changed my life. My experience with architects had been substantial, including work on commissions with Charles Moore and Louis I. Kahn. Yet in reading Fathy, I realized that I had never before encountered an architect who not only designed superb spaces, but who was also committed to the "800 million peasants—one-third of the population of the earth—now doomed to premature death because of their inadequate housing."

I learned that when Fathy organized the construction of New Gourna in 1947, government-financed low-income housing in Egypt had almost always cost at least $1200 a unit, and nobody seemed to have given a thought to the high cost of skilled labor that made up so much of this amount. Even today, $1200 a unit is more than most nations are willing or able to pay for such housing. As Fathy proved for New Gourna —and as he also demonstrated in 1967 at Bariz, in Egypt's Western Desert—he could keep the cost down to $500 a unit, including kitchens and latrines, by building cooperatively with the owners. Fathy's accounts for such housing are exhaustively documented, down to the price of straw per mud-brick dome—exactly nine cents.

When *Architecture for the Poor* came out in English—the revised title was not Fathy's choice, but that of the publisher, the University of Chicago Press—it was soon thereafter translated into Spanish, Portuguese and Japanese. Since then, visionary developers throughout the arid regions of the less-industrialized world have looked to Fathy's ideas and example. Fathy presaged much of the "appropriate technology" movement that now is a standard element of grassroots development philosophy around the world.

TOP: CHANT AVEDISSIAN / AGA KHAN TRUST FOR CULTURE; LEFT: CHRISTOPHER LITTLE / AGA KHAN TRUST FOR CULTURE

CHRISTOPHER LITTLE / AGA KHAN TRUST FOR CULTURE; PREVIOUS SPREAD: JOHN FEENEY

Three years passed before I was to meet Fathy. In the meantime, several Middle Eastern scholars encouraged me to help disseminate his work and philosophy in the United States. In particular, Yusuf Ibish, then professor of Islamic civilization at the American University in Beirut, hoped that more of Fathy's writings might be published; Father Youakim Moubarac of Louvain and Paris urged me to make this inspiring Muslim better known through the ecumenical programs of the Rothko Chapel in Houston.

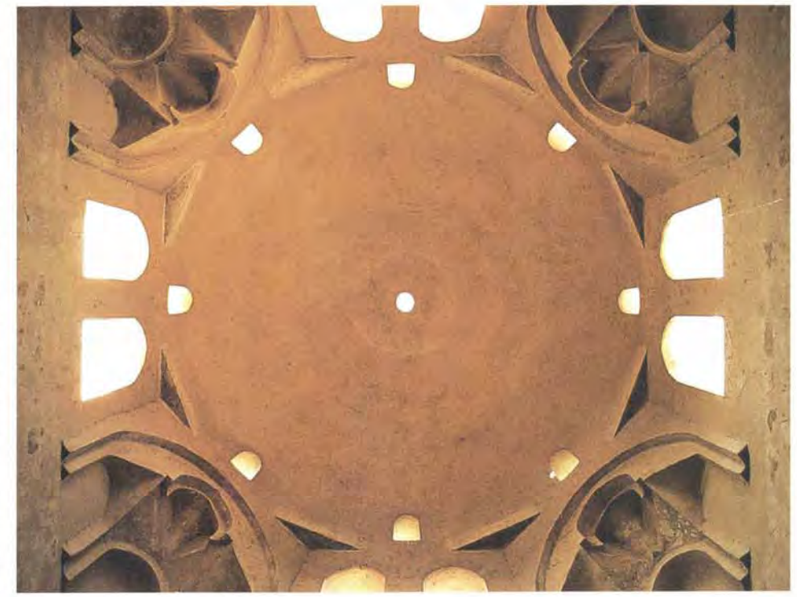
In late 1975, I wrote to Hassan Fathy in Cairo requesting permission to document his work. His reply, addressed to "Ms. Swan," came more promptly than I expected, and his use of that title, then new, cued me to his contemporary awareness. In his letter, he warmly offered to show me his work and country.

He met me at the airport. He was 76 then, dapper and compact. When my hat fell to the floor, he swooped it up with an agility that amazed me. That made an impression. In the car we immediately spoke of shared ideals, and by the time we reached the city each of us knew where the other stood, with mutual appreciation.

I set to work reading his voluminous papers, questioning him and assisting in his work sessions with a younger architect. They were designing a tourist complex in Giza with hotels, restaurants, parks, craft markets, gardens, a mosque and—at my suggestion—an ecumenical chapel. I helped him with a translation of his only play, *Mushrabiya*, from Arabic: He conveyed the sense of the lines to me in English and French and I helped him write what felt true.

There was never anything pompous about him. He had the charm of a cultured, well-read gentleman, a polymath who could always turn a thought with humor. He was intimidating only when refusing to suffer flattering fools and the venally ambitious. He loved the company of the young, especially students and former students, with whom we would dine on squab in the narrow market streets of Old Cairo.

He was more formal when he received visitors at tea time, which he did nearly every day—diplomats, industrialists, scientists, historians, social workers, theologians, artists, and of course architects and builders from many countries. They usually came unannounced, because of Cairo's lack of telephones at the time. They would listen as this scholar, sage and raconteur held forth on his visions of symbiosis between architecture and climate, the theological principles embodied in mosque design, and building with the poor. I marveled at how his thinking complemented that of other visionaries of these years: E. F. Schumacher (*Small is Beautiful: Economics as if People Mattered*, 1973) and Paulo Freire (*Pedagogy of the Oppressed*, 1974) come first to mind.

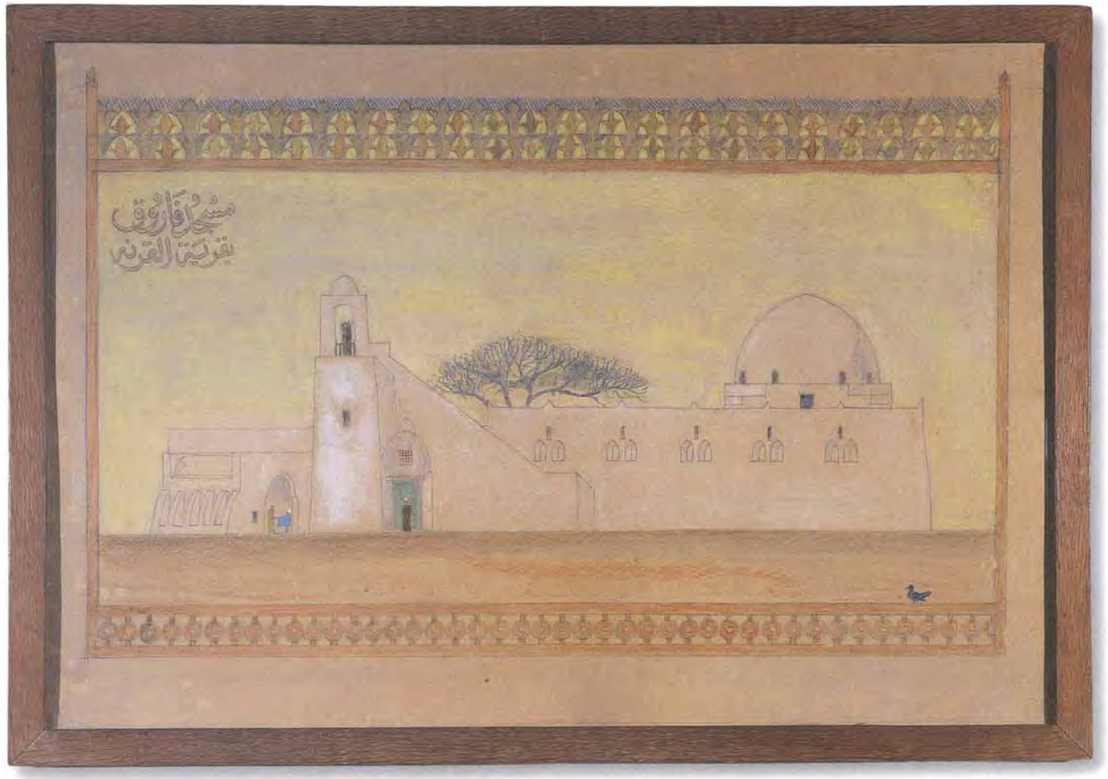


"I suddenly felt terribly responsible. We had been content to live in ignorance of the peasant's sickening misery. I decided I must do something."

We explored his own house at Sidi Kreir, which he had built in 1971 outside Alexandria on a lonely stretch of beach. This was a *palazzino*, a playful gem of a mini-palace set amid the low dunes. A diminutive front courtyard led to a small, well-proportioned foyer and living room, the latter flanked by *iwans*—recessed, curtained alcoves used as sitting rooms by day and sleeping rooms by night. Later he showed me New Gourna, which by then was in a distressing state of disrepair, a casualty of the government's faulty assumption that villagers would be willing to change not only their location but also their livelihoods. (See "Fame and Fiasco in New Gourna," page 20.) Back in Cairo, we toured the villas he had built of stone for several friends.

By this time in the mid-1970's, his peers in art, architecture and scholarship usually paid him affectionate, often devoted, homage, but government officials—the ones who held the purse strings for public housing, the field in which he longed to work far more than he ever did—remained skeptical and even hostile. Their behavior reinforced Fathy's hardest lesson: His commitment to the poor made him an outsider in Egypt, one who was regarded as a threat to vested interests in industrial building materials, banking, real estate and large-scale contracting. Except for commissions from his friends and admirers of means, his career became almost as notable for the obstacles he encountered as it was for built work, perhaps to an extent unmatched by any other architect of his stature.

Above: *The interior of the dome of New Gourna's mosque (1947), showing the transition from a square to an octagonal to a circular shape. New Gourna was the first, largest and best-known of Fathy's village construction projects.* ***Opposite, top:*** *Built 20 years later, the rhythmic arches of this loggia in the market at Bariz are based on Fathy's careful study of the indigenous towns of Egypt's Western Desert.* ***Opposite, lower:*** *Fathy at work on plans. His career was as notable for the obstacles his designs encountered as for the global impact of his writings.* ***Previous spread:*** *Fathy described the view of the 14th-century Mosque of Sultan Hassan from the roof of his house as "a skyscape, not a landscape," in which "every detail has a meaning."*



Fame and Fiasco in New Gourna

New Gourna, once the jewel among Fathy's built works, is today in disrepair and largely abandoned. It is nevertheless a constant source of inspiration and an object of study for architects, planners, historians and humanists from all over the world.

The deterioration of this extraordinarily beautiful pilot project, commissioned by the government of Egypt, began shortly after its construction. The government had neglected to take into account the psychology of what was, in effect, a forced relocation. The 7000 villagers of Gourna had for centuries made their livings by looting the pharaonic tombs beneath the village, and the decision to relocate them to a new village a few miles distant, made in the 1940's by the antiquities and housing authorities, was aimed at saving Egypt's patrimony by encouraging the villagers to become farmers.

It was quickly apparent that this created a problem that architecture, however sensitive or attractive, could not solve. The Gourna residents had expertise and knowledge of the market in tomb-robbing, but none in agriculture. They found farming less attractive and less lucrative than their previous profession. So no sooner was New Gourna built—school, mosque, marketplace and even a theater, in addition to dwellings—than the families' breadwinners began returning to Old Gourna to continue the trade they knew. New Gourna was soon abandoned.

Today there are occasional rumors of a patron who might restore New Gourna to its original condition, but they have all dissipated without results. New Gourna stands as a magnificent object of architecture and as a rare example of conscientious planning for low-cost housing. It is referred to in classrooms throughout the world, and the political and social lessons to be drawn from its demise are no less instructive.

—Simone Swan

BASTIN EVRARD; OPPOSITE: WILLIAM H. ROCKETT

To his friends and followers, Fathy was always known as Hassan Bey, a name that used the Ottoman term of rank with his given name to indicate respect and warmth simultaneously. He was born in Alexandria in 1900 to a family of artists and scientists, the son of a noted jurist and a Circassian mother, whom he was fond of quoting. He graduated with degrees in engineering and architecture from the University of Cairo in 1926, and he went on to teach there from 1930 to 1946.

With his degree fresh in hand, out on his first job, he had a life-changing experience. He was assigned to build a school in a remote farming area of the Delta. On reaching the village, he was revolted by its ugliness, by the poverty of its residents, and by "the hopeless resignation of these peasants to their condition." Fathy was overwhelmed by how unnecessary their misery appeared to be, and then shaken more deeply still to realize that the land on which they were living belonged to his father. (As a boy, his family had never taken him to the country, preferring instead to acquaint him with Europe.)

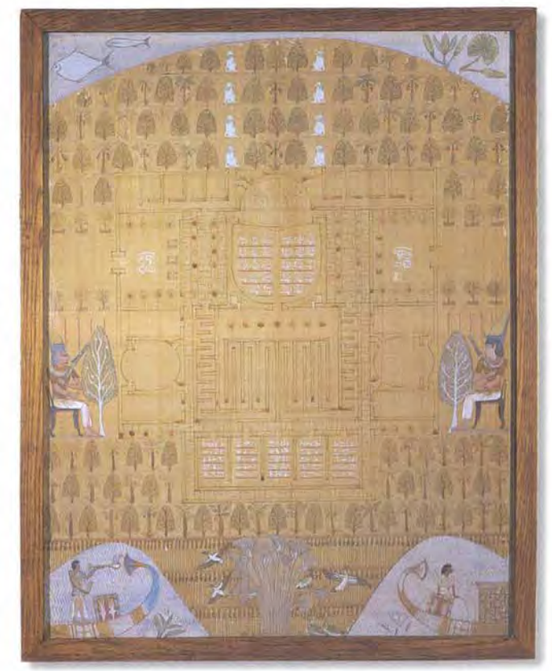
In *Architecture for the Poor,* Fathy wrote, "I suddenly felt terribly responsible. Nothing had been done out of consideration for the human beings who spent their lives there; we had been content to live in ignorance of the peasant's sickening misery. I decided I must do something." Thus began his quest for a means of rebuilding communities that would allow people to live with self-respect despite their exclusion from the consumer economy. He never turned away from this goal, and the economically dispossessed were to be Fathy's constant preoccupation.

As Fathy realized that people who possess no cash can hardly become an architect's clients in the usual sense, and that they cannot be simply integrated on command into a cash economy, he set to work devising techniques of producing low-cost, energy-efficient houses. Using concrete, so much in vogue in Egypt at that time, was out of the question: It required skilled labor, expensive equipment, and industrial materials produced abroad, all of which put it well out of reach of the budget of the Egyptian peasant (*fellah*). Worse, in hot climates concrete traps and holds high temperatures unbearably, exactly the opposite of traditional earthen interiors, which remain cool during the day and release warmth at night. (See *Aramco World,* May/June 1995.)

Fathy's solution was to turn to sun-dried bricks made of mud and reinforced with straw: adobe. He engaged the advice of structural engineers and soil-mechanics specialists to ascertain the maximum strength and durability of adobe under different conditions. After this research, in the early 1940's, he began to design dwellings that demonstrated an unprecedented degree of harmony with the natural environment, climate and local culture, and the spiritual tradition of Islam. With inspiration from the very soil of Egypt, he aimed to help the poor build for themselves.

Yet roofing remained a problem. In rural Egypt, the *fellahin* could afford neither wood nor corrugated galvanized metal for roofs, nor could they even buy the wood needed to make forms to shape vaulted adobe roofs. Fathy's early attempts at building adobe vaulting without wooden forms—the only economically sensible solution—resulted in a series of discouraging collapses. This was particularly maddening because it was clear from his visits to Upper Egypt that just such form-less vaulting had been used for millennia to build ordinary houses, tombs and even royal buildings, such as the granaries of the first-century-BC Ramesseum, one of the great monuments of Thebes.

Fathy feared that the secret had been lost, but in 1941, in the Nubian village of



Top: *Fathy first traveled to Upper Egypt in 1941, where houses such as this led him to remark, "I knew that I had found what I had come for." From then on, Nubian motifs and construction techniques informed his career.* ***Above:*** *A plan for New Gourna, rendered in gouache, incorporates pharaonic images: Hathor, goddess of fertility, as a cow, and Osiris, god of regeneration, as a sycamore tree (center).* ***Opposite:*** *Gouache and photograph of the mosque at New Gourna.*

Top: *The Nasr House (1945), exhibits two major elements of Fathy's design vocabulary: A central, domed* qa'a, *or reception and living room (interior shown* **above***), and* mashrabiyyah, *turned latticework window screens. At the time, Fathy encountered little sympathy for these and other gestures that today are credited with preserving and popularizing aspects of Egypt's traditional architecture.*

Abu al-Riche, he found village masons building catenary vaults of mud brick that could measure two stories high, up to three meters (10½') wide and of any desired length, without forms. (See "How to Build A Nubian Vault," page 24.) The technique, he was exhilarated to learn, was simple enough to teach to any willing person.

Henceforth, adobe became Fathy's technological passion, and he remained loyal to it not only because of its durability over millennia—some adobe structures in Egypt are more than 3000 years old—but also because of its thermal properties: In many desert climates it maintains comfortable temperatures within a range of three to four degrees centigrade (5–7°F) over a 24-hour cycle. Furthermore, it is plentiful: Approximately one-third of the world's people already live in houses made of earth. Finally, the flexibility of a material for which right angles and straight lines are not always essential nourishes architectural creativity. Under Fathy's control, adobe led to simple, captivating beauty.

Yet it was to take Fathy nearly a decade to land his first housing commission for the disenfranchised. Over that time several proposals met with scant interest at the ministries of housing and health in Cairo, which appeared to be more interested in the "modern" connotations of multistory concrete apartment blocks than in the traditionalism Fathy offered. Finally, in 1946, came the New Gourna commission.

The first thing Fathy did away with was the contractor. Then, a social worker joined him in interviewing each family about its aspirations and its 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."

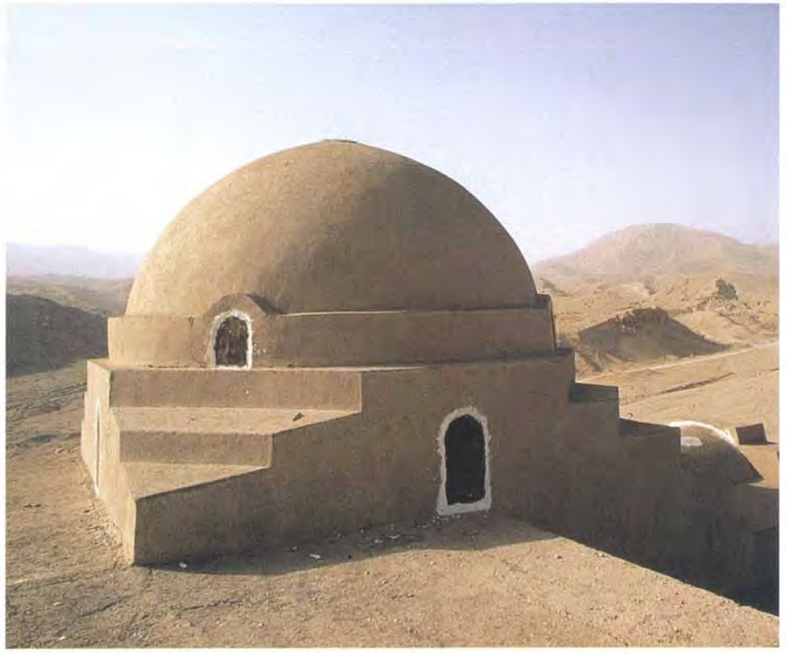
And so it was that participatory planning, mixed with the need for public service structures, determined the plan of the village of New Gourna and the design of each house. "My irregular plan made for variety in design, constant visual interest and precluded the building of those boring ranks of identical dwellings that are often considered all that the poor deserve."

Besides using adobe to enhance thermal comfort, Fathy also experimented in New Gourna with the revival and modern adaptation of three time-tested vernacular architectural elements that also affect perceived temperature—the courtyard and its breezy *claustra*, or pierced wall; the *mashrabiyyah*, a carved wooden window screen; and the *malqaf*, or windcatch. These architectural gestures showed his respect for the culture he shared with the *fellahin*, but they were also "appropriate technologies" that had disappeared from fashion in Egypt because, despite the nationalism of the era, the country had kept its technological gaze fixed firmly on the industrialized West. These architectural elements bestow uniquely Egyptian and Arab qualities where they are used, although they were (and often still are) considered by many to be pejoratively indigenous and "backward," a sign of poverty or of an irrevocably bygone era.

In traditional desert architecture from the Maghrib to Central Asia, the most efficient air conditioner available is the inner courtyard. It traps cool night air and releases it gradually during the day to adjoining rooms through built-in claustra, an effect that complements the thermal properties of mud brick. Trees, shrubs and other plantings, both in the courtyard and, to the extent possible, immediately outside the house, help clean the air and afford a measure of protection from the dust-laden desert winds—or the fumes of trafficked streets. In almost all of Fathy's designs, the courtyard was literally a central feature. He experimented almost endlessly with its variations, yet he never lost sight of its thermal as well as its social and esthetic functions. To Fathy, the development of the courtyard house was even a metaphysical response by desert-dwellers to their surroundings:

"The desert has formed the Arabs' habits and outlook, it has shaped their culture," he wrote. "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 sky, pure, 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."

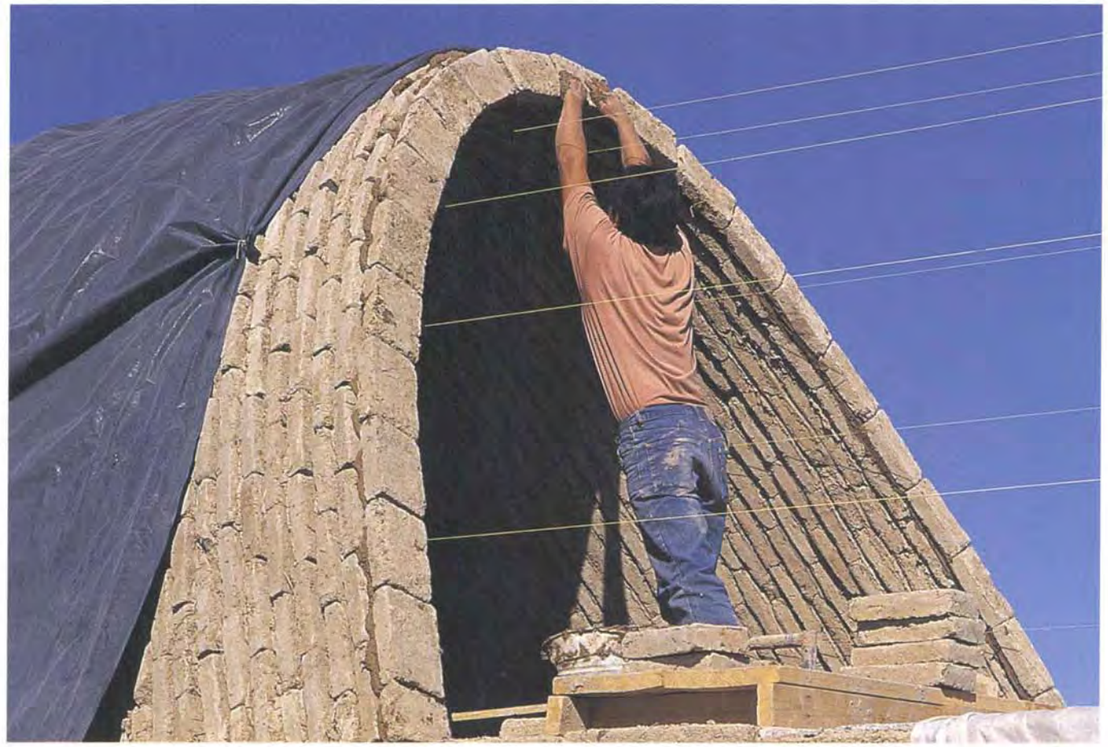
"With the adoption of a settled life, the Arabs began to apply architectural metaphors in their cosmology, so that the sky became a dome supported by four columns. This notion gave a symbolic value to the house, considered to be a microcosm of the universe, and the metaphor was



"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."

Top: *The Stoppelaere House (1950), designed for an archeologist, integrated domes, courtyards, an office and residential rooms along a ridge in Luxor.* ***Above:*** *Mit Rehan (1981) was built of limestone. With the completion of the Aswan High Dam in 1970, the Nile ceased its annual flood-borne regeneration of Nile Valley topsoil and, to conserve it, the government of Egypt banned the manufacture of mud bricks.*

TOP: CHRISTOPHER LITTLE / AGA KHAN TRUST FOR CULTURE; RIGHT AND OPPOSITE: CHANT AVEDISSIAN / AGA KHAN TRUST FOR CULTURE



How to Build a Nubian Vault

This is not a construction guide. Please consult an experienced adobe mason before attempting to build a vault. —*The Editors*

Build the front and back walls of the room to be vaulted 60 percent higher than the side walls. From the inside top edge of each side wall, hang across the width of the room a chain whose length is 1.67 (1⅔) times the width to be vaulted. The chain's arc is by definition a catenary curve. Trace this curve onto a wooden or cardboard template, and cut the template along that line. Invert the template and set it against either the front or back wall, with the template's base points at the inside top corners of the ends of the side walls. Use mud mortar to trace the template's form onto the wall: This will be the shape of the vault. Do the same on the opposite wall. Set up leveling strings between the two tracings.

Mortar the first mud brick with its long dimension vertical, leaning against the base of the wall at an angle. As the second course, lay half a brick and a whole brick. (To split and trim bricks, Nubian masons use only an adze, whose sharp, curved blade is set at a right angle to the handle. It is used with a hammer-like motion.) The third course will be two bricks, the fourth two and a half, and so on. Each partial course leans toward the wall and ends when it touches the wall. After five partial courses are laid, the sixth should be the first one to complete the catenary arch and set the angle by which all subsequent courses lean toward the wall. When using properly mixed mud mortar and bricks scored on the mortared surfaces, this leaning angle is sufficient to hold each course in place. In laying the courses, do not mortar the ends of bricks of the same course; rather, let the interior corners of the bricks touch and place chips of dried mud or small stones between the exterior corners.

TOP: MARTINE JULIEN; LOWER: CHANT AVEDISSIAN / AGA KHAN TRUST FOR CULTURE

TOP: WILLIAM TRACY; LOWER: CHANT AVEDISSIAN / AGA KHAN TRUST FOR CULTURE

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 the sky."

The *mashrabiyyah* is an artful lattice of lathe-turned dowels that intersect at carved wooden spheres (or, on occasion, other shapes). It is used as a window covering from Morocco to Pakistan (see *Aramco World*, July/August 1974, July/August 1993). The *mashrabiyyah* allows air to circulate through the house while maintaining privacy for its occupants, and in regions of intense sunlight it is the most effective of window shades because the curved, often polished surfaces do not block light: Rather, they diffuse it into the interior with the splendid subtlety of radial reflection. Over the centuries, building *mashrabiyyah* became a highly developed craft, as woodworkers produced panels several meters high that nonetheless seem as delicate as lace. Fathy followed the traditional form of the *mashrabiyyah*, in which the apertures at eye level are narrow, to reduce glare, and the ones higher up, where sightlines do not compromise privacy, are larger. In colonial times the *mashrabiyyah* lost favor, but now—thanks in part to the efforts of Fathy—it is enjoying a revival, and not only in the Middle East. Antoine Predock, the New Mexico architect, has adapted it into his work; in Paris, Jean Nouvel transformed the idea of *mashrabiyyah* into steel for the Institut du Monde Arabe's electrically operated façade. (See *Aramco World*, January/February 1989.)

The *malqaf*, or windcatch, originally developed in Persia, is another millennia-old popular cooling device that fell into disuse in the Middle East when European housing design gained popularity. Fathy's most famous use of the *malqaf* was in Bariz, the second entire town he designed. The *malqaf* is a shaft rising above a building, open to face the prevailing wind. Functioning as the opposite of a chimney, it catches and channels the wind down into the cool, lower reaches of the interior, often across a pool of water and occasionally also over wet fabrics or screens, both of which further decrease the air temperature by evaporation. When clients could afford it, Fathy often made such water an esthetic element by installing fountains centered in an octagonal configuration, as in classical Arab houses, that often echoed the eight-sided support of a dome overhead.

The English word *adobe* comes from the Spanish assimilation of *al-tub*, Arabic for sun-dried bricks of mud. This derives in turn from the ancient Egyptian word for mud. The size of the mold used today in most parts of the world to make adobe bricks dates to at least 1450 BC, when the young pharaoh-architect Queen Hatshepsut was depicted on frescoes molding with her own hands the bricks for each corner of her funerary temple at Deir el-Bahari, near old Gourna. The proportions used then are so perfectly adapted to the function of the bricks that they remain largely unchanged today in Egypt, the Indus Valley, Pakistan and China, and from Sudan south to Zimbabwe. In the eighth century, the adobe mold traveled to Andalusia with the Arabs. From there, the Spanish *conquistadores* carried it to Mexico, where the native people of the deserts quickly adopted it.

In 1980, Fathy noted that in the *pueblos* of New Mexico, bricks still measure 33 by 15 by 10 centimeters (13"x6"x4")—almost exactly the proportions of the bricks at the Temple of Hatshepsut. When he made this observation, Fathy was engaged in his only North American commission, the community of Dar al-Islam in the remote mountain site of Abiquiu, New Mexico, where his clients were US-born Muslims. (See *Aramco World*, May/June 1988.) The first structure to rise was a mosque, constructed by the community members themselves under the tutelage of Nubian master masons Mohamed Abdul

Above: *The mosque and school at Dar al-Islam, built in 1981 on the high New Mexican plateau at Abiquiu, was Fathy's last village project and his only buildings in the United States. Building codes required that the mud brick be covered with concrete plaster, which increased the weight and cost of construction and largely blocked the planned inclusion of individual homes.* ***Below:*** *The Sami House (1978), built south of Giza, also employed limestone rather than mud brick.*

The mosque at Dar al-Islam in Abiquiu remains the community's signature architectural form. Note the large scuppers and spouts that allow rainwater to drain from the roof.

Jalil Moussa and the 85-year-old Ala Eddin Mustafa, both of whom had worked on many of Fathy's buildings. Though Fathy engaged himself in nearly a dozen projects afterwards—mostly individual houses and one hospital—Dar al-Islam was his last village-sized commission. Although today it is the only one that is even partly inhabited, the plans for individual adobe homes had to be scuttled early on, for local building codes had not been written with such construction techniques in mind, and their advocates were unable to secure the changes required.

In 1985 Fathy was awarded the first Chairman's Award of the Aga Khan Award for Architecture. He was 85, and it was only then that he began to receive the international recognition, the speaking engagements, and the other awards that his work and his principles had so long deserved.

On November 30, 1989 Fathy died in Cairo, in the 17th-century Mamluk house where he had lived for decades. It was his refuge and inspiration to the end, standing in a modest quarter at the foot of the eight-domed Ottoman citadel and overlooking the massive splendor of the Sultan Hassan Mosque, which Fathy regarded as the apotheosis of Islamic design in Egypt. Yet the neighborhood was (and is to this day) heavily populated by squatters, and so, even across the street from his door, he found daily reminders of the need for sensible, sensitive, sustainable housing solutions.

Patronage for Fathy's architecture for the poor never materialized to any significant degree, and his deepest hopes went largely unfulfilled in what at first seems to be a lifetime marked by setbacks. Yet Fathy remained ever an optimist, an idealist and a fervent believer in the essential goodness and the ultimate perfectibility of the human being. "Straight is the line of duty, and curved the path of beauty" are words Fathy would often mutter while drafting—words that he came to understand well in the full course of his life and work. In a 1961 paper, "Religion and the City of the Future," he saw clearly the unity of matter and spirit:

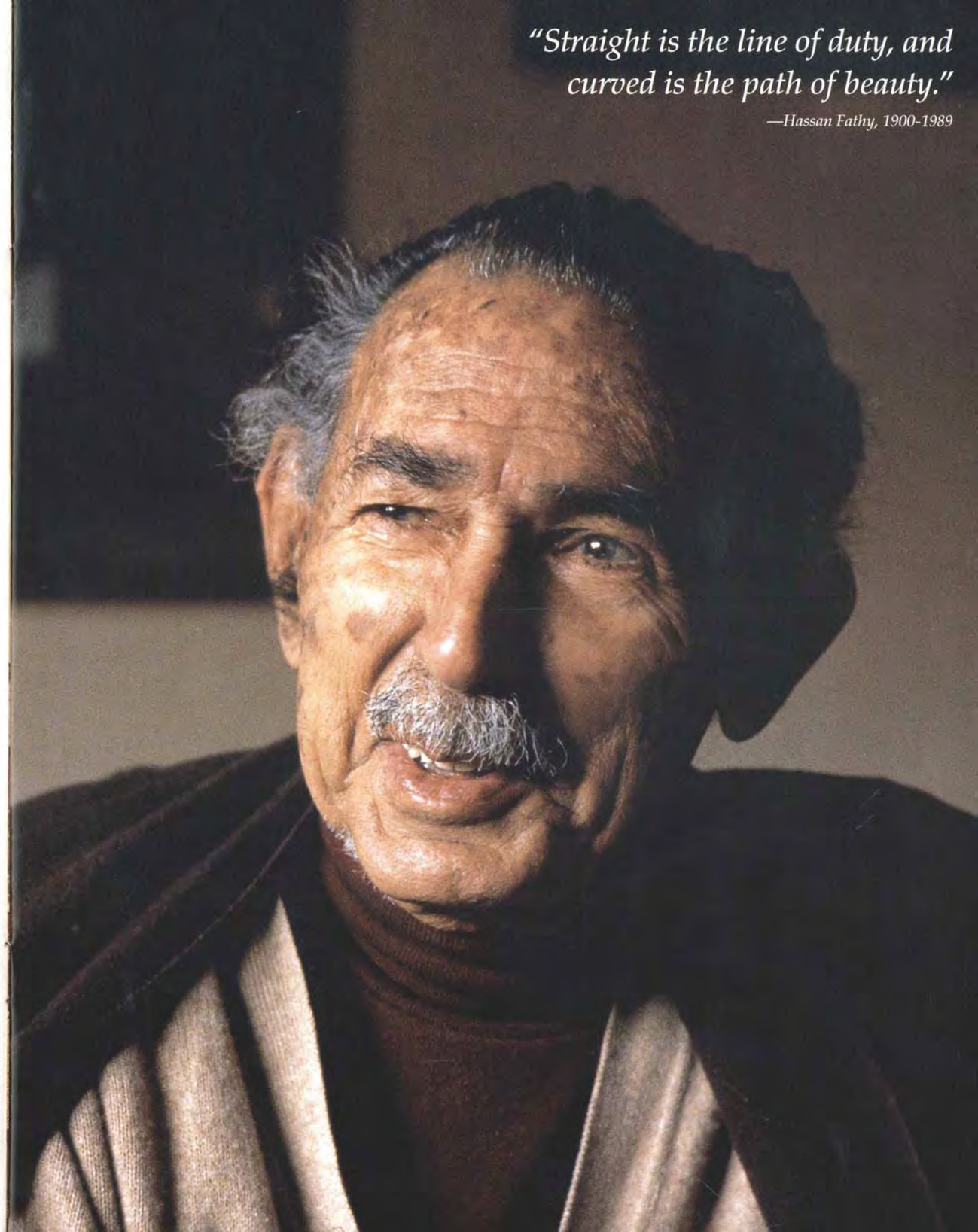
"As knowledge spreads among people, as the dogmatic certainties of 19th-century materialism lose substance, as matter itself grows more elusive under the physicist's examination, so humanity comes to a new understanding of the truths of religion. As education raises the general level of knowledge, so this understanding will become common property, and the illumination of the ancient sages becomes part of everyone's consciousness. With this knowledge, all natural phenomena and all works of humankind will be seen as a unity, as part of the holy totality of all things. Then the distinction between the sacred building, the church or temple, and the secular buildings of the city will cease to have any meaning. The whole city will become the temple, designed and built with the same reverence as the cathedrals of the past."

In the spring following Fathy's death, with the help of Brent Porter of the Pratt Institute, I organized a memorial celebration at New York's Cathedral of St. John the Divine. An overflowing crowd of people from nearly every faith saw slides showing his built work, heard a *surah* from the Qur'an recited, and listened to numerous messages, including ones from architect Charles Moore, consumer and health advocate Ralph Nader and Britain's Prince Charles. Afterward, I took my leave with reluctance, and walked out into a world in which Fathy's memory would—and this was my personal resolution—be a source not only of continued inspiration, but of action.

Today there are two centers in France inspired by Fathy. Both work with owner-builders in West Africa and the Middle East: CRATerre (Centre de Recherche en Architectures de Terre) of Grenoble and the Development Workshop of Lauzerte have helped introduce the Nubian technique of mud-brick dome and vault construction among villagers in Mali, Niger and Iran. In Egypt, Fathy's ideas can be found in the work of architects, planners and cultural developers in numerous institutions. In the United States, I have spent much of the past decade among architects, architectural conservationists and soil engineers dedicated to continuing his work in the desert climates of the Americas. Since 1994, my resolution to carry on Fathy's work has led me to form the Swan Group in the border cities of Presidio, Texas and Ojinaga, Chihuahua. (See page 46.)

As our global population continues to rise, the number of people without dignified, healthy, safe housing has soared far beyond what it was 30 years ago when Fathy wrote *Architecture for the Poor*. Fathy's designs, ideas, principles and character promise to grow only more relevant with time.

Simone Swan is director of the Swan Group, based in Presidio, Texas.



"Straight is the line of duty, and curved is the path of beauty."
—Hassan Fathy, 1900-1989

WILLIAM TRACY; OPPOSITE: CHRISTOPHER LITTLE / AGA KHAN TRUST FOR CULTURE

Building for the 800 Million

An Interview with Hassan Fathy

Photographed by F.R. Gouverneur

Aramco World *writer and photographer John Feeney interviewed Hassan Fathy at the architect's Cairo home, Bayt al-Fann ("House of Art"), in February 1981. Fathy was 80 years old.*

Aramco World (AW): *Can you mention the recent awards you have received?*

Hassan Fathy (HF): First was this award of the Right Livelihood Foundation, where the people are willing to come back to the human scale and the human rhythm of life; their ideas seem to correspond with my ideas about architecture. The other is the Aga Khan Award for Islamic Architecture. The third is the Balzan Prize. These three awards all came at almost the same time.

AW: *Does this mean that you are more influential in the architectural world now?*

HF: I hope so, because when we talk about architecture we have to think about two sides of the problem: the architect and the client. And the client I am interested in is represented by the statistic used some 20 years ago by the United Nations, which reported that there were 800 million among the people of the Third World doomed to die prematurely because of the bad conditions of their housing. This is the client the architect ought to serve, but architects are not interested in these poor. It's like the barefoot doctors in China: They need barefoot architects too.

To my mind, the less expensive the house, the more art you have to put into it. You cannot oversimplify and design one house for a million people and then, simply by putting three zeros or six zeros after it, turn it into a million houses. The house has to be built for its owner. When an architect builds for a rich man, he does all he can do to satisfy the specific or special requirements of his client, but when we architects deal with large numbers we don't care. We design one house and put three zeros beside and it becomes a thousand. If you say we have too many houses to build to be able to deal with them each individually, well, you have to anyway. If you cannot, if they surpass your capacity to design, then you are in the wrong profession. It's as though a doctor were to operate on a thousand people in two hours: He'd kill them all.

To my mind, the way to evaluate any project lies in asking the question, "Is it for man, or is it for something else?" If it is for man, we can discuss it; we have this psycho-bio-physiological man, and we can see the project's impact on him. But if it is for anything else, if it is for politics or economics, then you can do what you like, but don't talk about man, because then we have discarded man.

AW: *Would you like to talk a little bit about design concepts in Islamic Cairo—the narrow streets and the courtyards?*

The client I am interested in is represented by the statistic which reported that there were 800 million among the people of the Third World doomed to die prematurely because of the bad conditions of their housing. This is the client the architect ought to serve, but architects are not interested in these poor. It's like the barefoot doctors in China: They need barefoot architects too.

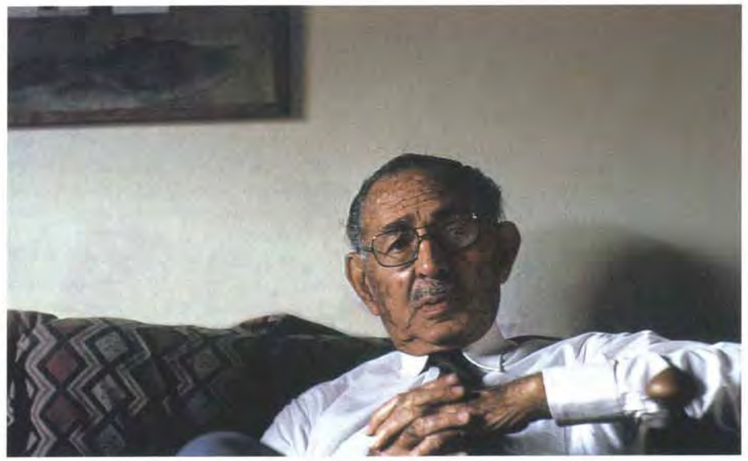
HF: What we can call Islamic architecture usually refers to architecture of the hot, dry regions. People who live where the environment is very hostile—heat and glare and sandstorms—have to turn their backs to the outside. So do their houses, which open onto the courtyard and are built on narrow streets.

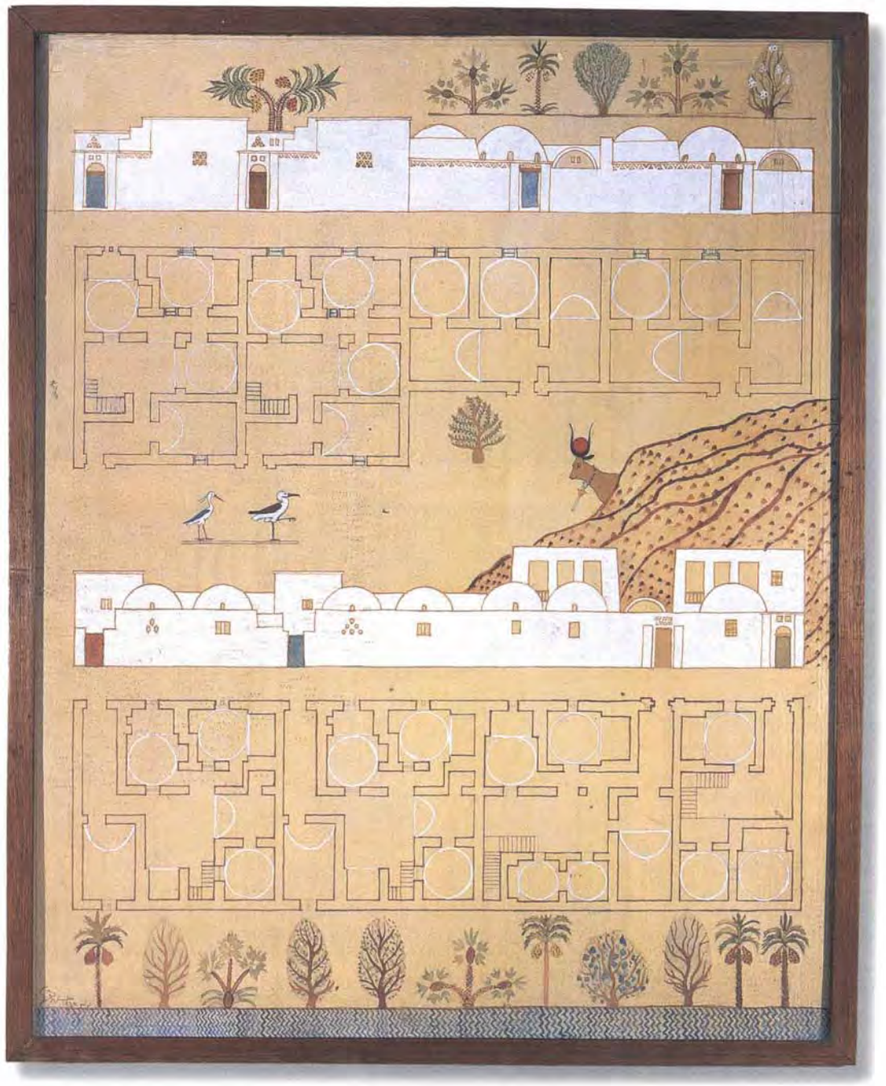
If you take measurements of air temperature you can compare the two kinds of housing, the one with the courtyard and the other opening outward into the street. The courtyard house is much cooler and nicer. And if you calculate the area of the courtyards plus the area of the narrow, shady streets and compare it to the area of the large avenues that you have in "modern" design, you find that these designs are not modern, they are backward. You will find that many thousands of kilocalories are economized if you have the right solution, which [in this climate] is the meandering narrow streets with the larger areas given to the courtyards.

AW: *Could you say a bit about your own house and what you look out onto?*

HF: Here is a small bit of Cairo which has been left. I'm surrounded by five mosques and naturally, thanks be to God, they were not demolished like the rest. Here I am living in a skyscape, not a landscape. Because of the technique that's been invested in them and the delicacy of their structures, the minarets around you make you think, and the air makes you feel, that technology has been subjected 100 percent to artistic expression. Every detail has a meaning. They are not made haphazardly or just by the whim of one individual artist or architect: This architecture is a communal art. So I think it is a great privilege to live here, in this environment, and I thank God that I could find this part of the world to build in.

As far as internal architecture, I feel very comfortable not only from the physical point of view but from the psychological and aesthetic points of view as well. Because, you know, the eye doesn't see more than one point at a time, and it sends the experience to the brain one point after the other. And when you hear music, you hear one note after the other, and you send the experience to the brain and it is in





your brain that you make the melody. So I continue by exposing the lines and experience of the image that I see, point after point, and sending it to the brain, and you make the image in your brain, like music. In the case of the image, this is done very quickly, and we think it is instantaneous, but no, it is one point after another—and then you have introduced rhythm. So when I am in this house and I see the lines, the intersection of the planes of the walls and the roof with the crown, the floor, the length and height and width of the room, and this and that, the eye goes harmoniously, harmonically.

AW: *So architecture is akin to music?*

HF: It is akin to music, it is frozen music. It is true especially if you apply what I've been telling you about the rhythm and harmonics, which you have in vision just as in hearing. If the lines go on harmoniously from one measurement to another, then it is like the wave lengths of a string making the fifth, the third, or the octave. So you have these harmonics in architecture as you do in music, only you have to transpose.

AW: *Now that your influence and your thoughts are going around the world, are they being taken up by other architects and builders? Or by young architects, perhaps?*

HF: The young architects are keen but they have no chance, because they have to have projects to work on and the projects are mostly carried out by

Usually man beautifies whatever he does with his own hands, so the product of his work has an aesthetic element. This is culture. But when we mechanize production, and construction, this reduces the human contribution, the participation of man in the building, and it also deprives the person who looks at the building of a source of culture—construction, invention and creation.

governments, and my way is not recognized by governments. The government architects are heads of departments, are a generation of professionals and employees, bureaucrats. To make this system work you have to have it recognized by the governments, by universities.

AW: *As a result of your many journeys to North America, for talks and conferences, have some of the architects or some of the organizations who've attended taken up the thought and the philosophy you espouse?*

HF: Yes, in Abiquiu [New Mexico]. This experiment proved to be useful because the people were very responsive. The demonstration we carried out there, building a small mosque with vaults and domes, all in mud brick with no centering, interested everybody. But the engineer of the municipality said, "We cannot give you permission because we don't know the calculations and this kind of structure is not known here." But thank the Lord, I had had this done earlier by our professor of structures, who calculated the stresses and forces of the vaults and domes in adobe. And we gave the municipal engineers a copy of these calculations, and they approved because they found out that it was secure. Because when soil mechanics tells you that the brick can take up to, say, 20 kilograms per square centimeter in compression, and the structural engineer calculating the vaults and domes tells you that it is actually subjected to one kilogram per square centimeter compression, then you have a very large safety factor, and the thing is secure and can last forever. The point is, to make this work we have to subject it to modern science, to the knowledge that we have from modern science.

AW: *Could you give us some thoughts on the influence of buildings on the soul? You mentioned once how you can walk along the street and be influenced by the buildings that the eye encompasses.*

HF: Usually man beautifies whatever he does with his own hands, so the product of his work has an aesthetic element. This is culture. But when we mechanize production, and construction, this reduces the human contribution, the participation of man in the building, and it also deprives the person who looks at the building of a source of culture—construction, invention and creation. Also, there is another thing, about encounters. There is a certain communication among all the members of a family that could not exist if the rooms of their house were put in a row, along a corridor, like in a hotel. This happens also with the city, the street and among people when you walk, when you come out of your house. In the past, your street was humanly designed and alive with people. There used to be children playing, they had a street culture, you would have puppet shows, or games. This has been eased out by the car, and streets have become boulevards. This has to be considered: the effect of the downtown plan on man, especially on children.

You can see this by examining a design of a street and watching the people going out to wherever they are going. The average adult can stand comfortably in a space of half a square meter. In a subway rush, however, he may be reduced to a quarter meter [square] or even less. Walking briskly at about five kilometers per hour, he needs three-quarters of a square meter, a reasonable and safe allowance on a crowded sidewalk. But in a car, he needs a road space of approximately 18 square meters just to stand still in a traffic jam. For driving at an average speed of 55 kilometers per hour, to move with reasonable safety, he would need approximately 55 square meters of roadway, and twice that much to feel relaxed as well as safe. Driving on a 100-kilometer-per-hour expressway he needs twice as much again, that is to say, 220 square meters. If we add up the areas of [modern, 55-kph] roads, and compare them to the area of [traditional walking] streets and squares, there is 75 times the space required!

Another thing is that you don't have encounters with the other people driving in your car. If you are in Venice or Cairo or Istanbul and you go to the market, you talk to the people who surround you. Now you have the supermarket. You come in your car, you have no time, you choose whatever you like, you put it in a shopping cart, you pay and go out. There are no encounters, no contacts. If you go to Khan el-Khalili and you don't bargain, the man won't sell to you, because bargaining is part of his life. After sitting all day waiting for clients, he offers you tea and coffee and talks to you, and he wants you to bargain. The simplification of contact leads to the isolation of man, more and more.

John Feeney, filmmaker, photographer and writer, has lived in Cairo for more than 30 years and has contributed extensively to Aramco World *for most of that time.*