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Comfortable Modernization: Hassan Fathy’s Architecture and the Decolonization of Egypt

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Comfortable Modernization:

Hassan Fathy's Architecture and the Decolonization of Egypt

A dissertation submitted in partial satisfaction of the

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Architecture

by

Mohamed Monkez Shaker

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ABSTRACT OF THE DISSERTATION

Comfortable Modernization:

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Doctor of Philosophy in Architecture

University of California, Los Angeles, 2019

Professor Sylvia Lavin, Co-Chair

Professor Michael Osman, Co-Chair

The 20th century modernization of the developing world came with its own discomforts. This project looks at a particular episode in the modernization of Egypt. The architecture of Hassan Fathy, as this dissertation argues, aimed at comforting its subjects towards the emerging forces of modernization. This dissertation looks at Fathy's engagement with the problems of modernity and contemporaneity, especially in rural context, and how his architecture aimed at positioning its subjects in a state of equilibrium by providing a model for managing the conflicting temporalities of change. This dissertation connects multiple forms of archival materials and looks at Fathy's treatment of the book, the brick, space, the environment and the window screen to develop what could be described as a theory of comfortable modernization.

The dissertation of Mohamed Monkez Shaker is approved.

Dell Upton

Dana Cuff

Michael Osman, Committee Co-Chair

Sylvia Lavin, Committee Co-Chair

University of California, Los Angeles

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I would like to dedicate this dissertation to my family who supported me in every way possible. My father, Ahmed Monkez, is my role model. He taught me everything I know and sets an example of dedication, hard work and endless pursuit of knowledge that I can only wish to match someday. My mother, Zeinab El Rashidy, is the strongest person I know, and her strength is only matched by her unconditional kindness. I can not imagine completing this dissertation without her support—and her daily reminder that I must finish writing. I am indefinitely indebted to my sister Mona, who consistently shows me a level of love and support that I never thought was possible. Her joyful presence never fails to make your day. My wife Lamia is the best companion I can wish for. Her love, support and motivation made this dissertation possible. Her unprecedented discipline is always inspiring, more so that she manages to get things done with a beautiful smile. This dissertation is dedicated to my son Yusef—and his future sister—who made me discover unconditional love.

BIOGRAPHICAL SKETCH

Mohamed Monkez Shaker earned his Bachelor of Science in Architecture from Misr International University (Cairo, Egypt) in 2008 and his Master of Architecture from the University of Nottingham (UK) in 2010. Prior to joining the PhD program at the University of California, Los Angeles, Mohamed taught classes in architectural history and theory as well as design studios at Mist International University. He also practiced architecture in the office of El Ghoneimi Architects in Cairo. During his doctoral studies at UCLA, Mohamed worked as a teaching associate at the department of Architecture. While completing this dissertation, Mohamed worked for the architectural office TSKP Studio in Hartford, Connecticut.

INTRODUCTION

> *This town haunted me; I could think of nothing but the hopeless resignation of these peasants to their condition, their cramped and stunted view of life, their abject acceptance of the whole horrible situation in which they were forced to put up with a lifetime's scrabbling for money amid the wretched buildings of Talkha. The revelation of their apathy seized me by the throat; my own helplessness before such a spectacle tormented me. Surely something could be done?*[1]

Hassan Fathy's opening remarks in *Architecture for the Poor* described his state of shock at the realization of the dire conditions of rural life in Egypt. "Surely something could be done?" But the odds, as demonstrated by acknowledging his own helplessness before the conditions of indifference, were highly against any realistic solution. Peasantry hardship in developing countries did not only persist due to the lack of development effort, but as Fathy identified, the problems of the poor were inseparable from the unsettling forces of change emanating from the processes of modernization itself.[2] His ultimate pursuit, as this dissertation argues, was to comfort the multiple subjects involved with architectural production amid these modernizing forces of change.

Fathy's definition of comfort, however, remained elusive. While he frequently referred to "thermal" comfort when advocating for the use of passive technology in traditional and vernacular buildings, on many occasions he used the term to refer to other, less obvious forms of satisfaction

[1] Hassan Fathy, *Architecture for the Poor* (Chicago and London: University of Chicago Press, 1973) pp. 3

[2] This notion of change as a destabilizing factor particularly affecting the poor in developing countries was a recurring theme in Fathy's writings. See *Architecture for the Poor* for instance, also Hassan Fathy, "Dwelling in Developing Countries," in *Hassan Fathy Archives*, Aga Khan Trust for Culture (Geneva, Switzerland: 22 June 1963) And "Constancy, Transposition and Change in the Arab City," in *Medina to Metropolis*, ed. Carl Brown (Princeton, NJ: Darwin Press, 1973)

like shelter, financial stability, security and individuality. However, Fathy did not provide a definitive understanding of the term that consistently appeared in his work. Instead, this dissertation connects his writing, drawings, buildings and other archival materials to build a theory of comfort imputed upon him as an interpretive tool that reveals the architect's approach towards the challenges of modernization in Egypt. Fathy's project emerged as a specific juncture where the challenges of modernization arose from the conflicts between what he understood as two different temporalities of change that required management; one modern, the other, traditional. This was the role of comfort: to manage these two different temporalities of change in order to fabricate a state of equilibrium in the subjects' interaction with the forces of modernization.

In that sense, this project is not particularly concerned with the forms of comfort that emerged in 19th century Western Europe and developed new responses to human desires and satisfaction through furniture design and Interior Décor. Instead, it finds in Fathy's engagement with the problem of contemporaneity an understudied entry point that better reflects the place of architecture in the mid-century modernization of the third world.

Contemporaneity and Comfort

In 1961, right before his return to Egypt from a 4-year collaboration with Doxiadis Associates, and as part of "The City of the Future" project, Fathy wrote an essay for the Athens Center of Ekistics titled "Contemporaneity in the City." The essay explored how this emerging notion of contemporaneity relates to the modern architecture and planning of cities. In his critique of Architectural Modernism, Fathy identified the criteria he thought generated a contemporary form of architecture. Contemporaneity, he clarified, meant "consonance with the current stage of

change in knowledge and science. Consonance, that is, with humanity's total knowledge of science, which includes our knowledge of the current psychological state of the mass of humanity."[3] In this definition is an implicit criticism of architectural modernism where the interchangeability of terms like modernity or contemporaneity with "functionalism" often culminated in a form of architecture that paid little attention to human needs.[4] "Contemporaneity," Fathy continued, "is intimately linked with the notion of change. Obviously to be contemporary now means to be wholly relevant to the present. But the "present" is an instant, always changing, and always with us."[5] This understanding, however, immediately highlighted a fundamental problem; the peasant, the *fallah*, or the poor in general–Fathy's primary subjects for the larger part of his career–were always understood to occupy a space outside the boundaries of history and progress; outside of time. Contemporary architecture therefore, as Fathy argued, must provide its subjects with the proper means for facing what he often referred to as the dangers of rapid change.[6] Here entered *tradition*, not as an architectural expression through form, but rather as a stabilizing force; a constant within the "the rhythm of change."[7] But Fathy saw tradition as primarily progressive. "Tradition," he insisted, "is not necessarily old-fashioned and is not synonymous with stagnation. Furthermore, a tradition need not date from long ago but may have begun quite

[3] Hassan Fathy, "Contemporaneity in the City" (1961) In *Architecture for a Changing World*, ed. James Steele (London: Academy editions, 1992) pp. 57

[4] "With few exceptions, architects forgot, in their anxiety to find a new visual idiom, that architecture differs from the other plastic arts and from simple engineering, both in its canons as an art in its own right, and in its social implications and relationship to humans." Ibid, pp.55

[5] Ibid, pp. 57

[6] Ibid

[7] "The rhythm of change affects man's stability. He needs something to give him a sense of stability within change." Hassan Fathy, "Dwelling in Developing Countries," in *Hassan Fathy Archives*, Aga Khan Trust for Culture (Geneva, Switzerland: 22 June 1963)

recently."[8] In that sense, Fathy saw traditions as dynamic practices that might either be passed from one generation to the next or newly invented to handle contemporary problems.[9] This way, Fathy separated "tradition" with its contemporary potentials from other cultural determinants like heritage and customs. Understood in relation to architecture as rational and practical solutions to design or construction problems, building traditions, as Fathy puts it, are maintained, revived or invented by the process of repetition.[10] In other words, for a tradition to qualify as one it must pass the test of time; it must become contemporary.

In this regard, Fathy consciously shifted the subject of architecture from the hygienic, productive and efficient subject of modernity into the comfortable subject of contemporaneity. This is not to say that the desire for comfort only grew then, or that Fathy did not aspire for his architecture to facilitate the construction of hygienic and efficient subjects. Rather, engaging the problem of rural housing with the criteria of contemporary architecture facilitated an expansion in the understanding of comfort that surpassed its conventional role as the desire to position the inhabitants of space in a physiologically comfortable environment, to include the mediation of the subjects' relationship with the very notion of change.[11] This form of mediation that Fathy pursued,

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[8] Hassan Fathy, *Architecture for the Poor* (Chicago and London: University of Chicago Press, 1973) pp. 24

[9] "As soon as a workman meets a new problem and decides how to overcome it, the first step has been taken in the establishment of a tradition. When another workman has decided to adopt the same solution, the tradition is moving, and by the time a third man has followed the first two and added his contribution, the tradition is fairly established." Ibid, pp. 24

[10] Fathy's understanding in this regard exemplified Eric Hobsbawm's description of traditions as invented practices. See Eric Hobsbawm, "Introduction: Inventing Traditions," in *The Invention of Tradition,* eds. Eric Hobsbawm and Terence Ranger (Cambridge and New York: Cambridge University Press, 1983)

[11] Comfort is a "modern phenomenon." As Christopher Reed argued in the introduction to *Not at Home,* "Domesticity" which encompasses the values of comfort, privacy and family life is "a product of the confluence of capitalist economics, breakthroughs in technology and enlightenment notions of individuality." By the late 19th century, and throughout the entire first half of the twentieth century, these

while primarily architectural, was not confined to the interior of the house, but responded to the wider contextual conditions that nonetheless brought discomfort to the subjects of modernization. This contemporary architecture was conditioned by its environment; not merely by its climate or society as comfort usually allude to, but by the expanded field of environment that includes an infinite range of ever-changing forces. To manage the destabilizing forces of modernization, architecture must accommodate these forces of change by providing balance between both the constant and the changing factors. Therefore, as Fathy emphasized, contemporaneity should not be limited to the current; existing in, or that which represents the essence of the present, but instead should encompass that which will always be current – the eternal.[12]

values of domesticity were suppressed, as Reed observed, by the rise of another 19th century invention: "the idea of the avant-garde." Modern architects, led by Le Corbusier's rhetoric of a house as a "machine for living," valued the spirit of efficiency, health and hygiene of engineers and bankers over domesticity. See Christopher Reed ed., *Not at Home: The Suppression of Domesticity in Modern Art and Architecture* (London: Thames and Hudson, 1996) Perhaps the best known exploration of the history of modern comfort in architecture is Witold Rybczynski's, *Home: A Short History of an idea* (Markham, Ontario: Viking Penguin Books, 1986) Rybczynski read the development of the idea of home through the lens of comfort, and called for developing the innovative spirit of modern architecture without the loss of comfort. What determined for Rybczynski the appropriateness of a design principle was its potential for providing comfort. In both the cases of Reed and Rybczynski, comfort was understood within its conventional definition as the positioning of subjects in a physiologically and psychologically comfortable physical space.

[12] "In attacking what passes for contemporaneity in architecture today, I am most emphatically not asking architecture to regress. I respect the work of the masters of the past, but I do not want to arrest architecture in some past century. Indeed, change is a necessary condition of life. It is not innovation that I am against; innovation is neutral, and the architect makes it good or bad. Above all, as I hope I have made clear, I am not condemning contemporaneity but defending it against the bad name it has acquired. I want to purify the concept of contemporaneity from the incidental and the temporal, to free it from association with particular clichés, and to give the word its noblest significance. For all great architecture is contemporary – of its time, relevant to its situation in space, time and human society – but also eternal. Without being eternal – that is in harmony with the cosmos and the evolution of life – no architecture can be called contemporary. In this sense, there is an absolute contradiction between "contemporary" and "ephemeral." Hassan Fathy, "Contemporaneity in the City" (1961) In *Architecture for a Changing World*, ed. James Steele (London: Academy editions, 1992) pp. 56

This understanding certainly engaged with the work of Sigfried Giedion, whom Fathy read extensively during his stay in Athens.[13] The problem of constancy and change that made multiple appearances in Giedion's writings, similarly consumed Fathy and shaped his ideas on how a contemporary form of architecture ought to develop. In 1973, at around the same time as his book *Architecture for the Poor* was published, Fathy wrote another essay called "Constancy, Transposition and Change in the Arab City"[14]. While the title suggested affinity with Giedion's work, it simultaneously marked Fathy's departure from it. If transposition–that process which, as Fathy explained, involved the modification of an original for a contemporary situation–suggested an *Eternal Present* arrived at from points of origin or multiple beginnings, it was in fact exercised with a level of flexibility that did not necessarily produce a continuous line of architectural development, nor was its purpose to project back on an origin or beginnings of a current architectural approach. But instead, Fathy's transposition scanned the collective of architectural history, unbothered by stylistic lines of distinction; maintaining the constant, eliminating the obsolete, and transposing that which proved valid but required modification. What drove this classification process and guided the differentiation between the constant, the valid and the obsolete, as this dissertation argues, was the objects' capabilities of facilitating the construction of relationships between modernization's conflicting temporalities of change.

[13] Giedion's two volumes of *The Eternal Present: The Beginnings of Art*, and *The Beginnings of Architecture*, as well as the first edition of *Space, Time and Architecture*, are in Fathy's personal library held in the archives of the American University in Cairo, with comments and highlights from Fathy himself. As indicated by the stamps, the three books were borrowed – or purchased – from the Athens Technological Institute Library, which highly suggest that Fathy read the work of Giedion during his stay in Greece.

[14] Hassan Fathy "Constancy, Transposition and Change in the Arab City," in *Medina to Metropolis*, ed. Carl Brown (Princeton, NJ: Darwin Press, 1973)

This dissertation therefore is not concerned with the history of modern comfort as such, but instead, is focused on the pursuit of a palliative form of architecture detached from modern technology.[15] The notion of comfort had been historically tied to developments in mechanical conveniences. The steady developments in the standards of comfort since the mid-19th century ran parallel–and owed itself–to the developments in the technology of domestic mechanical devices.[16] The desire for comfort, however, had been unequivocally tied to the very conditions it emerged from. This pursuit of physical and psychological ease that came to characterize the modern age grew out of desires to counter the anxieties generated by the discomforting effects of industrialization. In other words, the cause and the remedy were inseparable, a phenomenon that exemplify the interplay of the forces of commercialism within the ideology of comfort.[17] The question thus remains: what becomes of comfort in the absence of such conditions? Absence not of the modernizing forces of industrialization, but rather, in the advertising infrastructure that maintains this feedback loop between desire and consumption.

Advertising, as Roland Marchand argued, mediated the impacts of modernity in the early 20th century American society. By promoting modern consumer goods through emphasizing the traditional values of community and individuality, advertising eased the transition of the American

[15] For Comfort and its place in Modern architecture in general see Lisa Heschong, *Thermal Delight in Architecture* (Cambridge, MA: MIT Press, 1979) and Wim Heijs and Peter Stringer, "Comfort as a Property of the Dwelling: A Conceptual Analysis," in *The Netherlands Journal of Housing and Environmental Research,* Vol. 2, No. 4 (1988) pp. 331- 356.

[16] See Sigfried Giedion, *Mechanization Takes Command: A contribution to Anonymous History* (New York: Oxford University Press, 1948) And Maureen Ogle, *All the Modern Conveniences: American Household Plumbing, 1840-1890*, (Baltimore and London: The John Hopkins University Press, 1996)

[17] On comfort and commercialism see, John E. Crowley, *The Invention of Comfort: Sensibilities & Design in Early Modern Britain & Early America* (Baltimore and London: The John Hopkins University Press, 2001) And Katherine C. Grier, *Culture and Comfort: Parlor Making and Middle-Class Identity, 1850-1930* (Washington, DC: Smithsonian Books, 1988

population into a modern society.[18] In the state of poverty, however, when advertising would only serve as a reminder of the severity of modernization, Fathy's project pursued a form of mediation with the hopes of facilitating the smooth transition of rural subjects. But, if comfort could still be found in poverty, it was because in poverty a new feedback loop emerged. Only this time, unbeknown to Fathy, the objects of consumption were not commercial goods, but identity itself. In other words, Fathy was not an agent of modernization, but rather, a manager of a problem of his own creation. If comfortable modernization was the goal, then Fathy's project must first and foremost, paradoxically, run against the ideology of modern comfort.

Architecture, as Fathy understood its role, could only fulfil its humanistic purposes by applying a complex yet homogenous level of cooperation between all the parties involved in its production. For any serious architectural development to take place in rural and severely underdeveloped areas is hinged on the smooth communication between the architect and the often-contesting stakeholders; the subjects of modernization cannot thusly be singular, and the forms of mediation in turn cannot be uniform. Fathy's subjects, therefore, were not only the rural poor, but rather, his pursuit of comfort was equally evident in his designs for urban private villas; they were not only the subaltern, but decision-makers must also find comfort in modernization. They were not only the uneducated, as professionals as well must reach common grounds with the vernacular.

[18] See Roland Marchand, *Advertising the American Dream: Making Way for Modernity, 1920-1940* (Berkeley & Los Angeles: University of California Press, 1985) On the history of advertising and consumerism in the United States, see Jackson Lears, *Fables of Abundance: A Cultural History of Advertising in America* (New York: Basic Book, 1994) and William Leach, *Land of Desire: Merchants, Power, and the Rise of a New American Culture* (New York: Pantheon Books, 1993)

Biographical Note and Historiographical Framing

The history of modernization in 20th century Egypt is also the history of the nation and its subjects' encounters with decolonization. The gradual independence that took place in the first half of the century, and which eventually culminated in the 1952 ascendance of Nasser and the Free Officers to power, meant that modernization in Egypt was largely shaped and conditioned by these extended circumstances of decolonization. Similarly, Fathy's work could hardly be approached independent of such conditions. On the one hand, Fathy experienced and actively contributed to this process of decolonization through both his architectural and scholarly work; on the other, he undeniably contributed to a different form of recolonization driven by both his social and political status as a rural reformist member of the elite, as well as an architect with aims of asserting his agency within the modernization.

Understanding Fathy's position within the Egyptian society at the time sheds a clearer light on the nature of his involvement with decolonization in general and rural development in particular. Two issues that this dissertation aims to clarify right away is that, first, Fathy's initiatives regarding rural populations cannot in any way, like many of his disciples and advocates of his work often claim, be approached as in themselves authentic forms of rural Egyptian vernacular, and second, that this distance between Fathy and his subjects remains an insufficient lens that should not be uncritically employed to state the distance between the architect's own rhetoric and his reality. In other words, this dissertation stands at odds with both the historiography that valorizes Fathy as a champion of the poor, and a "guru" for Arab and Egyptian regionalist architecture, as well as the historiography that disqualifies the values of his approach on the basis of the architect's engagement with western influences and modern means of production. What both sides have in common, and this dissertation is set to avoid, is the placement of conventional

opposites such as East/West; local/universal; modern/traditional and rich/poor as the critical tools driving the polemics of these studies. What is apparent is that such a divide and rigid polarity cannot possibly hold long enough to sustain a multi-layered study of this seemingly contradictory nature of Fathy. Such attention to polarity can only generate a premature reading of the architect as submitting to the conventions of one side over the other. Instead, this dissertation considers Fathy's background as an inseparable component of his architectural agenda.

Fathy was born in Alexandria in the year 1900 to a family with relative wealth. His father, Ahmad Fathy, a judge in charge of Alexandria's courts, and his mother Deil Bassant both owned several farms near the town of Mansoura.[19] It was on one of his several trips with his mother to the countryside that he found his long lasting interest in rural architecture.[20] Fathy had three brothers; Muhammad, Ali and Hussein, and three sisters; Adila, Zubeida and Zeinab, whom all had profound influence on his life and career. His eldest brother, Muhammad Fathy, was an influential judge and the founder of the department of Criminal Psychology at Cairo University Faculty of Law.[21] Some of Fathy's most inspired writing came when he engaged his work with the discourse on Criminology, especially in his essay "Dwelling in Developing Countries," (discussed in chapter 3 of this dissertation). Fathy's second brother, Ali Fathy was a Civil Engineer. He was the director for the Old Aswan Dam reinforcement project and the first Dean of the Faculty of

[19] On Fathy, his biography, family history and work, see Leila El-Wakil ed. *Hassan Fathy: An Architectural Life*, translated from French by Abigail Grater (Cairo and New York: The American University in Cairo Press, 2018) Originally published as *Hassan Fathy: dans son temps* (Gollion and Paris: Infolio, 2013)

[20] Fathy narrated one if his trips with his mother in *Architecture for the Poor*.

[21] Leila El-Wakil ed. *Hassan Fathy: An Architectural Life*, (Cairo and New York: The American University in Cairo Press, 2018) pp. 24

Engineering at Alexandria University.[22] Ali Fathy, as Hassan Fathy discussed in *Architecture for the Poor*, was the one who directed him to the Nubian technique of building mudbrick vaults and domes found in the village of Gharb Aswan (discussed in chapter 2 of this dissertation).

The Fathy family enjoyed an intellectual and cosmopolitan life in Alexandria and they all mastered the three languages of Arabic, English and French. In 1908 the family moved to Helwan, a suburb of Cairo where Fathy later attended British schools before he joined the Architecture Department in the Polytechnic school of Fuad I University (later Cairo University). His years at the Polytechnique introduced Fathy to the Western canons of Architecture through its Ecole des Beaux-Arts-inspired curriculum (discussed in chapter 1 of this dissertation) as well as put him in contact with some of Egypt's most influential modern architects like Mustafa Fahmi and Ali Labib Gabr.[23]

Fathy married Aziza Hassanein, whom Laila El Wakil described as a "socialite and musician."[24] He designed two houses for her in the 1930s and 1950s. Her brother, Ahmad Muhammad Hassanein, whom Fathy designed a mausoleum for in 1946, oversaw the Royal Cabinet as the Chief of the Diwan and was later appointed as the Chamberlain to King Farouk.[25] Fathy's circle of friends and acquaintances was wide and diverse and included royalty like Princess Fayza who frequently paid him visits to New Gounra,[26] as well as Jacqueline Jeanneret, the niece

[22] Ibid

[23] Ibid, pp.25

[24] Ibid, pp. 91

[25] Ibid, pp. 91

[26] Ola Seif, "Colorful Reveries," in Leila El-Wakil ed. *Hassan Fathy: An Architectural Life,* (Cairo and New York: The American University in Cairo Press, 2018) pp. 138. Princess Fayza was the daughter of

of Pierre Jeanneret and Cousin of Le Corbusier.[27] His international architectural acquaintances were numerous and included many others, among them Constantine Doxiadis, Jacqueline Tyrwitt, Henry Russell Hitchcock, Bernard Rudofsky and J.M. Richards, whose 1969 summary and review of Fathy's first edition of *Architecture for the Poor* (published as *Gourna: a Tale of Two Villages*) in *The Architectural Review* brought initial international attention to Fathy's work before the book's 1973 publication by The University of Chicago Press.[28]

Parallel to his work on the development of rural villages, Fathy designed and built many private houses. Both the public and private commissions were acquired through this network that the architect developed over time, and often subjected his work to criticism as an architecture for the rich rather than the poor.[29] Conventionally named after their owners, houses like Hamed Said House (1942), Kallini House (1945), Fouad Riad House (1967), Shahira Mehrez Apartment (1967) and so on, when contrasted with the anonymity associated with the houses in New Gourna and other rural villages (or even with groupings like houses of Gournis or the Poor) Fathy's body of work stood for what Gayatri Spivak characterized as the impossibility of the subaltern voice.[30] In

King Fuad and the sister of King Farouk. She was also the sister of Princess (later Queen) Fawzia, who married the Shah of Iran.

[27] Jessica Stevens-Campos, "A Family Passion for Music," in Leila El-Wakil ed. *Hassan Fathy: An Architectural Life*, (Cairo and New York: The American University in Cairo Press, 2018) pp. 38

[28] See J.M. Richards, Ismail Serageldin and Darl Rastorfer, *Hassan Fathy*, (London: Concept Media, 1985)

[29] See Mohamed ElShahed, *Revolutionary Modernism? Architecture and the Politics of Transition in Egypt 1936-1967*, PhD Dissertation (New York University, 2015) Also see, Khaled Adham, "Global Tourism, Hyper-Traditions, and the Fractal Condition of the Sign," in *Traditional Dwellings and Settlements Review*, Vol. 19, No. 2 (IASTE, Spring 2008), pp. 7-20

[30] See Gayatri Chakravorty Spivak, "Can the Subaltern Speak?" in *Marxism and the Interpretation of Culture*, Cary Nelson & Lawrence Grossberg ed., (Urbana & Chicago: University of Illinois Press, 1988) pp. 271-313.

examining post-colonial discourse in the third world, Spivak exposed the work of Western intellectuals, especially that of Foucault and Deleuze, as false solidarity. In building on Antonio Gramsci's work on the subaltern classes in Fascist Italy, Spivak reveals how a geopolitical form of cultural hegemony is reproduced in the work of Western intellectual. Central to her argument is the issue of representation. In Spivak's view, the subaltern cannot speak within the Western academic fields if intellectuals are only capable of providing forms of representation shaped by their own paradigm. In other words, in the representation of post-colonial studies, the West is only preserving and reproducing itself. In describing the problematic nature of representation, Spivak argued that in the work of Foucault and Deleuze,

> *Two senses of representation are being run together: representation as "speaking for", as in politics, and representation as "re-presentation", as in art or philosophy. Since theory is also "action", the theoretician does not represent (speak for) the oppressed group. Indeed, the subject is not seen as a representative consciousness (one re-presenting reality adequately). These two senses of representation—within state formation and the law, on the one hand, and in subject-predication, on the other—are related but irreducibly discontinuous.*[31]

In equating these two distinct forms of representation together by turning their art and philosophy into politics, Spivak argues, Foucault and Deleuze provided false solidarity that became ultimately responsible for further silencing the subaltern voice.

This dissertation, therefore, repositions Fathy as an elite *representative* of the poor within this process of modernization. It approaches his work as an embodiment of this problematic

[31] Ibid, pp.275

Western intellectual that is only capable of representation as false solidarity. Such position is certainly very different from saying that Fathy sided with the poor against the rich, or with the authentic, real, traditional and local against the constructed, abstract, modern and universal. Fathy's representation of the poor, around the same time and like Foucault's and Deleuze's representation, unproblematically absorbed any supposed polarity. Yet, this is also not to say that Fathy's project simply applied hybridity that builds on superficial juxtapositions. On the contrary, the primary condition for this representation was the exercise of cultural hegemony.[32]

But to state that this was simply a straightforward case of exerting dominance of one social group over another, or even to only consider Fathy's approach to rural architecture as a self-colonizing act of a westernized elite over the locals, risks omitting a significant detail from the architect's engagement with modernization: in representing the poor, as this dissertation proposes, Fathy's project pursued hegemony on all sides alike; the poor and the rich, the expert and the amateur.[33] After all, Fathy thought of his work as not only educating the poor, but also directing decision makers like governments, private developers, contractors and architects toward his vision of rural reform.

But Fathy's rural agenda for developing a cooperative self-help industry that revives the lost connection between "owner, architect and craftsman", and one that is shaped by traditional

[32] The term hegemony was first popularized through Gramsci's Marxist analysis of power structure in Fascist Italy. The term stands for a form of dominance with consent, as opposed to coercion or dominance by force. Gramsci's argument, while impossible to capture in full here, emphasized a new form of rule applied by hegemonic classes, not by force alone, but also through ideas. See,

[33] On Hegemony and Orientalism, See Edward W. Said, *Orientalism* (New York: Random House, 1978) On Fathy as exhibiting an attitude similar to that of the orientalists see, Zeynep Celik, *Displaying the Orient: Architecture of Islam at Nineteenth-Century World's Fair* (Berkeley & Los Angeles: University of California Press, 1992)

architectural language and vernacular construction methods, was considered radical by all parties involved.[34] And thus hegemony did not present itself through the conventional methods of exercising power, but remained present, as this dissertation aims at establishing, through the subtle yet effective attempts at comforting. Comfort, which means "support; relief in distress (and) cause of satisfaction or content," comes from the Old French term *confort* and the Late Latin term *confortare* and has its root in the word *fortis* (com-*fortis*) which means "strong" (to comfort = to strengthen) and serves as the same root word for the English term "force."[35] In other words, comfort already presupposes a defined power relation between the subjects of comfort and the comforting agent. To comfort, therefore, is to already assume certain agency and a position of dominance within the process of modernization. And in that sense, comfort became Fathy's means of mediation between the forces of modernization and its subjects. Not in the form of finding compromises between two opposing structures, but by exercising his agency to redefine what it means to be modern.

This dissertation contributes to the growing historiography on the encounters with modernization and decolonization in the 20th century Egypt. Timothy Mitchell's *Rule of Experts: Egypt, Techno-Politics, Modernity*, and Omnia El Shakry, *The Great Social Laboratory: Subjects of Knowledge in Colonial and Post-Colonial Egypt*, both examined modernization in Egypt through the lens of expertise. Fathy's position as an "expert," both contributing to the fields of Economy, as Mitchell argued, and to Social Sciences, as El Shakry argued, reveals the architect's involvement in the modernization of Egypt through his engagement with the discourse on nation

[34] See *Architecture for the Poor*, pp. 39-41

[35] From C.T. Onions, ed. *The Oxford Dictionary of English Etymology* (Oxford & New York: Oxford University Press, 1966) pp. 194

building and rural reform.[36] In *Designs of Destruction: The Making of Monuments in the Twentieth Century,* Lucia Allais, who develops on Mitchell's notion of "calculability," examines the dissemination of the modernizing forces in nation building projects in Egypt through the lens of the destruction and preservation of Ancient Egyptian monuments.[37] On Barak's *On Time: Technology and Temporality in Modern Egypt* finds in the study of the development of an Egyptian temporality a local response to modern technology that reveals a unique critique of modernization.[38]

But this understanding of Fathy's project through the lens of expertise, while contributed to highlighting a productive form of engagement with modernization, remained insufficient. In the architect's intentional denial of knowledge regarding the vernacular, his project ultimately undermined the concept of expertise. Admitting his own ignorance of the successful technique of building mudbrick domes—a form of knowledge that did not exist in Gourna—highlight how Fathy's engagement with the challenges of rural architecture could be described in managerial terms rather than expertise. Furthermore, it was through this dismissal of expert knowledge that Fathy revealed his understanding of Egypt as heterogenous and hybrid society. In bringing masons from a different village to teach the architect and the villagers how to build "local" architecture,

[36] Mitchell discussed Fathy's work in the chapter "Heritage and Violence", see Timothy Mitchell, *Rule of Experts: Egypt, Techno-Politics, Modernity* (Berkeley & Los Angeles: University of California Press, 2002) pp.179-205. While El Shakry discussed the architect's work in the chapter "Rural Reconstruction: The "Road to a New Sanitary Life", see Omnia El Shakry, *The Great Social Laboratory: Subjects of Knowledge in Colonial and Postcolonial Egypt* (Stanford, CA: Stanford University Press, 2007) pp. 113-142

[37] See Lucia Allais, *Designs of Destruction: The Making of Monuments in the Twentieth Century* (Chicago & London: The University of Chicago Press, 2018)

[38] See On Barak, *On Time: Technology and Temporality in Modern Egypt* (Berkeley & Los Angeles: University of California Press, 2013)

was not so much an imposition of a particular locality, as Mitchell argued, as much as it was a demonstration of Fathy's understanding of identity as not tied to a particular region.

This dissertation adds to the current historiography on Egypt's 20th century encounters with modernization. It finds in comfort a critique of modernization detached from the biases of regionalist histories. Additionally, this lens illuminates certain aspects of Fathy's work that otherwise remain obscure. It opens up Fathy's work to new areas of exploration and provides entry points that reveal new reasons behind his fascination with, and adaptation of, what he referred to as traditional vernacular architecture. It provides a deeper look into Fathy's attempts at bridging the gap between the rural vernacular and the architecture profession. And it helps stretch and reconfigure the nature of architectural engagement with the various modernizing forces during the second half of the 20th century.

This dissertation begins by displacing received ideas regarding Fathy's interaction with the challenges of rural architecture. The first chapter looks at the book as an object of mediation addressed to architects and other decision makers. Locating the starting point of this dissertation in a medium detached from the realities of rural conditions serves to frustrate the classic historiography on Fathy that confined his work within discourses on regionalism. This chapter distances the architect from such futile reading by examining the design progression and representation of the mosque in New Gourna. Examining photographs, paintings and traces illuminates the architect's investment, not in replicating traditional forms, but in the creative process of transposition that facilitate the construction of a comforting image of rural architecture. Transposition becomes the device through which the mediation of the modernizing forces takes form.

The second chapter builds on this theory of comfort by grounding the study in the object of the Standard Gourna brick. It was through this engagement with mudbricks that the conflicts between the two temporalities of change became fully materialized. This chapter begins by locating the position of the brick in the mid-20th century modern architecture of Egypt, and how it came to embody the modern principles of economy and standardization. Simultaneous to these urban problems grew efforts towards rural development. This chapter explores Fathy's first engagement with rural development through the project of Bahtim farms. It was in this instant that Fathy, in his failure, became first exposed to the challenging conflicts in projects of rural development between the desired modern quality of economy and the limitations of the economic traditional construction methods. A conflict that inspired a managerial model for architecture that aimed at managing these distinct temporalities through what this chapter calls the industrialization of mud.

The third chapter moves from the materiality of the brick to the immateriality of space. It locates the comforting mediation of modernization in Fathy's attention to fostering the individuality and self-expression of his subjects as opposed to submitting to modernization's apparatus of administrative control. This chapter highlights Fathy's engagement with both the discourses on criminology and modern planning. It begins by introducing CIAM's modernizing planning principles that serve as backdrops for the discussion of Fathy's criticism of Constantinos Doxiadis' ideas presented in *Architecture in Transition*. Fathy's notes on Doxiadis' writing reveal how his project did not reject modernization per se, as regionalist historiographies often claim, but rather actively engaged in reshaping it by imposing the questions of individuality on modern planning. The design of architectural space, manifested in the transposition of the medieval Qa'a layout, represented the immaterial inverse of the brick. Spatial manipulation, this chapter argues,

served to manage change, not by eliminating it, but by limiting it within the cleared-out spaces of the interior of the house.

While the first three chapter developed the narrative for the theory of comfort through the transition from the book and drawing board to the materiality of the brick and then the immateriality of space, the fourth chapter expands the study of the management of modernization to include the all-encompassing scale of the building and its systems. Appropriately, the management of modernization in this chapter is examined through the lens of the expanded field of environmental design. This chapter engages Fathy's work with the already-by-then-established air conditioning industry. It benefits from discussing Fathy's attitude towards modern technology in general and mechanical air-conditioning in particular, alongside that of Reyner Banham. This structure, however, is not comparative; it neither aims at fabricating similarities, nor highlighting oppositions, but rather situates Fathy's well-documented efforts toward thermal comfort within the larger discourse on environment taking place in the 1960s. Fathy's project aimed at mediating modernization by reconstituting the disciplinary boundaries of architecture. To do so, this chapter argues, architecture itself, with its transposed objects, materials and spatiality, was approached as a climate regulating machine. In juxtaposing transposed traditional architecture with forms of representation like graphs, tables and air flow diagrams, Fathy, in a fashion similar to his mediations through the book, sought to distance himself from his subjects by representing architecture as scientific.

The last chapter brings the study back to the scale of the architectural object: the window screen. However, it completes the narrative arc of this dissertation by examining how Fathy's architecture stood as an object of self-colonization and a reminder of elite status, not Fathy's, but his clients'—now self-managing their interactions with the forces of modernization through the

mediations of the *mashrabeya* screen. This chapter begins by examining the modern window and how the one-way gaze defined modern architecture's engagement with its surrounding environment. The mashrabeya, or the transposed window screen of medieval Islamic and Arab architecture, therefore, operated for Fathy as an intermediate screen that would guard against the threats of transparency and the transgression of privacy through its construction of multiple modes of viewing. In other words, in managing the relationship between the conflicting temporalities of modernity and tradition, the mahsrabeya affords its subjects—through its manipulation of temporal choices shaped by the multiplicity in viewing modes—with the luxury of alternating between societal situations. This is where elitism takes form.

The issues discussed in the following five chapters accumulate to form what this dissertation refers to as the theory of "comfortable modernization". In Fathy's palliative architecture, these pursuits of managing the discomforting processes of modernization often operated simultaneously to facilitate the smooth transition to modernity within the decolonizing of mid-century Egypt.

CHAPTER 1

Transpositions: Books, Drawings and Photographs

In *Patterns of Intention,* Michael Baxandall voiced his disapproval with the narrative of influence in art criticism.[1] Instead of following the conventional route and looking, for instance, at how the work of Cézanne influenced that of Picasso, Baxandall called for reversing this formula, highlighting how such reversal would prove more fruitful.[2] The art historian or critic would disrupt the conventional directionality and propose instead a feedback loop between "agents" and "patients," challenging this way the very designations of agents and patients. For Baxandall, attention should be given to how the "influenced" reconfigure their influence, and art criticism therefore should focus on revealing this process of reconfiguration. This chapter proposes a similar reading of Fathy's work in relation to traditional architecture in general and vernacular rural architecture in particular.[3]

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[1] Michael Baxandall, "Excursus against influence," *Patterns of Intention: On the Historical Explanation of Pictures* (New Haven and London: Yale University Press, 1985) pp. 58-61

[2] "Influence is a curse of art criticism primarily because of its wrong-headed grammatical prejudice about who is the agent and who is the patient: it seems to reverse the active/passive relation which the historical actor experiences and the inferential beholder will wish to take into account. If one says that X influenced Y it does seem that one is saying that X did something to Y rather than that Y did something to X. But in the consideration of good pictures and painters the second is always the more lively reality." Ibid, pp. 58-59

[3] Tradition is commonly defined as the handing down of information, beliefs, rules and customs. Traditional societies therefore are characterized by stronger ties to the traditions and customs transmitted from one generation to the next. In *The Invention of Tradition* however, Eric Hobsbawm stressed on distinguishing traditions from customs. "Custom," he argued, "is what judges do; 'tradition' (in this instance invented tradition) is the wig, robe and other formal paraphernalia and ritualized practices surrounding their substantial action. The decline of 'custom' inevitably changes the 'tradition' with which it is habitually intertwined." Eric Hobsbawm, "Introduction: Inventing Traditions," in *The Invention of Tradition,* eds. Eric Hobsbawm and Terence Ranger (Cambridge and New York: Cambridge University Press, 1983) pp. 2-3. As mentioned earlier, Fathy saw traditions as dynamic, and while strongly related, they nevertheless ought to be approached differently than customs. When using the term "traditional architecture" however, Fathy did not differentiate between categories like, local, vernacular or historical as long as the architectural objects belonged in some sense to the "tradition" of the place.

It is a widely accepted understating that the architecture of Fathy owes its conception to both the medieval Islamic architecture of Cairo and the vernacular rural architecture of Nubia; accepted to the extent that almost the entire literature concerning his work consistently considered such directional influence as its undisputed entry point. In the rare moments when such relationship is disturbed, one influence often replaces another to formulate an alternative reading with the purpose of either confirming or disproving Fathy's proclaimed affinity with the larger concepts of tradition and modernity.[4] Rarely, if ever, had his work been examined independently from such narratives; and while these influences remain foundational components to his ideology they nonetheless obscure other aspects that perhaps deserve more attention.

When it comes to the question of influence, Fathy presents a unique case. His work is both influenced *by* traditional architecture, and much like the masters of Modern Architecture, itself is an influence *on* the younger generation of architects that later became associated with postmodernist movements like regionalism and neo-vernacularism.[5] This line of influence goes from traditional knowledge to Fathy, and from Fathy to younger architects. In such narrative, Fathy acts as the conveyor of the forgotten knowledge he helped unearth. And while this form of contribution would not necessarily diminish his sense of authorship, this narrative assumes a certain level of accuracy and precision towards the materials being transmitted. And, as a

[4] The construction, maintenance, repair or dismantling of Fathy's relation with his influencer consistently cast the terms "tradition" and "modernity" in opposition. This is a consequence of both Fathy's own writing and architectural preferences, as well as the contemporaneous rise of the disillusionment with architectural modernism's rhetoric of breaking with tradition.

[5] Fathy's association with traditional architecture goes beyond mere inspiration and should be more appropriately identified as influence. The extent to which he remained closely attached to the question of tradition throughout his career, as well as his understanding of tradition as a form of knowledge fundamental to the development of architects rather than simply a momentary inspiration, suggest a more intimate relation between the architect and the objects of traditional architecture.

consequence, Fathy's work naturally becomes prone to criticism for its casual appropriation of traditional architectural objects.[6] By reversing this formula of influence, however, especially between Fathy and traditional architecture, his work is positioned as a much more active participant in the construction of traditional images. And in this regard, the questions immediately become less concerned with the architect's referential accuracy and more concerned with his methods of invention. In such a reversal, however, the second line of influence between Fathy and his followers remains intact; but as the following argues, what is now being transmitted is not the actual traditional architecture found in rural Egypt, but rather an image of it that is manufactured and represented specifically for architects to consume. In such a narrative, the construction of the image of tradition relies less on the conveyors' accuracy, and more on their faithfulness toward the architectural means of production. And, it is in this particular moment that representational media like books, drawings and photographs operate as forms of mediation.

Fathy's 1973 book *Architecture for the Poor: An Experiment in Rural Egypt*, originally published as a limited edition in 1969 by the Ministry of Culture under the title *Gourna: A Tale of Two Villages*, remains the prime evidence for the architect's established relation with the vernacular rural architecture in Egypt.[7] This chapter reverses this formula of influence by asking

[6] Highlighting Fathy's failure to respond to the basic needs of the Gournis is a common theme among most of the literature on his work. Specifically on his inaccurate and casual appropriation of historical and vernacular architectural objects see, Lucia Allais, "Global Agoraphobia," in *Global Design History*, eds. Glenn Adamson, Giorgio Riello and Sarah Teasley (London and New York: Routledge, 2011) pp. 174-180, Timothy Mitchell, "Heritage and Violence," *Rule of Experts: Egypt, Techno-Politics, Modernity* (Berkeley and Los Angeles: University of California Press, 2002) pp. 179-208, and Nezar AlSayyad, "From Vernacularism to Globalism: The Temporal Reality of Traditional Settlements," in *Traditional Dwellings and Settlements Review*, vol. 7, no. 1 (Fall 1995) pp. 13-24

[7] The decision to change the title of the book was taken by the editors at The University of Chicago Press. Displeased with the new title, Fathy wrote back clarifying that his architecture "is not just for the poor, it is for man." Hassan Fathy, "Letter to the editors at the University of Chicago Press" *Hassan Fathy Archives* (1972) cited in Panayiota Pyla, "The many lives of New Gourna: alternative histories of a model community and their current significance," in *The Journal of Architecture*, 14:6 (2009) pp.715-730. The

instead: what became of rural architecture after Fathy? This, however, should not culminate with the now popular conclusion that New Gourna was an "invented tradition," but instead seeks to momentarily suspend the question of "tradition" for the sake of developing a narrative that closely considers Fathy's means of "invention;" his intentionality.[8]

The Comforts the Book

Operating through a medium far detached from the limitations imposed by the material, cultural, social and economic factors that influence the physical construction of buildings, Fathy found opportunities to address subjects that were equally detached from the realities of peasants' conditions: architects. Fathy defined, performed and maintained a creative process not particularly through the representation of unique building expressions, but rather through the representative tools made available by the medium of the book.

Architecture for the Poor is as significant – if not arguably more – to Fathy's legacy as any of his built work; and what the book demonstrates, this chapter argues, is not necessarily the "objective" documentation of the architect's own experience in building New Gourna, as much as

reference to Dickens was casual, and the original title aimed at providing a sense of continuity between the old and the new in general, and the two villages of Gourna in particular. While the title recalls a novel, the book itself is organized as a theatrical or musical performance with a Prelude, Chorale, Fugue and a Finale. On the organization of the book as a musical performance see, Labelle Prussin, review of *Architecture for the Poor*, by Hassan Fathy, *Journal of the Society of Architectural Historians*, vol. 37, no. 1 (March 1978) pp. 55

[8] On reading Fathy's work as an invented tradition that fosters a constructed national identity see Timothy Mitchell, "Heritage and Violence," *Rule of Experts: Egypt, Techno-Politics, Modernity* (Berkeley and Los Angeles: University of California Press, 2002) pp. 179-208. Mitchell questioned the authenticity of Fathy's approach, arguing against the affinity between Nubian heritage and Fathy's architectural language of domes and vaults. For Mitchell, the mud brick dome was as alien to the Nubian population as it was to the rural architectural character of Egypt in general, and therefore Fathy's inability to "discover a model for the vernacular form he sought to revive," would conclude in an invented tradition inspired by "the idyllic countryside of his imagination." Pp. 192

an authorial attempt at reconstructing an "image" of rural architecture. Dedicated to the peasant but addressed to architects and planners, *Architecture for the Poor* aims at comforting its subjects not by demonstrating how the rural vernacular influenced the work of Fathy, but rather by providing an image of rural architecture that developed out of the very means, tools and techniques of architectural production.

In "The Medium is the Message," Marshall McLuhan stated that "the message of any medium or technology is the change of scale or pace or pattern that it introduces into human affairs."[9] The content of any medium, McLuhan declared, is itself another medium. The content of the book is the text; the contents of the architectural book are the text, photographs, drawings, and in the specific case of *Architecture for the Poor* also include the Cost Analysis documents for labor, materials and construction methods.[10] But the nature of architectural production dictates that behind these contents exist multiple invisible operations, with additional contents and media such as sketches, tracings and orthogonal projections.[11]

Fathy's work in New Gourna firmly belongs within the mid-20th century post-war discourses on the re-assessment of modernism. The renewed interest in the vernacular, in all its forms, provided architects with additional tools for re-evaluating the foundational principles of the

[9] Marshall McLuhan, "The Medium is the Message," (1964) in *Understanding Media: The Extensions of Man* (Cambridge, MA: MIT Press, 1994) p. 8

[10] On the analysis of the architectural book see, Andre Tavares, *The Anatomy of the Architectural Book* (Zurich, Switzerland: Lars Muller Publishers and Canadian Centre for Architecture, 2016), on the Book and the influences of publication and publicity see, Helene Lipstadt, "Architectural Publications, Competition and Exhibitions," in *Architecture and Its Image: Four Centuries of Architectural Representation* (Montreal: Canadian Centre for Architecture, 1989), On the influence of publications on Modern Architecture see, Beatriz Colomina, "Publicity," in *Privacy and Publicity: Modern Architecture and as Mass Media* (Cambridge, MA: The MIT Press, 1994) pp. 141-200

[11] These operations are not only invisible because they remain unpublished, but most importantly because they constitute common practices that penetrated every aspect of production to the extent that even when published remain invisible and unnoticed.

modern movement. Architects looked at all forms of vernacular structures, from "discovering" pre-industrial indigenous cultures and building customs and techniques; to the re-examination of the industrial vernacular through the non-stylistic eye of "functionalism," to the acknowledgement of the forces of commercialism on the everyday lives that collectively encouraged debates of high vs. low cultures.

Architecture for the Poor was published almost 20 years after the work in New Gourna had stopped. By then, the stage had already been set for the favorable reception of the book, largely due to publications like Bernard Rudofsky's *Architecture without Architects*.[12] Its impact, however, or as McLuhan puts it, "the change of scale … that it introduces," could be witnessed in how it paved the way for the rise of later movements like neo-vernacularism and regionalism. Its impact had not only been limited to expanding the appreciation of the vernacular, but most significantly took form in the way it made available a method for appropriating traditional objects for architects to follow.

Fathy's statement therefore, of "(wanting) to bridge the gulf that separates folk architecture from architects architecture," while meant to criticize modernist architects, especially in Egypt, and in turn reflect his intentions of increasing architects' exposure to the vernacular, could also be read in reverse.[13] To bridge the gulf, not only were architects expected to acquire more knowledge about the vernacular, but also vernacular architecture itself must by subjected to the rules, codes

[12] Fathy was well aware of the work of Rudofsky and they had several correspondences. "I had a letter once from Dofsky (Bernard Rudofsky), a colleague who wrote *Architecture without Architects*. I wrote back to him that I liked his book because it effectively raised the question, who is the architect? Whenever I look at most of what we call modern buildings, I do not know, and when I look at peasant buildings, I do not know. Which is the one with the architect and which is the one without the architect?" Hassan Fathy, "The Art of Living in the Cultural Revolution," in *Hassan Fathy Archives* (Geneva, Switzerland: Aga Khan Trust for Culture, 23 April 1978)

[13] Hassan Fathy, *Architecture for the Poor* (Chicago and London: University of Chicago Press, 1973) pp. 43

and means of architectural production. So, while architects remain the primary subjects in both readings of this statement, and both conditions must operate in conjunction for the gulf to be truly bridged, the former reading challenges architects by demanding their operation within the realm of the vernacular, while the latter comforts by bringing the vernacular into the territory of architecture.

The book in this regard mediates precisely because it condenses, displaces and relocates the complexities of rural conditions into the domain of the architect. Comfort therefore is derived at from the awakening of a sense of agency over the many anonymizing conditions of rural modernization. By reversing the formula of influence, therefore, it becomes possible to argue that it was Fathy who constructed a certain image of rural architecture; one that effectively distances his work from the vernacular designations that undermine the architect's creative claims.

The Mosque at New Gourna

This chapter anchors the study of *Architecture for the Poor* in the particular episode of the design and representation of the mosque at New Gourna. From this close reading that examines the specificities of the mosque design, this study will branch out to discuss the larger issues that concern the book in its entirety. The choice of the mosque is intentional. No building type has stronger ties to tradition than a religious one. Moreover, the functional and ritualistic requirements of a mosque are established, and clear, and such clarity facilitates for the reader the identification and separation of the forces of tradition from the products of architectural invention. Yet the mosque's religious nature also leaves less space for functional intervention, and in this regard, the subtle adjustments made throughout the design process, and exposed through tracing the changes between the multiple sketches of the building, especially the ones unrelated to the functional

requirements of space, are illuminated. These changes, as the following argues, stand for the aesthetic intentionality of Fathy and therefore the tools and techniques of architectural production (or representation) are deemed instrumental to such creative processes.

Fathy represented the mosque design in the book through multiple forms. The text, drawings and photographs that appeared in *Architecture for the Poor* were independently utilized so that each could achieve a role in the overall representation of the design. Their relative independence owes itself to the way the book was organized. The separation of the text from the photographs and drawings, while allowing for reading each section independently, facilitates the inclusion of the ideas behind the mosque's design within the larger arguments represented in the book. In other words, the separation of the forms of representation aims at facilitating a continuous reading of each form independently, with occasional disruptions occurring when referring to others forms. Dissecting the case of the mosque, and the reading of text, photographs and drawings at once, as well as consulting archival sketches and texts related to the New Gourna mosque in other publications, reveals a more detailed account of the architect's intentions that—while not entirely contradictory to the conventional understanding of the work—brings a different dimension to the operations behind the construction of traditional images.

In the few pages dedicated to the mosque design, Fathy described in detail the organization of spaces and their relation to the rituals practiced inside them. His description begins by a brief explanation of the purpose of the mosque and its position within the Muslim faith before detailing the architectural differences between the mosque and the Christian church.[14] Such an introduction, which outlines the basic philosophical foundations of the mosque type, paves the way for establishing a connection between the new mosque architecture and its local environment.

[14] See *Architecture for the Poor*, pp. 73-76

Contrasting the mosque as an Islamic type in general and an "Arab" symbol in particular to the "Western" Church illuminates the building type's intimate association with its local tradition.[15] Such connections are further heightened when certain traditions specific to Gourna and Nubia acquire an elevated position in the building's design. Dominant architectural features, like the exterior staircase to the minaret and the vaulted arcade of the *madyafa* (a seated area for hosting arriving travelers) are elements found only in the countryside.

But while the *madyafa* is a response to the social customs of the place, the exterior staircase (Figure 1.1) is a straightforward appropriation from the older mosques in Gourna.[16] "I could not flatly ignore all that the Gournis had done," Fathy clarified, "erase every vestige of their own creativeness, and plump down my own designs on the site."[17] Appropriation, or what Fathy referred to as transposition, was the more acceptable approach. "Such of the traditional construction as could be incorporated I had to use," Fathy insisted, "and as much as possible of the spirit of the Gournis I had to bring out in the new designs."[18] The relationship that Fathy sought to establish between the old and the new, however, aimed at surpassing simplistic associations and instead stood for the larger intentions of constructing a connection, albeit superficial, between the displaced inhabitants of the new village and their heritage.

> *It is important to understand that this search for local forms and their incorporation in the new village was not prompted by a sentimental desire to keep some souvenir*

[15] This exemplifies the process of creating a locality that is commonly utilized in nationalist discourses by the identification of "others" and how they separate from local subjects and their objects.

[16] Hassan Fathy, *Architecture for the Poor*, pp. 42

[17] Ibid, pp. 42

[18] Ibid, pp. 42

of the old village. My purpose was always to restore to the Gournis their heritage of vigorous locally-inspired building tradition, involving the active cooperation of informed clients and skilled craftsmen.[19]

In other words, Fathy's transposition of traditional architecture involved the visual dimension of replicating "locally-inspired" and familiar architectural elements as well as the social dimension of re-enacting the vernacular methods of cooperative building. The aspired connection between the old and the new, and one form of bridging the gulf between the vernacular and architect's architecture is materialized through these calls for cooperation. What transposition in general, and cooperation in particular, aim to achieve is a robust connection between the old and the new in which the modern replication of social acts and architectural forms portrays the new as an essentially indistinguishable component of the old. The more authentic this process of transposition becomes, the less distinguishable the new is perceived. In other words, at the moment of strongest connection, in the truly authentic replication of tradition, the very categories of old and new cease to exist; this is when old traditions morph into their developed state as *living* traditions.[20]

But it becomes crucial at this moment to remember that Fathy was less concerned with the accuracy of the transposed objects, and more with their appropriateness towards contemporary situations. This appropriateness was determined through the architectural object capabilities in mediating its subjects' relationship to modernizing challenges. While transposition defined

[19] Ibid, pp. 43

[20] This notion of reviving a "living" tradition is already a contradiction on many levels. A tradition, if "living," would not need replication and revival in the first place; and the act of replication, regardless of its level of honesty to the original it exhibits, already suggests a categorical distinction between an original and a replica or a copy; an old and a new.

Fathy's method of countering the hybridity of Architectural styles that became increasingly popular in urban and rural Egypt alike since the 19th century, he nonetheless granted architects enough autonomy to scan and select from the wide array of historical objects at hand.[21] Fathy's problem with hybridity, while in a fashion not dissimilar from other modern architects at the time, stemmed from the lack of "purity" it encourages. Purity, however, remained for Fathy deeply intertwined with "the problem of truth." In other words, replicating a "European Style" building in Cairo, which was very common at the time, and regardless of the level of accuracy it exhibits towards the original, was deemed "inappropriate" largely for its detachment from the contemporary local conditions.[22] In fact, replication constituted only a marginal process in Fathy's larger approach toward traditional architecture, which called for a closer attention to the creative process of *selection.*[23] When outlining the guidelines for transposition, Fathy argued, some elements are constants: they "are valid today as they were yesterday."[24] On the contrary, some are obsolete as they "have outlived their time … (and) have to be antiquated and eliminated."[25] In between exist the ones that are "still valid in design-concept, but the form or size needs to be altered due to change of material or socio-economic conditions, these have to be transposed."[26] In that sense, two fundamental criteria govern Fathy's process of transposition. First, the architect's educated judgment in the process of scanning, differentiating and selecting between the constants,

[21] See Hassan Fathy, "Constancy, Transposition and Change in the Arab City," in *Medina to Metropolis*, ed. Carl Brown (Princeton, NJ: Darwin Press, 1973)

[22] Ibid, pp. 1

[23] Ibid, pp. 2

[24] Ibid, pp.2

[25] Ibid, pp. 3

[26] Ibid, pp. 2-3

obsoletes, and those which require transposition; second, the creativity of the architect that reveals itself in the process of altering the traditional elements to fulfil contemporary requirements.

The accuracy in the authentic replication of tradition therefore, while still upheld in Fathy's maintenance of constants, becomes secondary if not inhibiting to the development of transposed objects. In that sense, a reading of Fathy's work as an attempt at reviving a living tradition – the acknowledgment of the influence of tradition on Fathy – should also remain secondary to the examination of the creative processes invested in the transposition of tradition; how Fathy altered traditional objects, or as mentioned, reversing the formula of influence to ask what became of rural architecture after Fathy?

The Cooperative method

Fathy formulated his cooperative method as a fundamental component in his solution toward the problems of rural architecture. Aside from its potential as a cost-saving strategy, the cooperative method re-ordered the power mechanics that governed rural reconstruction projects. When discussing the problem of decision-making in projects like New Gounra, Fathy stated:

> *Building is a creative activity in which the decisive moment is the instant of conception, that instant when the spirit takes shape and all the features of the new creaton* (sic) *are virtually determined. While the characteristics of a living creature are irrevocably settled at the moment of fertilization, the characteristics of a building are determined by the whole complex of decisions made by everyone that has a say in the matter, at every stage of its construction. Thus the instant of conception on which the final form of a living creature rests becomes for a building*

a multiplicity of such instants, each playing a decisive part in the total creative process.[27]

To manage the complexities found when multiple agents are involved, Fathy found his answer in "tradition." Collective decisions could only be reached when all parties harmoniously agree on consulting the same rules and laws; as such, collectively-established guidelines, Fathy argued, could only be found in the fields of "scientific analysis" and "tradition." These two thought processes, he explained, should ultimately deliver the same outcome.[28] If for Fathy, scientific analysis is "the organized observation of the phenomena of the problem," then in a similar fashion, "tradition embodies the conclusions of many generations practical experiment with the same problem."[29] When it came to the construction of houses, therefore, Fathy asked the question "what can the peasants themselves teach us about organizing the work? … They cooperate." [30] Cooperation therefore, as Fathy would like us to believe, was not necessarily his choice, but rather inspired by the Gournis tradition.

This is the exercise of cultural hegemony at its best.While Fathy came to realize the positive impacts of including the inhabitants in the decision-making process and construction of their houses, the cooperative method, aimed at achieving more than just the thoughtful exercise of participatory design. If cooperation was traditional, then the method itself was transposed and altered for contemporary circumstances. While part of the authority of decision-making would be handed down from the government officials to peasants, similarly, architects might initially appear

[27] *Architecture for the Poor*, pp. 22

[28] Ibid, pp.23

[29] Ibid, pp. 23

[30] Ibid, pp. 119-120

to surrender some of their authority for the sake of a more inclusive decision-making process, as demonstrated in *Architecture for the Poor,* the transposition of the traditional cooperative method simultaneously sought to ensure the preservation of the architects' stronghold over the entire process; by consent.

In the opening paragraphs of *Architecture for the Poor,* Fathy described his vision for New Gourna as one that attempts to "build a village where the fellaheen would follow the way of life that (he) would like them to."[31] Aside from the obvious authoritative attitude that Fathy often displayed, this statement sets an entirely different tone to the presumed inclusiveness of the cooperative method. This is not to say that inclusiveness remained rhetorical, but rather that Fathy's interpretation of the traditional cooperative method, in a manner consistent with the book's purposes, solidified his agency by facilitating a smoother circulation of his ideas within the contentious setting of rural reconstruction projects.

In his 1963 letter to Nasser, Fathy was more explicit about the role he performed within cooperation. The process was primarily informative; educating the villagers about their heritage was a necessary step toward a more productive relation with modernization.[32] The hierarchical organization of the cooperative method thus became key in identifying the role of the architect with that of the instructor, and the meticulous division of labor that followed characterized the process as an effective tool in confronting the inescapable challenges of anonymity. In the Appendix section of *Architecture for the Poor,* (Figure 1.2) Fathy outlined how he divided labor into several categories based on levels of expertise. The supervisor, mason, worker, trainee, and

[31] Ibid, pp. 1

[32] Hassan Fathy, "Letter to Gamal Abdel Nasser regarding rural development," in *Hassan Fathy Archives* (Geneva, Switzerland: Aga Khan Trust for Culture, 23 March 1963)

helper each became directly responsible for training the members below.[33] Through this hierarchical pyramid, the architect retained an authoritative position through which his vision could effortlessly disseminate through the whole process and convincingly reach the lowest member of the organization. The ingenuity of this method reveals itself in how a traditional form of circulating knowledge masked a calculated attempt to spread the architect's ideas. Take the dome for example; to build mudbrick domes was a design decision taken exclusively by the architect; how to actually build the domes (Figure 1.3) was a form of knowledge transferred through each member of the cooperative process. In Fathy's mind, a clear boundary between design decisions and the building process did not exist. Building with domes was a design decision that acquired its novelty from the way the domes were built – in this case, building domes without wooden formwork. In other words, Fathy considered himself to be informing the villagers about their vernacular culture through teaching them how to build domes. To know how to build domes, therefore, should allow the villagers to arrive themselves at the decision of building with domes; and through the cooperative method, the dome is transposed from an anonymous vernacular object into a product of creative vision.

The Creative Architect

So, what exactly did Fathy mean by creativity? While he mentioned the term in various contexts, it appears that his understanding was always derived from the term *creation*. In other words, creativity for Fathy, often directly referred to the act of bringing something into existence. Such broad definition allowed Fathy to bypass the contradictions that might initially appear between the traditional and certain criteria associated with creativity. Notions like innovation and

[33] *Architecture for the Poor*, pp. 208

originality which are often associated with the common understanding of creativity – and remained important to Fathy's work – also often hint at less inclusive qualities such as newness that might contradict the nature of traditional architecture. In other words, this allowed the term to encompass the multiple processes occurring in the architecture of Fathy. In *Architecture for the Poor*, Fathy described four different forms of creativity: the vernacular buildings of the local inhabitants; the selective process of choosing traditional architecture precedents, the cooperative method of collective decision making, and at last, the local inhabitants' educated decision to revive their own building tradition. The following focuses on a fifth form of creativity: the process that involved the transformation of traditional architecture objects for contemporary purposes; design transposition through architectural means of production.

In the last pages of *Architecture for the Poor*, specifically in the chapter titled "Finale: Gourna Dormant" that serves as the conclusion for his narration of the New Gourna experience, Fathy made the address to young architects more explicit. "When an architect feels a sense of mission," he claimed, "he will inevitably experience a great deal of resistance to his purpose."[34] In rural reconstruction projects, Fathy clarified, challenges grew from multiple directions. Aside from the technical and artistic challenges that architects are trained to encounter, rural reconstruction projects present additional challenges. "As his architectural sense drives him through clear logic to more and more radical solutions, (the architect) will find within himself treacherous feelings that tempt him to give up his mission and conform to the general practice in architecture."[35] For Fathy, in projects like New Gourna, it was not only peasants that suffered

[34] Ibid, pp. 185

[35] Ibid, pp. 185

discomfort, but architects too found the threat to their authority over their end products similarly discomforting.

> *To a young architect who was proposing such unorthodox methods, self-doubt was most unsettling. Apart from this fundamental uncertainty, the architect will be oppressed by all the everyday weaknesses of the spirit. Inertia, the wish for a quiet life, considerations of material comfort, reluctance to offend others, and even plain fear all counsel the creative architect to betray his vision and become respectable like everybody else.*[36]

Between the peasants' distrust in professional intervention, and the government officials' "hostility" towards radical invention, the architect, Fathy advised in a manner similar to the Western intellectuals' disidentification with subaltern subjects,

> *Should remember how lucky he is to have a long technical education behind him. He should remember that for him the very excitement of solving architectural problems and seeing his buildings coming up provides the satisfaction and reward of an act of creation.*[37]

Therefore, Fathy found the solution to the discomforts associated with the devaluation of creativity, in the very creative skills acquired through the architect's own education. The "technical education"–and Fathy meant it here in the widest sense of the word as the unique ability of problem-solving–provided architects with the tools needed to maintain their creative potentials amid the discomforting forces of modernizing government projects.

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[36] Ibid, pp. 186

[37] Ibid, pp. 186

Fathy studied Architecture in the Polytechnic of Cairo University, and later taught at the Academy of Fine Arts.[38] The curriculums in both schools were modeled after the École des Beaux Arts in Paris.[39] And while this factored significantly in the popularity of neoclassicism in urban Egypt up until the mid-20th century, the Academy of Fine Arts in particular played a vital role in directing the attention of artists and architects towards rural problems.[40] Identifying "Egypt" as primarily rural, and the question of the artistic representation of peasants emerged largely from the works of Beaux-arts trained artists.[41] In *Architecture for the Poor*, and specifically in the section titled "Architectural Character" however, Fathy criticized the education of architects. In the architectural schools in Egypt, he complained, "they make no study of the history of domestic

[38] On Fathy's life and educational background see Leila El-Wakil ed. *Hassan Fathy: An Architectural Life*, translated from French by Abigail Grater (Cairo and New York: The American University in Cairo Press, 2018) Originally published as *Hassan Fathy: dans son temps* (Gollion and Paris: Infolio, 2013) Also see J.M. Richards, Ismail Serageldine and Darl Rastorfer, *Hassan Fathy* (London: Concept Media, 1985), and James Steele, *An Architecture for People: the complete works of Hassan Fathy* (New York: Whitney Library of Design, 1997)

[39] On the influence of European-modeled Universities in Egypt and the impact they had on the rise of professionalism, nationalism, and cosmopolitanism see Donald M. Reid, *Cairo University and the Making of Modern Egypt* (Cambridge, Uk & New York: Cambridge University Press, 1990)

[40] On the Academy of Fine Arts in Cairo see, Patrick Kane, *The Politics of Art in Modern Egypt: Aesthetics, Ideology and Nation-building* (London and New York: I.B. Tauris, 2013) On the influence of the Beaux-arts tradition and the French Polytechnic on the rise of neoclassicism in 19th century Egypt, especially in the Villa type, see Khaled Asfour, "New Architecture with Old Ideas: An Egyptian Acculturation," in *International Journal of Architectural Research*, vol. 5, no.1 (March 2011) pp. 37-54, and "The Domestication of Knowledge: Cairo at the turn of the Century," in *Muqarnas*, vol. 10 (1993) pp. 125-137

[41] On the work of Beaux-arts trained artists in Egypt see Hamed Said ed. *Contemporary Art in Egypt* (Ministry of Culture and National Guidance, 1964) On Modern Egyptian Art in general see Liliane Karnouk, *Modern Egyptian Art: 1910-2003* (Cairo and New York: The American University in Cairo Press, 2005) On the formation of a modern Egyptian Identity and the representations of peasants in 19th and 20th century Egypt see Michael Gasper, *The Power of Representation: Publics, Peasants and Islam in Egypt* (Stanford, CA: Stanford University Press, 2008) and Omnia el Shakry, *The Great Social Laboratory: Subjects of Knowledge in Colonial and Postcolonial Egypt* (Sanford, CA: Stanford University Press, 2007)

buildings, and learn architectural periods by the accidents of style."[42] The new graduate, he stated, "believe this to be all there is in "style," and imagines a building can change its style as a man changes clothes."[43] Traditional architecture, in that sense, is presented as not only an accurate reflection of the character of place and its inhabitants, but also a historical object of study that, much like the "pylons" of ancient Egyptian architecture and the "stalactites" of medieval Arab architecture, ought to be transposed.[44] "Yet in modern Egypt there is no indigenous style," Fathy claimed, "the signature is missing; the houses of rich and poor alike are without character, without an Egyptian accent."[45] It becomes the responsibility of architects therefore, through their educated search, categorization and transposition of traditional vernacular elements to not necessarily generate this indigenous style but construct an image of it.

Fathy's conception of traditional architecture, and its transposition into contemporary settings was indeed largely shaped by his Beaux-arts education. His attempts at formulating a rural "type" in New Gourna, and later an Arab type in the urban houses of Cairo, were shaped by his ambition to grasp the "spirit" of culture,[46] and followed in many ways the tradition that persisted

[42] *Architecture for the Poor*, pp. 20

[43] Ibid

[44] "I like to suppose simply that certain shapes take a people's fancy, and that they make use of them in a great variety of contexts, perhaps rejecting the unsuitable applications, but evolving a colorful and emphatic visual language of their own that suits perfectly their character and their homeland." *Architecture for the Poor*, pp. 19-20

[45] Ibid, p.19

[46] "It is not enough to copy even the very best buildings of another generation or another locality. The method of building may be used, but you must strip from this method all the substance of particular character and detail, and drive out from your mind the picture of the houses that so beautifully fulfilled your desires. You must start right from the beginning, letting your new buildings grow from the daily lives of the people who live in them … There must be neither faked tradition nor faked modernity, but an architecture that will be visible and permanent expression of the character of a community. But this would mean nothing less than a whole new architecture." *Architecture for the Poor*, pp. 44-45

in Western schools of thought ever since Quatremere de Quincy introduced the idea of type in the late 18th century France.[47] Moreover, the attention to the notion of "character" and how it is reflected through the building's composition (the part-to-whole relation), if not only for the work's lack of classicism, strongly connects Fathy to the Beaux-arts tradition.[48]

But Fathy did, in fact, design in the classical tradition long before his involvement with the problems of rural and vernacular architecture. Fathy's graduation project for a courthouse in 1926 (Figure 1.4) responded faithfully to the demands of the Beaux-arts-inspired institution. He translated the desired grandeur of the building program through a symmetrical façade decorated with the Doric order. With the height of the building increasing towards its center, this grand effect was further magnified by the addition of the central dome resting on a colonnaded drum.[49] While this design–much like his earlier work before the 1940s that followed a rather modernist aesthetic–is often considered an early and immature anomaly that preceded his involvement with the problems of the poor, it provides an unexpected yet valuable background to Fathy's later work that

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[47] On Type see Sylvia Lavin, *Quatremere de Quincy and the Invention of a Modern Language of Architecture* (Cambridge, MA and London: MIT Press, 1992) especially the chapter, "the Transformation of Type." Also see Anthony Vidler, "The Idea of Type: the transformation of the Academic Ideal," in *Opposition 8* (Cambridge, MA and London: MIT Press, 1977) pp. 95-115.

[48] The literature on 19th century classicism and the Ecole des Beaux-arts is extensive. Edited volumes such as Robin Middleton's, *The Beaux-Arts and Nineteenth Century French Architecture* (Cambridge, MA: MIT Press, 1982), and Arthur Drexler's, *The Architecture of the Ecole des Beaux-Arts* (New York: Museum of Modern Art, 1977) contained in them a number of influential essays by Neil Levine, Joseph Rykwert, Helene Lipstadt, Annie Jacques, David Van Zanten and Richard Chafee, just to name a few. While they approached the problem from multiple viewpoints, they all attempted to correct the established and negative perception of the ecole as a rigid and uniform system that generates sameness.

[49] For the full description of the façade design, its inspiration and Fathy's educational background see Leila El-Wakil, "Education and Training," in *Hassan Fathy: An Architectural Life*, ed. Leila El-Wakil, translated from French by Abigail Grater (Cairo and New York: The American University in Cairo Press, 2018) Originally published as *Hassan Fathy: dans son temps* (Gollion and Paris: Infolio, 2013)

with all the apparent discontinuities, retains the fundamental aspect of designing solely through orthographic projections.[50] While their use is common practice in the field of architecture, Fathy emphasized his preference for orthographic drawings over other techniques like perspective. New Gourna, with all the attention diverted toward its novel on-site experimentation and cooperative self-building methods, was primarily imagined as orthographic projections on paper. In fact, Fathy's earliest involvement with rural architecture (Figure 1.5) came in the form of an exhibition held in the city of Mansoura in 1937 that showed Gouche paintings of conceptual Country houses.[51] Fathy retained this interest of representing his work as flattened orthographic Gouche paintings throughout his career, and in describing the ones representing New Gourna (Figure 1.6), he stated,

> *I did all my renderings of the test designs like this; carefully avoiding the professional slickness of many architects' plans, which often distort natural forms in order to make the setting match the buildings, I did not try to produce effects of depth, nor bring in convenient oak trees to balance a massing, but executed my drawings in plain lines and set about them sketches of the animals and trees and natural features of Gourna.*[52]

[50] In the architecture section of the Ecole des Beaux arts, and up till the mid-19th century, students participating in the Grand Prix were required to represent their projects only in orthographic drawings: plans, sections and elevations. On the Grand Prix competition and its requirements see Neil Levine, "The Competition for the Grand Prix in 1824," in *The Beaux-Arts and Nineteenth Century French Architecture*, ed. Robin Middleton (Cambridge, MA: MIT Press, 1982). On Orthographic drawings in the 19th century see for instance Robin Evans, "Architectural Projections," in *Architecture and its Image: Four Centuries of Architectural Representation*, eds. Eve Blau and Edward Kaufman (Montreal: Canadian Centre for Architecture, 1989)

[51] Hassan Fathy, *Architecture for the Poor*, pp. 5

[52] Ibid, pp. 44

The flatness—produced from the paintings' lack of depth—rendered these utopian images as *objective* experiments. In other words, the technique responsible for generating a utopian image—that is the projection and flattening of multiple planes onto a single surface—was itself, in Fathy's mind, equally responsible for highlighting its objectivity. The continuity found between architecture and its local environment that would stand as evidence for the buildings' "traditional" character is, at the same time, both responsive and objective as well as authoritative and imaginative. The "tradition" of Gourna in this case, shaped and represented through the specificities of its local environment, is simultaneously followed and reinvented; the line of influence seemingly moves effortlessly back and forth between the realities of place and the creativity of the architect.

But, while the processes of flattening and orthographic projections remain closely associated with objectivity, largely for their potential to correct, reveal and truly convey what might be distorted by the human eye, they can also at certain instances generate the opposite outcome: flattening as subjectivity.[53] Fathy did not only produce flattened drawings, but also attempted to maintain the same effect in his photographs. In *Architecture for the Poor*, he continued the discussion of the new mosque by stating his intentions of producing effects of "sobriety" and "calmness" to complement the "meditative" nature of the religious space.[54] He followed up by discussing in detail the different spaces and the organization of the design. This was accompanied by a plan of the mosque (Figure 1.7), a frontal photograph from the main street

[53] For the relation between flatness, projections and objectivity see for instance, Massimo Scolari, *Oblique Drawing: A History of Anti-Perspective* (Cambridge, MA: MIT Press, 2012) Scolari's history of axonometry challenges Erwin Panofsky's emphasis on perspective as the primary technique of representation. See also Erwin Panofsky, *Perspective as Symbolic Form*, translated by Christopher S. Wood (New York: Zone Books, 1991)

[54] *Architecture for the Poor*, pp. 75

(Figure 1.8) and another from the side (Figure 1.9). The former was photographed by Fathy in 1948, right after construction was completed, and the latter by Roger Viollet 20 years later.

The frontal photograph resembles in many ways Fathy's Gouache paintings. The camera is positioned almost perpendicularly to the flat surfaces of the mosque's façade; the photograph was captured at a time of day that projected short shadows that, while successfully concealing minimal portions of the building, seem to disassemble the façade into parts separated by their highly contrasted and darkened quality. This effect flattens the façade and brings forward onto the plane of the paper the transposed traditional architecture of the dome, the minaret and the exterior staircase.

But contrary to what the photograph might first suggest, it in fact conceals much more than what it reveals. Indeed, all the architectural elements stand fully visible and as close as they can to their relative proportions and relation to one another. However, apart from the flattening of material or textural effects–a quality that adds to the abstract effect of the photograph–the façade entirely distorts the geometry of a significant part of the building. The angled space on the left-hand side of the plan that houses the *madyafa* (marked as number 4 on the plan) falsely appears to be perpendicular to the façade. Such distortion might initially be justified as a visual trick that affects marginal consequences on the reading of the building. What it does, however, is conceal this crucial moment in which the main wall of the façade intersects with the angled side-wall; one of the two main problems that consumed Fathy throughout the building's design process. It might not be a coincidence after all that Viollet's photograph of the mosque appearing on the opposite page–and apart from its dramatization of the minaret's form and scale–captures the building precisely from the position that reveals the most of what had been concealed from Fathy's

photograph. And in this regard, what appears as an over dramatized image of the minaret, is in fact an objective representation that purposefully reveals the elements concealed by abstraction.

The gouache paintings and the sketches of the mosque made by Fathy between 1946 and 1948 better illustrate his intentionality. Examining five of these drawings together (Figures 1.10-14) reveals through tracing the developments in the design the architect's investment in two particular problems; the visual connection between the dome and the minaret, and accordingly, the height and form of the main façade wall that surrounds and connects the different elements of the building. In describing the mosques' façade design, Fathy clarified,

> *The minaret should be placed in a position to make a comprehensive and aesthetic composition with the dome, both being elements that go above the building, playing a major role in defining its silhouette against the sky. The dome as seen looking upwards from inside expresses the sky, but seen from the exterior, it looks like a shell structure bending downwards, needing the minaret in the composition to correct this effect.*[55]

Achieving this balanced image, therefore, hinged solely upon the successful application of the means of architectural production. Through the processes of projection and tracing, the designs were subjected to multiple operations that momentarily suspend questions of historical accuracy and appropriateness in favor of abstracted formal exercises. The best known of these designs is a gouache painting of the mosque's façade (Figure 1.13). Unlike frontal photographs, façade drawings are generated out of orthogonal lines projected from plans. And what appeared in the photograph as a flat façade made out of objects perpendicular to the paper plane, through projections, appeared more like an oblique drawing. The angled space of the *madyafa*, concealed

[55] Hassan Fathy, "Mosque Architecture," unpublished manuscript, cited in James Steele, *An Architecture for People: The complete works of Hassan Fathy* (New York, Whitney Library of Design, 1997) pp. 71

from the photograph, forces itself back into the façade by the indifferent process of projection. But while both the photograph and the drawing in one way or another present an accurate depiction of the building, they both fail at reflecting its true form. The plan in such case becomes crucial, since the true understanding of the façade can only occur when the projected lines connecting it with its plan are reconstructed. In fact, the way Fathy approached the façade as a single balanced composition with the dome and minaret sharing the same plane could only occur at the abstract level of orthographic projection. In other words, given that the dome and minaret do not actually occupy the same plane in the building, the balancing of the composition is therefore a problem that only occurs when the two entities are projected onto a 2-dimensional plane: on the façade. And it is precisely at this moment, when the architecture of traditional elements is represented as a disciplinary problem of façade design, that it becomes *comforting*. The true qualities of the building and its actual connections to "tradition", through the medium of architectural drawings, remain secondary to the image intended by the architect. When the purpose momentarily shifts from the rigorous application of tradition to the formulation of an architectural image of it, the complexities of tradition suddenly acquire new lives as abstracted entities within the 2-dimensional planes of architects.

But the abstraction of tradition in the New Gourna mosque façade design, like the common practice in architecture, went through an even more aggressive procedure: tracing. Besides this gouache painting were multiple traces of former and latter trials. What tracing essentially achieve is the stripping away through the continues reproduction of projected lines any meaning associated with architectural objects. The dome, the minaret, the exterior staircase and the vaults of the *madyafa* all lose their initial meaning and now operate as mere projected lines and meaningless references to traditional objects. In the trace, all projected lines immediately acquire equal

standings, and the elements initially thought of as primary constituents of the façade, are leveled with the presumably less meaningful lines that dictate the remaining composition. The trace, therefore, becomes an exclusively architectural problem, and Fathy's traces in this case, perhaps coincidentally, were primarily concerned with what he omitted from the photograph: the height of the façade main wall and its intersection with the angled side wall. The first sketch presented here, and dated in 1946 (Figure 1.10), shows the façade wall drawn lower than all the rest, with the dome raised independently from the remaining structure. The relatively low wall in this case remains at the same level when intersecting with the side-wall–as seen in the side elevation. The second sketch, also from 1946 and represented in color (Figure 1.11), shows major adjustments. Apart from the changes in the dome's form, the main part of the wall enclosing the prayer area is raised, leaving the forecourt wall (space number 2 on the floor plan) at the same height as in the previous sketch. Again, it is interesting how, in Fathy's photograph, this moment when the wall height steps upward, becomes concealed by the dark contrasting shadow of the minaret. But what remains even more intriguing is the subtle washed out line that seem to extend from the forecourt's wall highest point and ends with the length of the side-wall. The third sketch (Figure 1.12), which is a simple line drawing of the previous step with only the undersized minaret window appearing for the first time, suggests that this washed out line in the second step was only a mistake that had been erased. But a look at the following sketch (Figure 1.13)–the gouache painting discussed earlier–clearly shows the line and reproduces the same subtle effect. The effect, in this case, which again remains out of site in Fathy's photograph, perhaps aims to achieve one of two things. It might either be following the conventional painting technique that washes out objects further from the eye. But this is unlikely, since in that case the dome would have been subjected to the same technique. Another reading suggests that Fathy is faithfully following the projections but downgrading this

part's significance by washing it out from the façade. This effect emphasizes the façade composition as formed out of two entities balancing each other out–the minaret on one side and the dome on the other, connected by a flat horizontal wall–and therefore consistent with Fathy's textual description of the mosque's design. The last sketch (Figure 1.14), dated in December of 1948, and suggesting that it was drawn during the last stages of construction, can be very telling. In this sketch, the higher wall line is pulled to the right, dismembering the continuous feel of the façade and representing the dome and the minaret as two independent objects. While this design was never implemented, and the building ended up resembling the earlier schemes, it points out to not only the design direction, but to the architect's investment in the architectural procedures defining and shaping the end product. But, as mentioned previously, Fathy's product was not only a building; in the book the main product was always its mediated image; an image of a rural and vernacular form of architecture so convincing and so comforting to the extent that it often distracts from the true characteristics of the building. The dome of the new Gourna mosque—an icon for "traditionalist" mudbrick architecture, and the predominant image for the whole project—was in fact not built with mudbricks.[56] The dome, the minaret, the exterior staircase and the entire façade belong not in the realm of the vernacular traditions of rural Egypt, but rather as transposed objects imagined on the paper surfaces of the architect's drafting board.

[56] The dome as Fathy mentioned in the passing in *Architecture for the Poor* was in fact the only dome in New Gourna built out of baked bricks instead of mud bricks. *Architecture for the Poor*, pp. 75

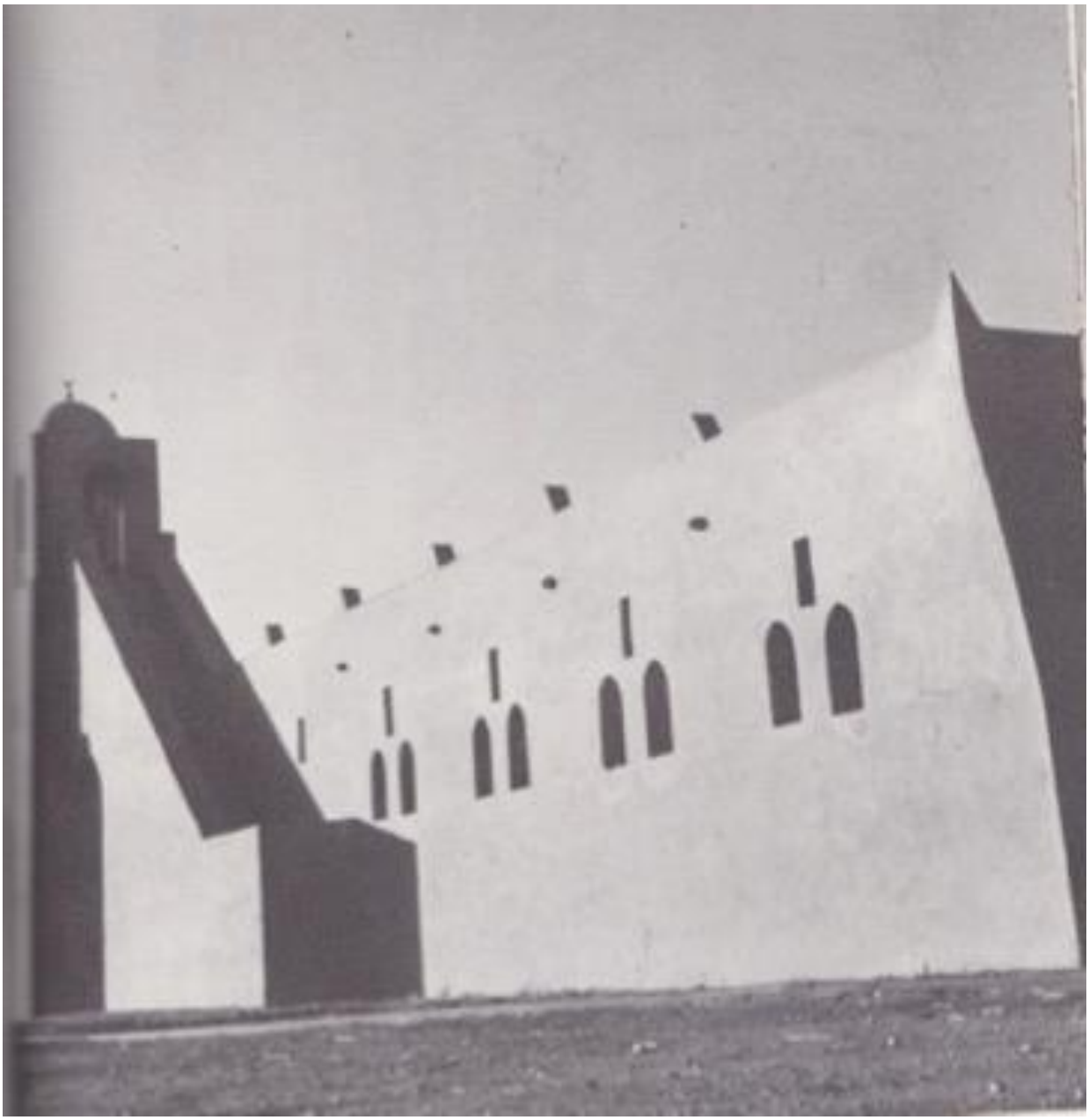
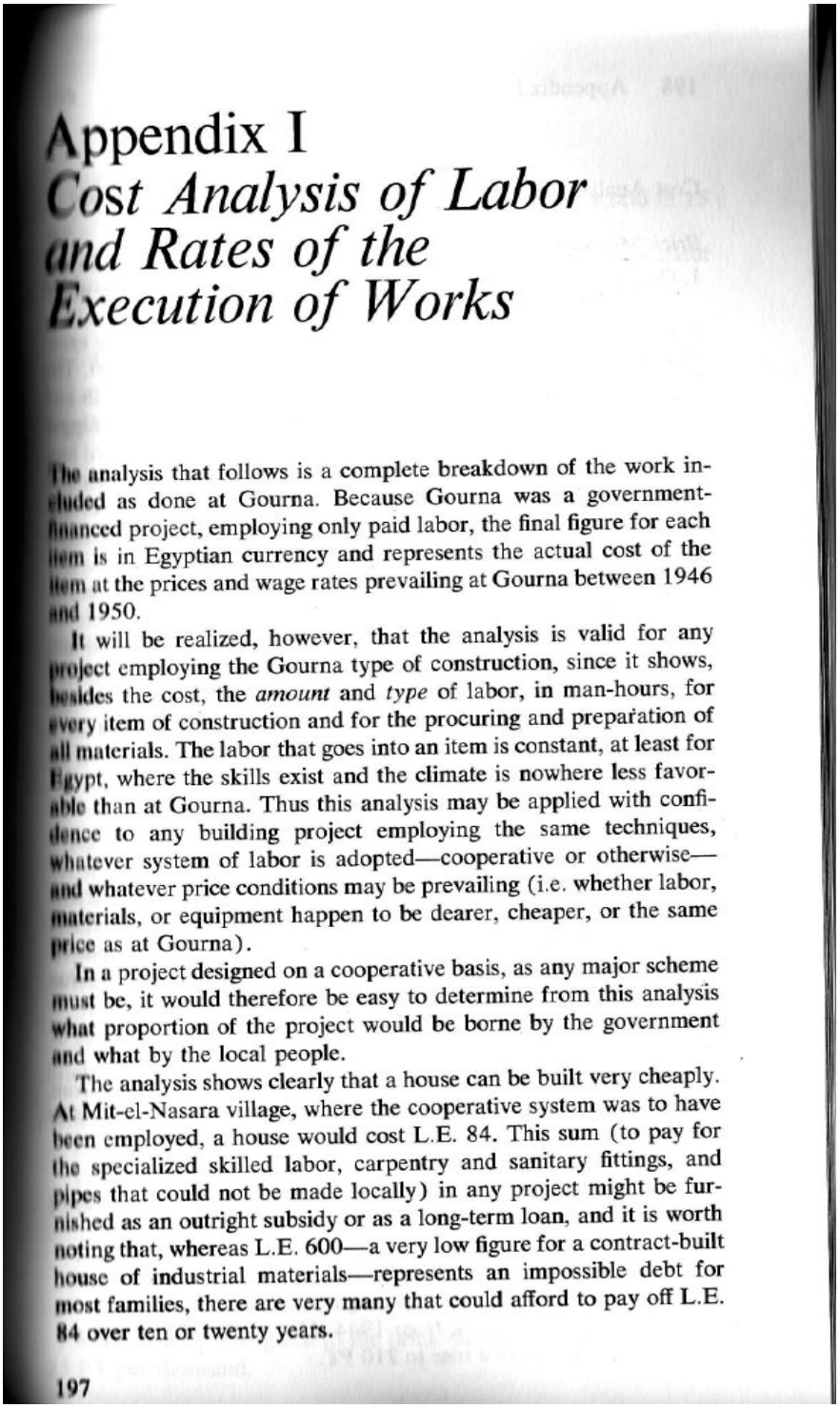


Figure 1.1 Mosque in New Gourna. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973)



Appendix I
Cost Analysis of Labor and Rates of the Execution of Works

The analysis that follows is a complete breakdown of the work included as done at Gourna. Because Gourna was a government-financed project, employing only paid labor, the final figure for each item is in Egyptian currency and represents the actual cost of the item at the prices and wage rates prevailing at Gourna between 1946 and 1950.

It will be realized, however, that the analysis is valid for any project employing the Gourna type of construction, since it shows, besides the cost, the *amount* and *type* of labor, in man-hours, for every item of construction and for the procuring and preparation of all materials. The labor that goes into an item is constant, at least for Egypt, where the skills exist and the climate is nowhere less favorable than at Gourna. Thus this analysis may be applied with confidence to any building project employing the same techniques, whatever system of labor is adopted—cooperative or otherwise—and whatever price conditions may be prevailing (i.e. whether labor, materials, or equipment happen to be dearer, cheaper, or the same price as at Gourna).

In a project designed on a cooperative basis, as any major scheme must be, it would therefore be easy to determine from this analysis what proportion of the project would be borne by the government and what by the local people.

The analysis shows clearly that a house can be built very cheaply. At Mit-el-Nasara village, where the cooperative system was to have been employed, a house would cost L.E. 84. This sum (to pay for the specialized skilled labor, carpentry and sanitary fittings, and pipes that could not be made locally) in any project might be furnished as an outright subsidy or as a long-term loan, and it is worth noting that, whereas L.E. 600—a very low figure for a contract-built house of industrial materials—represents an impossible debt for most families, there are very many that could afford to pay off L.E. 84 over ten or twenty years.

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Figure 1.2 Appendix I: Cost Analysis of Labor and Rates of the Execution of Works. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973)

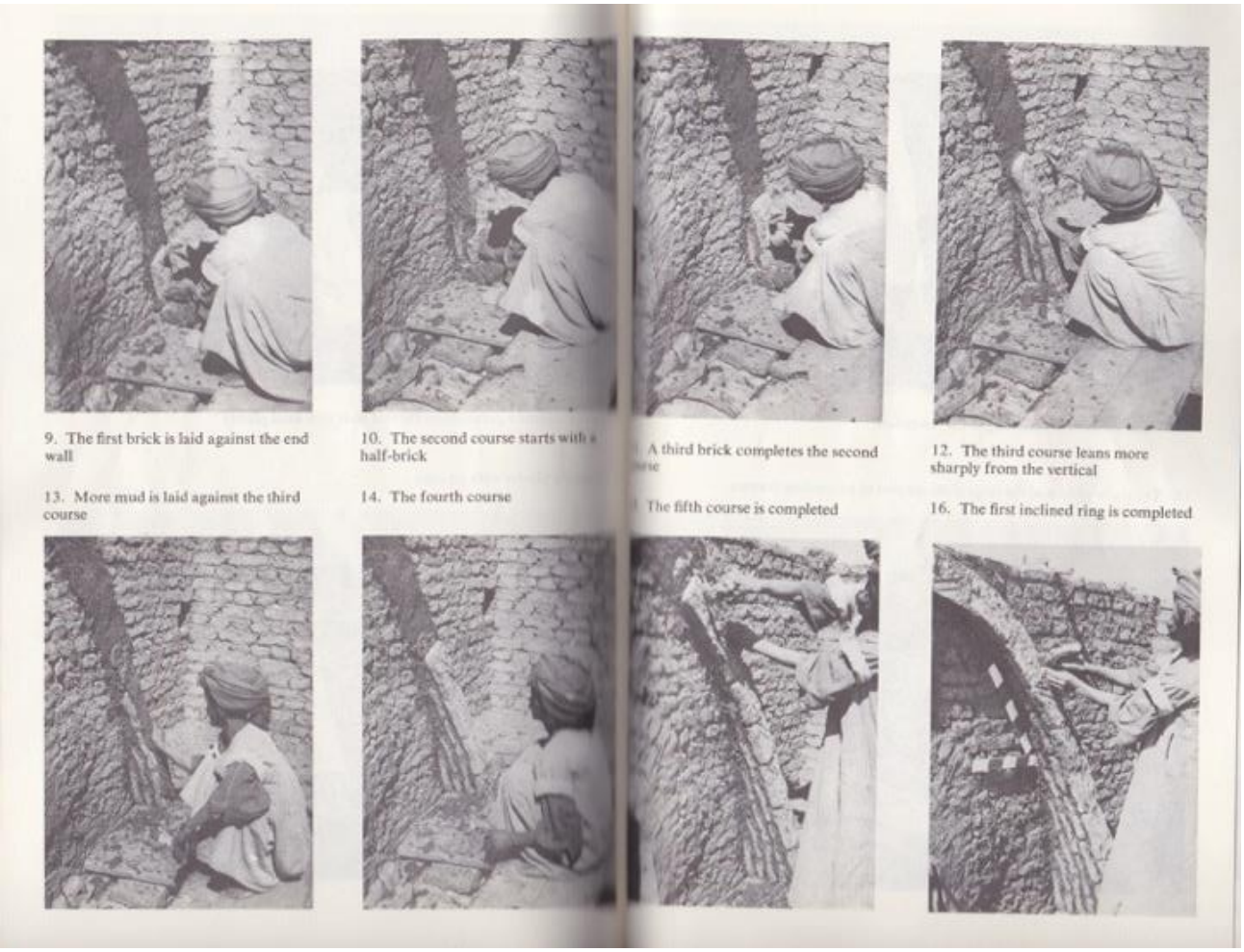

Figure 1.3 Masons at work in New Gourna. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973)

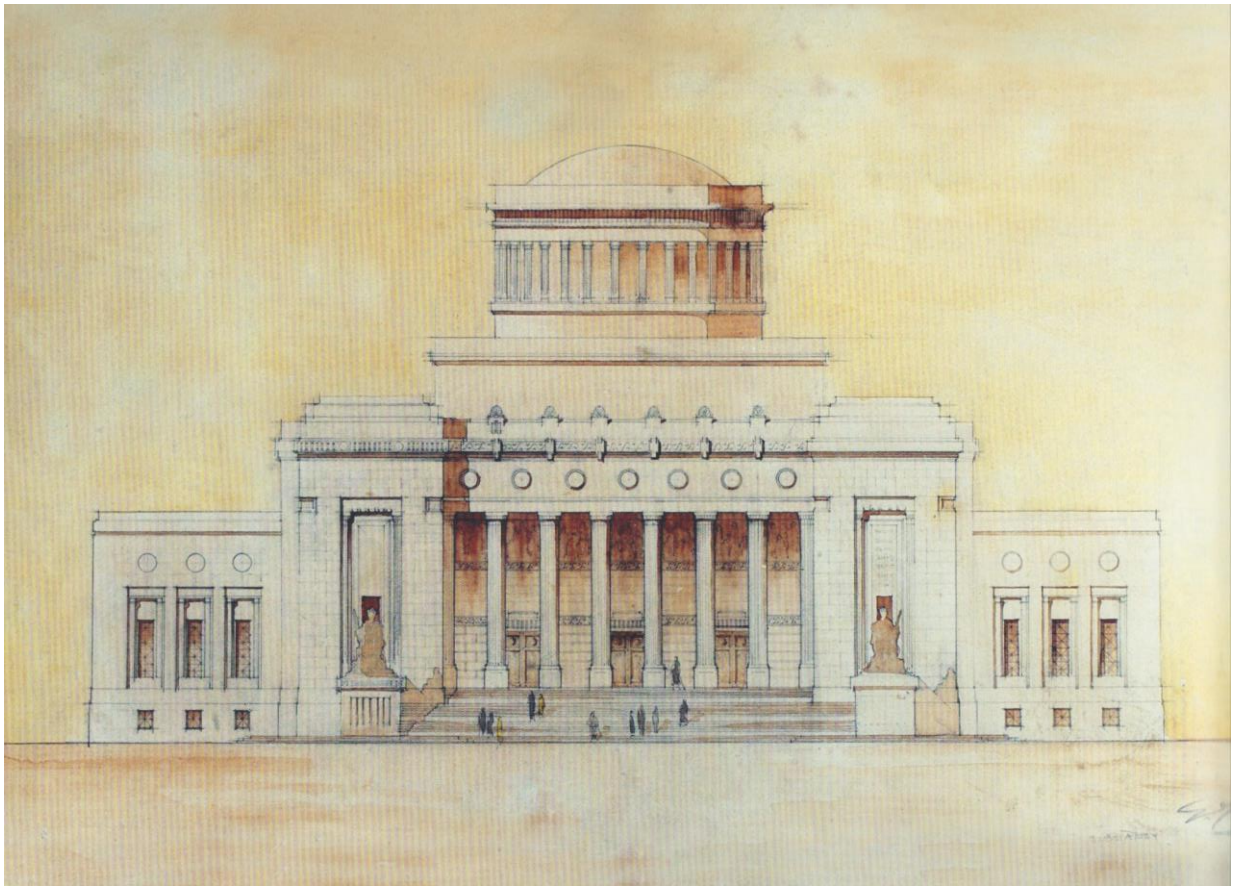

Figure 1.4 Fathy's graduation project for a courthouse, 1926. From: Leila El-Wakil, *Hassan Fathy: An Architectural Life* (Cairo and New York: The American University in Cairo Press, 2018)

Figure 1.5 Hassan Fathy's Gouache painting. From: Leila El-Wakil, *Hassan Fathy: An Architectural Life* (Cairo and New York: The American University in Cairo Press, 2018)

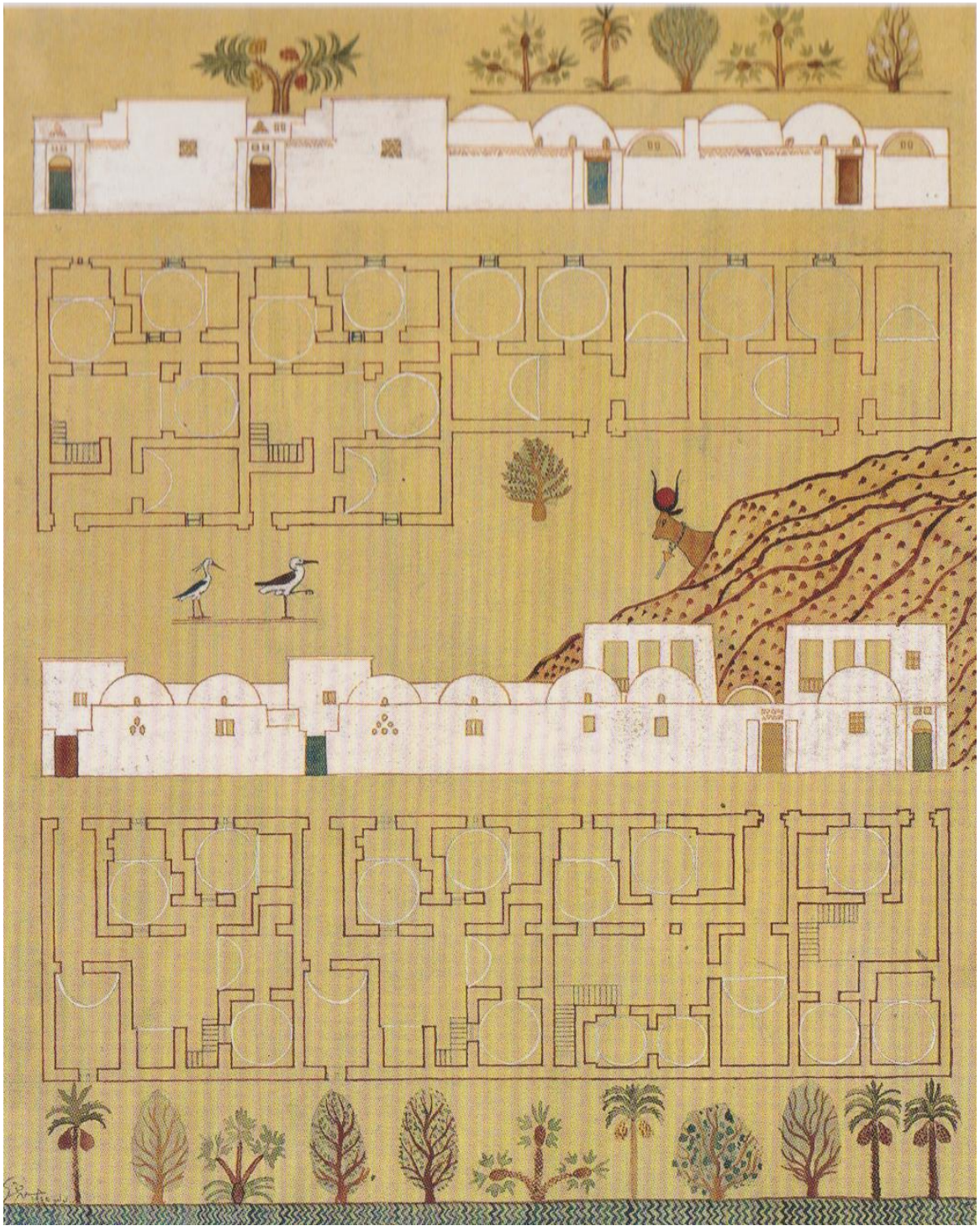

Figure 1.6 Test design for New Gourna. From: Leila El-Wakil, *Hassan Fathy: An Architectural Life* (Cairo and New York: The American University in Cairo Press, 2018)

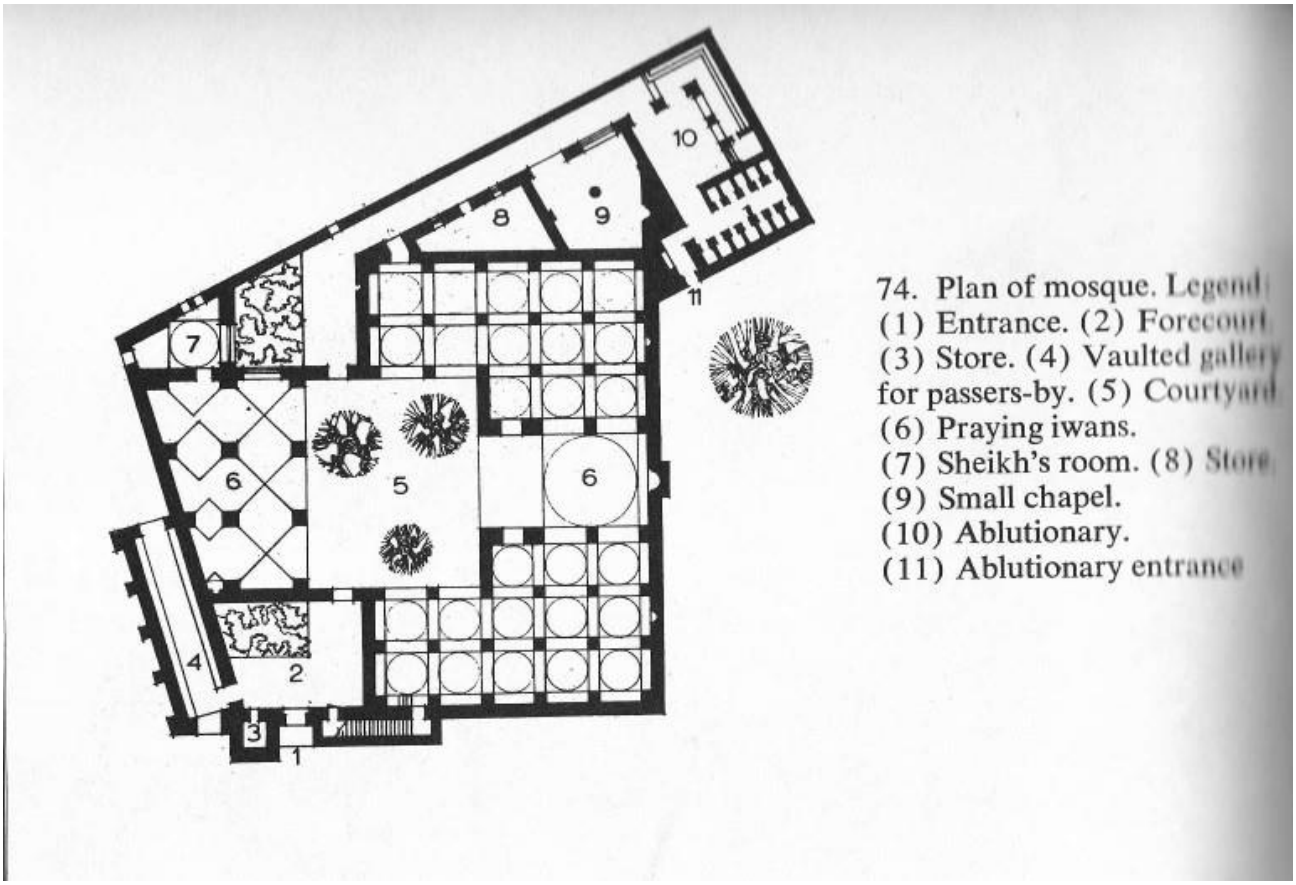

Figure 1.7 Floor Plan of the Mosque at New Gourna. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973)

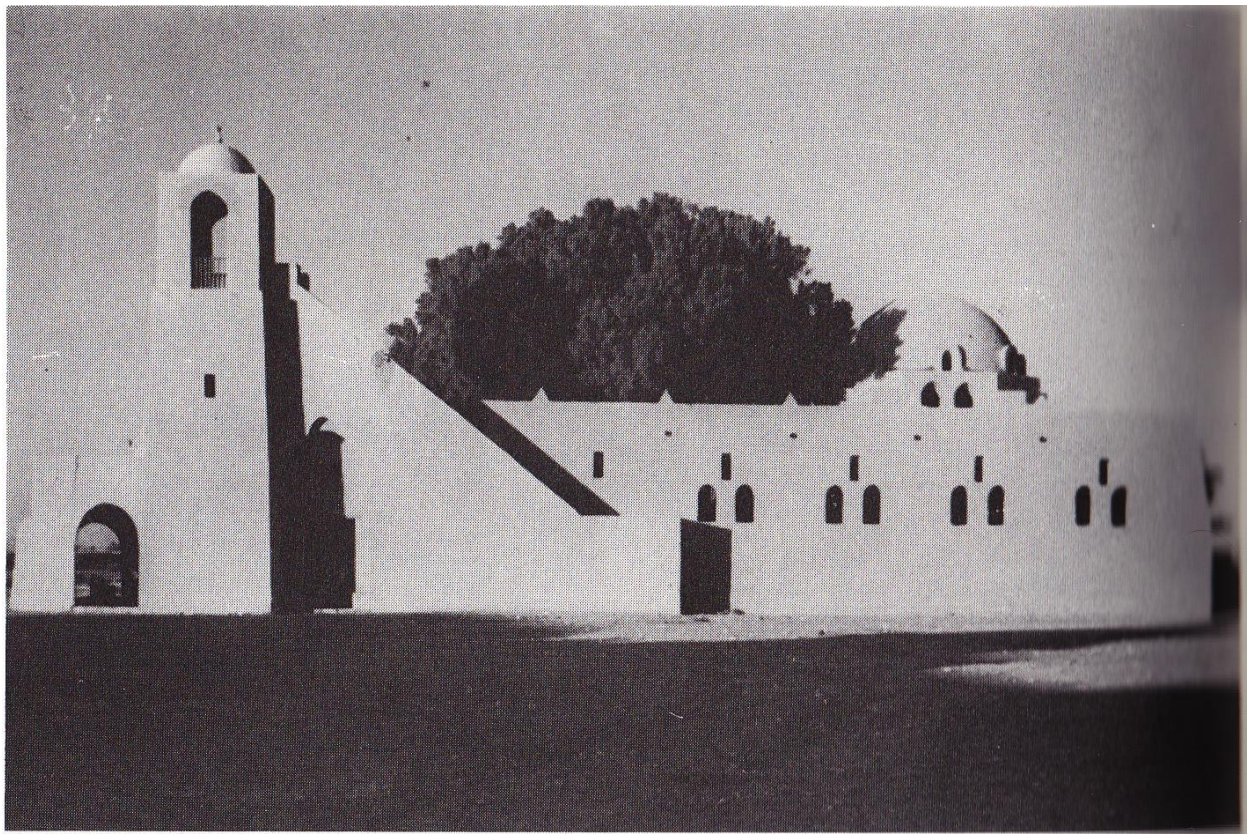

Figure 1.8 Hassan Fathy's photograph of the Mosque in New Gounra in 1948. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973)

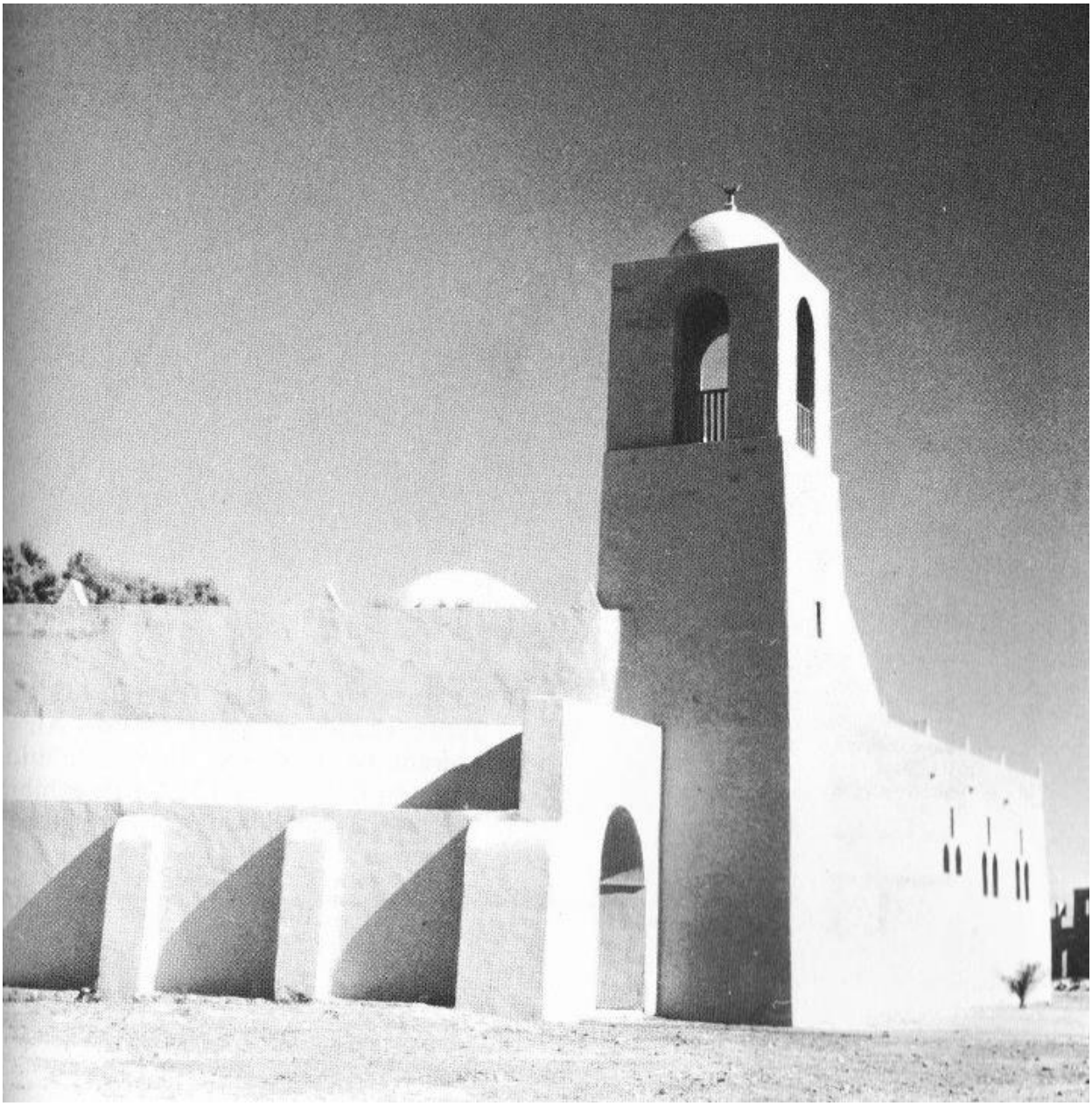

Figure 1.9 Roger Viollet's photograph of the Mosque in New Gourna in 1968. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973)

Figure 1.10 Sketch of the New Gourna Mosque, 1946. From: *Hassan Fathy Archive* (Geneva, Switzerland: Aga Khan Trust for Culture)

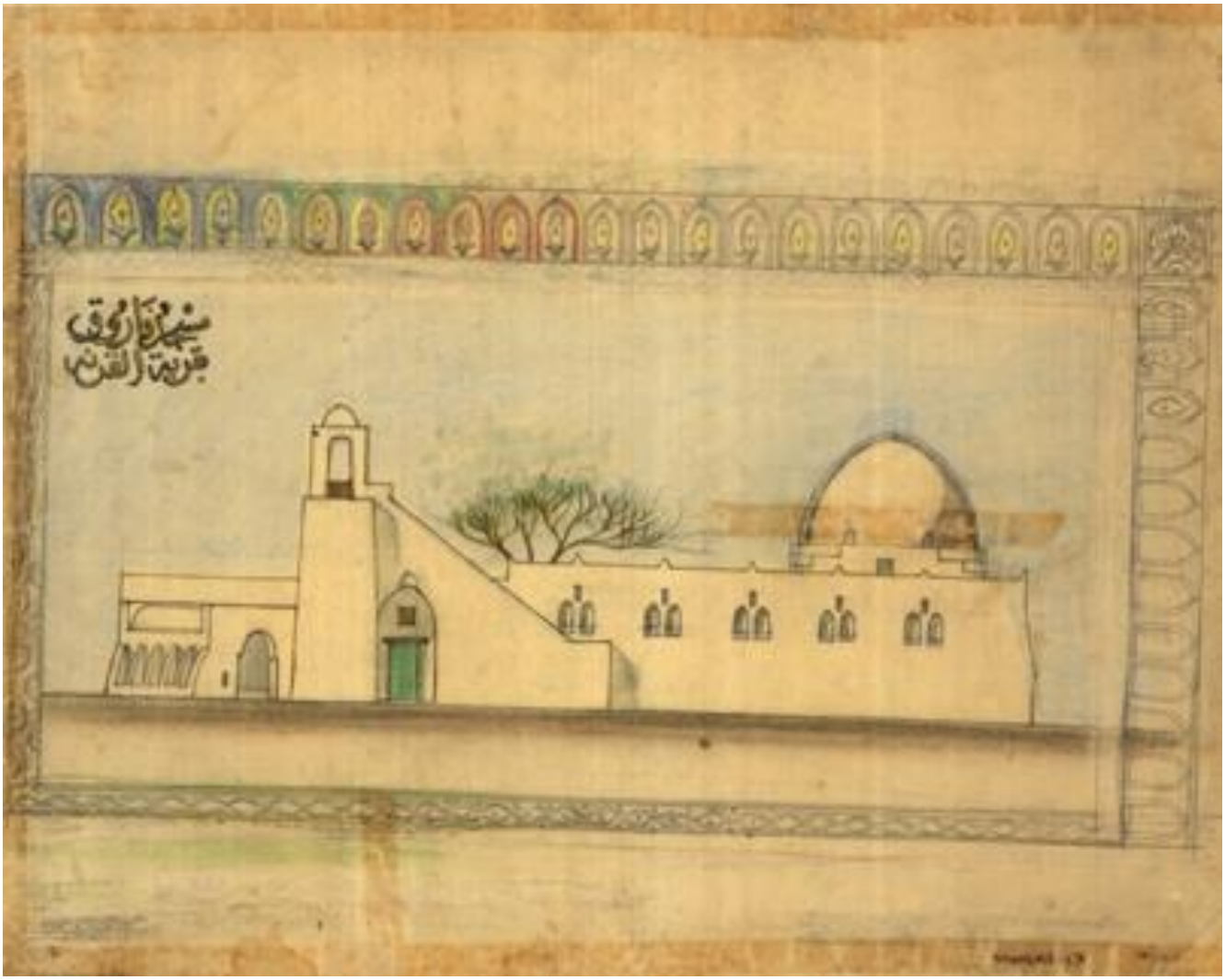

Figure 1.11 Sketch of the New Gourna Mosque, 1946. From: *Hassan Fathy Archive* (Geneva, Switzerland: Aga Khan Trust for Culture)

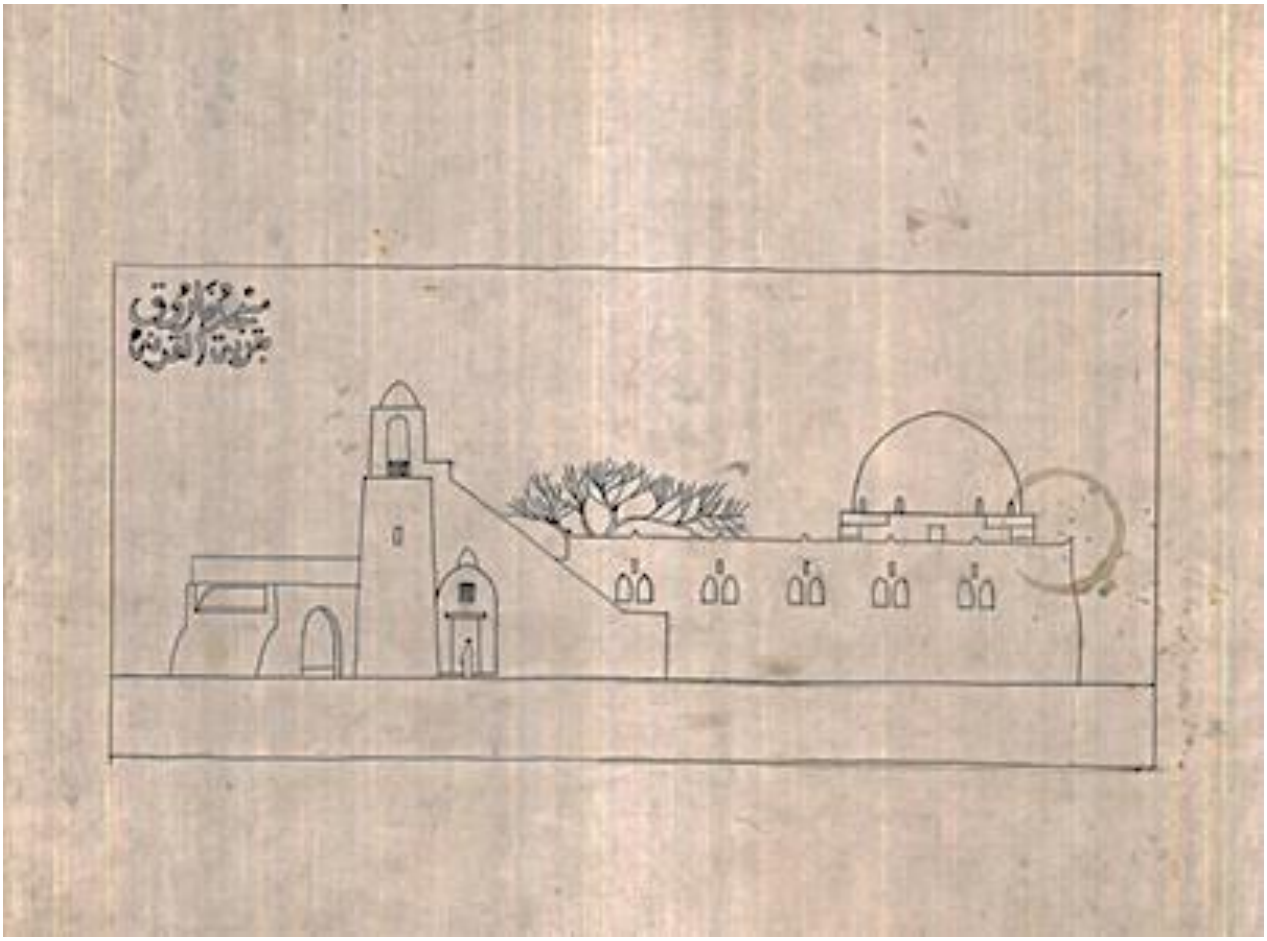

Figure 1.12 Sketch of the New Gourna Mosque, 1946. From: *Hassan Fathy Archive* (Geneva, Switzerland: Aga Khan Trust for Culture)

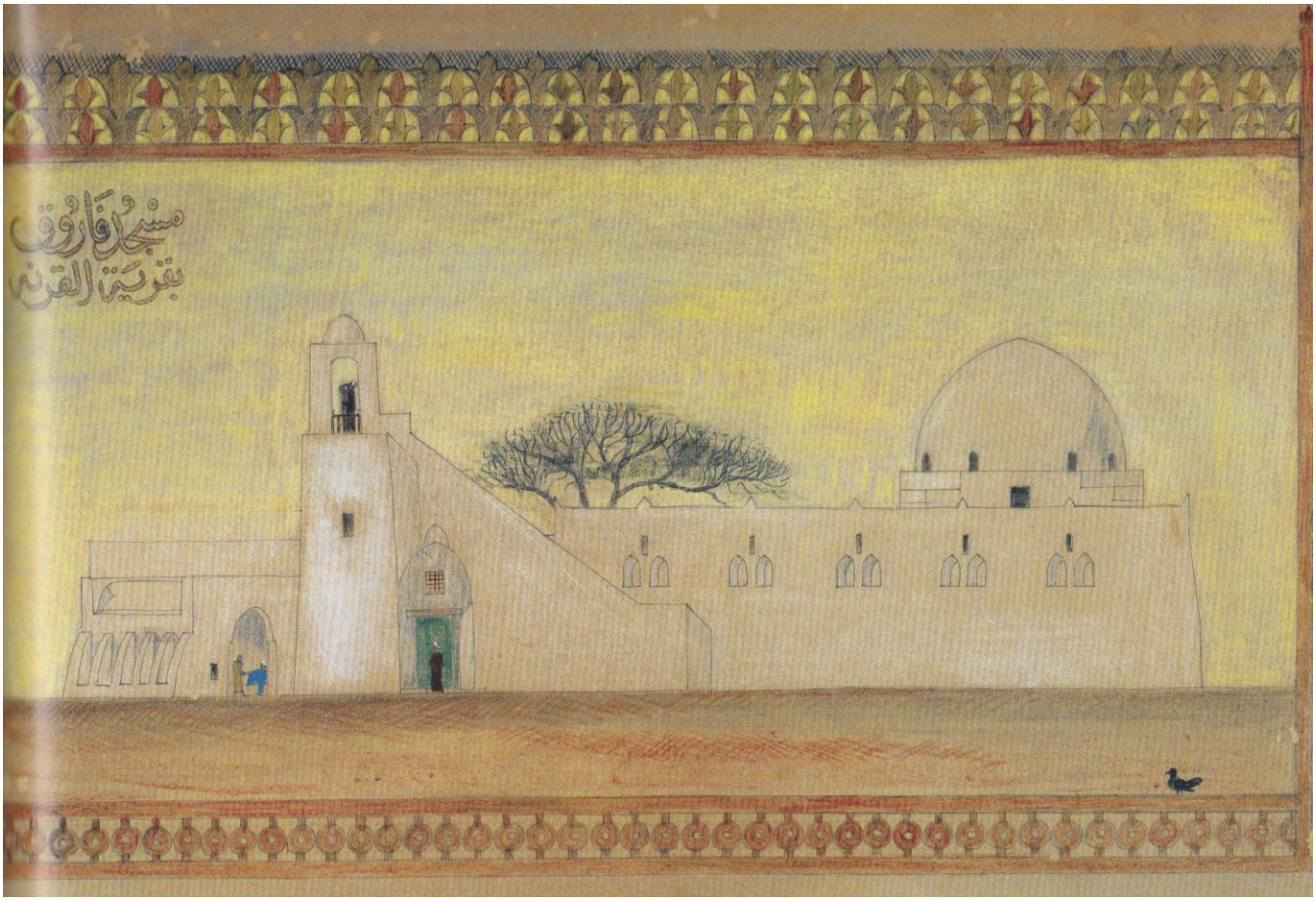

Figure 1.13 Gouache painting of the New Gourna Mosque. From: James Steele, *An Architecture for People: The Complete Works of Hassan Fathy* (New York: Whitney Library of Design, 1997)

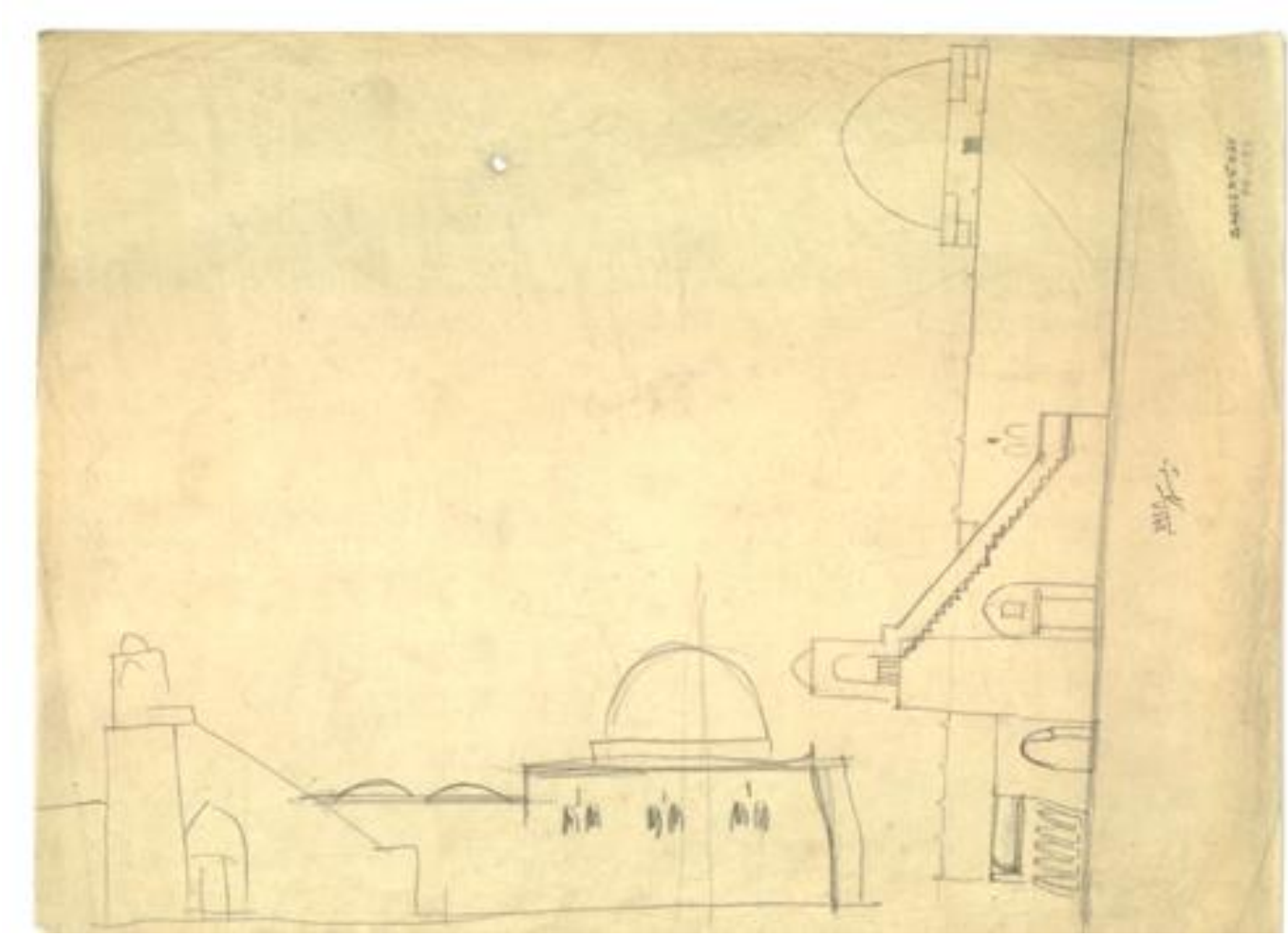

Figure 1.14 Sketch of the New Gourna Mosque, December 1948. From: *Hassan Fathy Archive* (Geneva, Switzerland: Aga Khan Trust for Culture)

CHAPTER 2

Standard Bricks: Management and Economy

In the opening pages of *Architecture for the Poor,* Fathy described his disappointment with the living conditions in rural Egypt. "The peasants," he claimed, "were too sunk in their misery to initiate a change. They needed decent houses, but houses are expensive."[1] This statement effectively summarizes Fathy's approach towards the social role of architecture. This gap that separates the underdeveloped from the modern, as Fathy's statement suggests, largely owes itself to the discomforts associated with the lack of appropriate housing. The feasibility of construction became inseparable from the subjects' happiness, and in turn constituted the necessary foundation for change. The mechanics of construction, including cost, resources and expertise, just to name a few, remained among the fundamental challenges that came to define the 20th century modernizing efforts in Egypt and the rest of the world. And while solutions to the questions of feasibility often found themselves in the adaptation of standardizing methods and principles of economies of scale developed in adjacent industries, Fathy found in mudbricks "the answer to (his) problem."[2] The mudbrick as such, was conceived of as an expedient object that provided an immediate response to shortages in the building industry, while simultaneously–and with matching significance and immediacy–was thought to restore comfort.

This chapter examines Fathy's use of mudbricks as the primary building material for the larger part of his career, arguing that mudbricks played a significant role in countering the forces of modernization that came to challenge the countryside. In Fathy's mind, mudbricks became the

[1] Hassan Fathy, *Architecture for the Poor* (Chicago and London: University of Chicago Press, 1973) pp.3. Originally published as *Gourna: A Tale of Two Villages*, 1969.

[2] Ibid, pp.4

manageable alternatives to unaffordable—yet favored by the government—materials like fired bricks and concrete. But, to provide a viable alternative to modernizing projects, this chapter argues, the mudbrick itself must operate as a modernizing agent. Unlike what this might initially suggest, this runs against the popular reading of Fathy's work as a form of "Critical Regionalism."[3] Fathy's use of the traditional building material dismissed any distinction between the primitive and the modern. Mud was used because it was available, and hence, neither a conscious form of regionalist reconciliation took place, nor were his intentions shaped by a nationalist form of post-colonial resistance to Western modernity.[4] Instead, Fathy made available a mode of construction that he believed managed the different temporalities of change in modernization projects, precisely

[3] I am referring here to the post-modern discourse on "Critical Regionalism" that developed in the 1980s and 1990's by historians like Liane Lefaivre, Alexander Tzonis and Kenneth Frampton. While the scholarship on the topic remained largely inconsistent in terms of defining what regionalism meant and advocated for, it was nevertheless shaped by a post-structural approach to architecture that developed narratives built on binary oppositions between accepted dichotomies. Critical regionalism in that sense was understood as an attempt to reconcile the dichotomies by generating a sense of balance between issues like the universal and local; the generic and the specific, the center and the periphery, and so on. On Critical Regionalism, see Alexander Tzonis and Liane Lefaivre, "The Grid and the Pathway: An Introduction to the work of Dimitris and Suzana Antonakakis," *Architecture in Greece*, 15 (Athens, 1981) And, Kenneth Frampton, "Towards a Critical Regionalism: Six Points for an Architecture of Resistance," in *The Anti-Aesthetic: Essays on Postmodern Culture*, ed. Hal Foster (Seattle, WA: Bay Press, 1983) pp.16-30. Also, "Ten Points on an Architecture of Regionalism: A Provisional Polemic," *Centre 3: New Regionalism* (1987) pp. 20-27. On Fathy and a reading of his work as a conservative form of Regionalism see, Suha Ozkan, "Regionalism Within Modernism," in *Regionalism in Architecture*, ed. Robert Powell (Singapore: Concept Media, 1985) pp. 8-15. Fathy's work more appropriately belonged with the earlier generation of architects and historians that saw architectural regionalism as a natural component of modernity such as Frank Lloyd Wright, Rudolph Schindler, Richard Neutra, Lewis Mumford and Sigfried Giedion.

[4] When Fathy presented a nationalist argument that rendered his work as a form of resistance to Western colonial forces, it was almost always directed to political leaders, suggesting that his language was only rhetorical. This is evident especially in the absence of such nationalistic rhetoric from the majority of his writing, particularly when addressing architects or historians. See Hassan Fathy, "Letter to Gamal Abdel Nasser regarding Rural Development," in *Hassan Fathy Archives* (Geneva, Switzerland: Aga Khan Trust for Culture, March 1963), On Fathy and nation-building see Timothy Mitchell, "Heritage and Violence," in *Rule of Experts: Egypt, Techno-Politics, Modernity* (Berkeley and Los Angeles: University of California Press, 2002) pp.179-208.

because it was *familiar*. This had less to do with the aesthetic appearance of "local" architecture, and more to do with the familiarity with the construction process.[5] Fathy's mudbricks, one might say, displayed a level of hybridity between the primitive and the modern that managed temporalities and accounted for the multiple agents involved in the construction process; including contractors, engineers, government agencies, and most importantly, the peasants desiring "modern" homes. In other words, the bricks were comforting because they would accommodate the demands and desires of its contending subjects; not as aestheticized objects expressing the character of place, but rather as functional objects performing universal duties. But to do so, the process of mudbrick construction had to be industrialized. To counter the primitivism of mud, this chapter argues, mudbricks were introduced to an industrial mentality that shifted the attention from its undesirable qualities—including its primitivist expression—towards its unique performance as a composite material. The following examines what Fathy referred to as "the Standard Gourna Brick," arguing that the industrialization of mud not only assured the standard production of mudbricks for large scale projects like the village of New Gourna, but most importantly provided a sense of temporality to a material that seemingly operated outside of time.[6] Temporality, this underlying characteristic that came to define the industrialization of architecture, and undoubtedly separates Fathy from the likes of Bernard Rudofsky's fascination with the unchanging nature of vernacular buildings, becomes the quality through which peasants would positively engage with the forces of change.

[5] The notion of familiarity with architectural appearance as a judgment criteria appears throughout the entire history of architecture since Vitruvius's emphasis on "appropriateness;" the Enlightenment attention to "Character," the 19th century historicism of the neoclassical and the École des Beaux Arts, the 20th century "International Style," Post-war new monumentality, and postmodernism's semiotics.

[6] On the notion of conflicting temporalities in the modernization of Egypt, see On Barak, *On Time: Technology and Temporality in Modern Egypt* (Berkeley & Los Angeles: University of California Press, 2013)

On Bricks

Fathy's occupation with the peasant problem grew out of both the initiatives of rural reform in Egypt, as well as the efforts of postwar reconstruction in the West. Both events aspired to build inexpensively with speed. Building materials acquired a special status in the history of modernization. Concrete, in particular, became often regarded as the ultimate modern material.[7] On the contrary, mud remained the antithesis of modern technology. While mud was occasionally admired for its cheapness, it was more commonly perceived in negative terms. Mud is unsanitary, impermanent and "weak"; it requires longer time and higher expertise to construct, it bypasses the factory and the contractor, and it inherently contradicts the modern preference for "dry assembly."[8]

While mud remained a controversial material, attention to bricks grew as the building component found renewed popularity within the rising discourse of modernization in Egypt. In the Egypt of the 1940s, one might say, bricks were architecture. The architectural journal "*Al Emara*" (Architecture) dedicated its 3rd and 4th volumes in 1940 to the topic of "the Brick" (Figure 2.1). The volumes featured writings and architectural projects by some prominent modern Egyptian architects like Sayed Karim and Charles Ayrout.[9] Essays on bricks covered a wide range of topics

[7] On Concrete and Modernity see Reyner Banham, *The Concrete Atlantis* (Cambridge, MA: The MIT Press, 1989) also, Sigfried Giedion, *Building in France, Building in Iron, Building in Ferroconcrete* [1928], trans. J. Duncan Berry (Los Angeles, CA: Getty Center Publication, 1995) and Peter Collins, *Concrete: The Vision of a New Architecture* (London: 1959). Recent historiography on the topic includes Amy E. Slaton, *Reinforced Concrete and the Modernization of American Building, 1900-1930* (Baltimore and London: The John Hopkins University Press, 2001), Adrian Forty, *Concrete and Culture: A Material History* (London: Reaktion Books, 2012) and Michael Osman, "The Managerial Aesthetics of Concrete" *Perspecta 45: Agency* (Cambridge, MA: The MIT Press, 2012) pp. 67-76.

[8] See for instance Walter Gropius, *The New Architecture and The Bauhaus*, Translated from German by P. Morton Shand (Cambridge, MA: The MIT Press, 1965)

[9] On Modernist Architects in Egypt See Mohamed ElShahed, *Revolutionary Modernism? Architecture and the Politics of Transition in Egypt 1936-1967*, PhD Dissertation (New York University, 2015), and Mercedes Volait, *Architectes et architectures de l'Égypt moderne (1830-1950): Genèse et essor d'une expertise locale* (Paris: Maisonneuve et Larose, 2005) Sayed Karim and Charles Ayrout were among the

such as surveys of different types and arrangements of bricks; Hollow bricks for roof construction, uses of bricks in the village, bricks in Islamic Architecture, and vernacular mudbrick skyscrapers in the desert.[10] In his essay "Bricks and the Art of Architecture," Charles Ayrout found in bricks the embodiment of the notion of "volume" that distinguishes architecture from the plastic arts.[11] The brick was understood as the foundational part that constitutes the whole; an essential entity in the volume of the building that, as Ayrout claimed, reveals a certain architectural "truth."[12] In other words, Ayrout saw in bricks, particularly when exposed on the building's façade, a smaller volume that required minimum intervention to represent the whole.

While Ayrout's understanding paid no particular attention to the locality of the brick, it in many ways repeated some of Frank Lloyd Wright's description of an "Organic Architecture." The building material—or what Wright referred to as the "alphabet in the language"—was considered the most fundamental component of an Organic Architecture.[13] An Organic structure grows from its essential component, the brick, to form spaces which grow into buildings.[14] Wright therefore,

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most influential modernist architects in Egypt. Karim, in particular, was highly involved in the circulation of the principles of modern architecture in mid-century Egypt. Besides his large numbers of architectural work in the language of modernism, his role as the editor of the Journal "Al Emara", played a significant role in popularizing architectural modernism in Egypt.

[10] See Sayed Karim, ed. *Al Emara Journal*, vol. 3, 4. (1940)

[11] Charles Ayrout, "Bricks and the Art of Architecture," *Al Emara Journal*, vol. 3, 4. (1940) pp. 155-158

[12] Ibid.

[13] Frank Lloyd Wright, "To the Young man in Architecture," in *Frank Lloyd Wright: Writings and Buildings* (New York: New American Library, 1960) pp.298

[14] Frank Lloyd Wright, *Frank Lloyd Wright: Writings and Buildings* (New York: New American Library, 1960) On Wright's architecture see also, Henry-Russel Hitchcock, *In the Nature of Materials: The Buildings of Frank Lloyd Wright 1887-1941* (New York: De Capo Press, 1942) and Robert C. Twombly, *Frank Lloyd Wright: his life and his architecture* (New York: John Wiley & Sons Inc., 1979)

like Ayrout after him, connected the design of the brick—its form and composition—with the interior organization of space and the external expression of the building, expanding on Louis Sullivan's organicism of "form follows function" by declaring the building material as the basic unit determining the architectural form.[15]

If the brick constituted the basic unit for Wright's romanticism, it equally enjoyed the same level of significance within the rationalist camp of modernism.[16] This part-to-whole relationship described in the writing of Ayrout, in fact reflects a larger global discourse around the modernization of building construction at the time. Within the architectural circles, Walter Gropius for instance, described "a state of technical proficiency" where it became possible to mass produce houses in factories "by resolving their structure into a number of component parts."[17] These

[15] See Louis Sullivan, "The Tall Office Building Artistically Considered," *Lippincott's Magazine* (March 1896) On Wright, Sullivan, the Chicago School and the relation of structure to organic architecture see Colin Rowe, "Chicago Frame," (1956) in *The Mathematics of the Ideal Villa and Other Essays*, (Cambridge, MA: MIT Press, 1976) pp. 89-117

[16] This Romantic-Rationalist divide emerged within the 18th century Enlightenment discourse on the origins of architecture, particularly through the work of Quatremère de Quincy, representing romanticism, and Laugier, representing rationalism. Central to such debate were the authors' views on the issue of imitation. This divide further manifested itself in the academic circles of the École des Beaux Arts and the École Polytechnique, only to be metaphorically reconciled in the 1930s uses of the term "functionalism," where the romantic image of architecture as a product of imaginative genius found a place alongside the rationalist emphasis on *convenance* — the logic of construction — and *économie.* See Reyner Banham, "Conclusion: Functionalism and Technology," in *Theory and Design in the First Machine Age* (The Architectural Press, 1960) see also, Marc-Antoine Laugier, *An Essay on Architecture* (1753) translated by Wolfgang and Anni Herrmann (Los Angeles: Hennessey & Ingalls Inc., 1977), Quatremère de Quincy, *An Essay on the Nature, the End, and the Means of Imitation in the Fine Arts* (1823) translated by J.C. Kent (London, 1837), and Jean-Nicolas-Louis Durand, *A Précis of the Lessons in Architecture Given at the Polytechnique School* (1802-1805) Henry-Russell Hitchcock highlighted a more significant romantic-rationalist divide in the building industry between Wright's and Le Corbusier's "architecture of genius," and Albert Kahn's "architecture of bureaucracy," see Henry-Russell Hitchcock, "The Architecture of Bureaucracy and the Architecture of Genius," in *Architectural Review,* vol. 101 (January 1947) pp.3-6

[17] Gropius, Walter. *The New Architecture and The Bauhaus*. Translated from German by P. Morton Shand. (Cambridge, MA: The MIT Press, 1965) pp.39

houses, Gropius declared, "like boxes of toy bricks … will be assembled in various formal compositions."[18] While Gropius was not necessarily referring to masonry bricks when predicting architectural mass-production, and other materials like concrete, steel and wood indeed proved more suitable, his metaphor of "toy bricks" highlights not only the simplicity of assembly, but also how the form of the brick–the volume–constituted the most elemental building component in the imagination of the modern architect.

Imagining bricks as constitutive parts of the whole emerged from within the brick industry long before it attracted architects' attention. Bricks as such, were never modern. In fact, relative to developments in steel, glass and concrete for instance, by the second half of the 19th century masonry bricks, of any kind, were considered traditional. What allowed bricks to re-emerge as an appropriate building material within the turn of the century frenzy of modernizing development, could be largely attributed to its industrialization.[19] The Chicago fire of 1871 was shortly followed by a boom in the brick-making industry that capitalized on a renewed appreciation of the traditional material's fire-resistance abilities; and therefore, it was the material's performance, as opposed to its image, that revived modern interest in brick construction.[20] But what truly distinguished brick buildings, and perhaps contributed to its appreciation in financial terms as well, was its inherent potential in exploiting this part-to-whole relationship. In 1892, the trade journal *Brickbuilder* urged designers to fully appreciate the potentials of bricks:

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[18] Ibid

[19] See Thomas Leslie, "Built Mostly of Itself: The Chicago Brick Industry and the Masonry Skyscraper in the Late 19th Century," in *Construction History*, vol. 25 (2010) pp. 69-84

[20] Ibid, also see for an alternative reading of the Chicago School, Joanna Merwood, "The Mechanization of Cladding: The Reliance Building and Narratives of Modern Architecture," in *Grey Room*, 04 (Cambridge, MA: MIT Press, Summer 2001) pp. 52-69

> *A brick building is necessarily made up of small parts. This is perhaps constructionally the quality which most distinguishes a brick building from buildings of other material… the small pieces of which the design is constructionally made up must be recognized in the design itself, if the best and most characteristic result its to be produced… The design itself, then, should be made up of small units as the unit of construction itself is small.*[21]

By the end of the 19th century, the brick industry had already subjected the material to various kinds of scientific experimentation and industrial procedures that aimed at developing its appeal. In other words, once industrialized, the question of the brick's "modernity," became almost irrelevant.

This, for instance, became evident half a century later when Sayid Karim, another prominent 20th century modernist architect in Egypt, wrote in the same issue of *Al-Emara* on how bricks operated as the ideal "modern" building material. For Karim, the brick's "flexibility" and "adaptability" to the various architectural and structural demands of each historical era, maintained a continuous interest in a material that is largely considered ancient.[22] Once subjected to the forces of industrialization, as Karim claimed, the brick fulfilled the functionalist modern demands of "strength, resistance and insulation."[23] The quality of this "modern" brick, therefore, Karim

[21] "A Few Neglected Considerations with regard to Brick Architecture," *The Brickbuilder*, 1 (January 1892) Cited in Thomas Leslie, "Built Mostly of Itself: The Chicago Brick Industry and the Masonry Skyscraper in the Late 19th Century," in *Construction History*, vol. 25 (2010) pp. 81

[22] Sayid Karim, "Bricks," *Al Emara Journal*, vol. 3, 4. (1940) pp. 143

[23] Ibid

clarified, is not measured by its appearance but rather by its "chemical mixture, its manufacturing technique and its firing process"[24]

On the contrary, when considering air-dried mudbricks instead of fired clay, the brick's status immediately drops into primitiveness. The value of the mudbrick was often represented in terms of availability, cheapness and ease of construction.[25] While these benefits were perfectly in accordance with modern industrial criteria, a wide gap remained between the perception of industrialized fired-bricks and vernacular mudbricks; this was a gap that Fathy's work attempted to bridge in his management of modernization.

Rural Development

In 1945 the Department of Antiquities in Egypt commissioned Fathy with building the village of New Gourna (Figure 2.2). The project aimed at relocating the inhabitants of the village of Gourna to a new site away from the ancient tombs in the city of Luxor. The older village resided over potential sites of Pharaonic tombs, and its inhabitants were constantly accused of tomb robbery. "Their economy," Fathy claimed, "was almost wholly dependent on tomb robbing."[26] The project, therefore, would not only provide housing for the villagers, but also facilitate the introduction of alternative economies. From the early stages, Fathy was involved with the government in formulating a sustainable approach. A committee formed of Fathy, representatives

[24] Ibid

[25] See for instance in the same issue, Sayed Azab Hussein, "Bricks in the Village," *Al Emara Journal*, vol. 3, 4. (1940) pp. 216-217

[26] Hassan Fathy, *Architecture for the Poor* (Chicago and London: University of Chicago Press, 1973) pp.15, originally published as *Gourna: A Tale of Two Villages*, 1969.

of the Department of Antiquities, the mayor of Gourna, and "the sheikhs of the five hamlets" was established to choose the site for the new project.[27] The committee bought agriculture land for L.E 300 per acre, away from ancient tombs and close to main roads and railway lines.[28] Besides encouraging farming as an alternative way to generate income, the new village site resided along the daily tourist route to the Valley of the Kings, hence introducing new opportunities for involving Gournis in the tourism industry. But perhaps Fathy's most radical economic proposal came in the form of developing a cooperative mudbrick industry that encouraged peasants to build and maintain not only their houses, but those of the neighboring villages as well.

While the project was initiated by the department of Antiquities, New Gourna most appropriately belongs to the larger context of the modernizing rural developments in mid 20th century Egypt. The 1930's marked the beginning of the active involvement of government agencies in modernizing the countryside.[29] By the 1940s, establishments like the Egyptian Association for Social Studies (EASS), the Royal Agricultural Society, and the Ministry of Social Affairs with its Fellah department, all attempted to address, as Omnia El Shakry highlighted, "the peasant question."[30] Projects of rural and social reform, El Shakry claimed, "were meant to lead to the creation of new forms of social and spatial organization guiding the peasantry to "reformed"

[27] Ibid, pp.17

[28] Ibid.

[29] On recent historiography on the concept of the village see Ayala Levin, "The Village Within: an alternative genealogy of the urban village," in *The Journal of Architecture*, 23:3, (2018) pp. 392-420. And Ginger Nolan, *The Neocolonialism of the Global Village* (Minneapolis: The University of Minnesota Press, 2018)

[30] See Omnia El Shakry, *The Great Social Laboratory: Subjects of Knowledge in Colonial and Postcolonial Egypt* (Stanford, CA: Stanford University Press, 2007)

norms of behavior, modes of life, and social and cultural practices appropriate to the progress and civility of the modern world."[31]

The village was understood as a microcosm for the whole nation, and to achieve the larger project of modernizing Egypt, the village needed to be placed "on the road to a new sanitary life."[32] With such rising awareness of the significance of the village on the larger intentions of the nation, it was only a natural outcome that the government became more involved in rural development projects.[33] The founding of the Higher Council for Social Reform in 1936 and the Ministry of Social Affairs in 1939 highlighted what Ahmed Hussein, the founder of the Fellah department and later the Egyptian Ambassador in Washington, described as "a necessity dictated by the social evolution in the country."[34] The prime responsibilities of such governmental bodies were to "uplift the poor classes," and to "raise the standard of living."[35]

Architecture played a key role in the modernizing agendas of the 1930s and 1940s, and initiatives for building model villages were coupled with, and became inseparable from the

[31] Ibid, pp. 114

[32] Ibid, pp.115

[33] In fact, on many occasions had architects in Egypt implored the government for more involvement in rural development projects. While this was particularly evident in the 1930s and 40s, it became an issue that persisted throughout the second half of the 20th century. See for instance, Hassan Fathy, "Memorandum on the Creation of the International Institute for Appropriate Technology," in *Hassan Fathy Archives,* Aga Khan Trust for Culture (Geneva, Switzerland: April 1978) The Institute was an attempt by Fathy later in his career to reach out to international governments to find solutions to housing crisis in general, and rural development in particular.

[34] Ahmed Hussein In Amy J. Johnson, *Reconstructing Rural Egypt: Ahmed Hussein and the History of Egyptian Development* (Syracuse, New York: Syracuse University Press, 2004) pp. 51

[35] Ibid, pp. 52

attempts to generate "model peasants."[36] Following with Western traditions, rural reconstruction in Egypt connected the discourse of social welfare to architectural modernism. The model village aimed at "raising the mental, moral, and material standards of the peasantry through … the development of village housing, sanitation and hygiene."[37] If the model village was a microcosm of the modern nation, then by default, rural reconstruction "aimed at creating model peasants by reconstructing bodies and minds, constructing a "new Egyptian" as much as reordering the built environment."[38] Between the 1930s and 1960s the modernizing initiatives of rural reform followed closely the methods and techniques devised since the early 19th century enlightenment project. The peasant, through such initiatives, would be transformed into the modern hygienic and free subject. But as Amy Johnson argued, citing the works of Jeremy Bantham and Adam Smith, modernizing efforts and legislations for rural and peasantry reform are primarily driven by mechanisms of power and social control.[39] Fathy, who certainly questioned the merits of governmental methods, and outlined in detail his ongoing struggles with the ineffective bureaucratic approach, found in the preference of Modern architecture an equally coercive mentality that not only disregarded the peasants' sacred traditions, but most critically misled them into poverty by prematurely exposing

[36] The term "model peasant" as the primary subject for the model village appeared numerous times in the architectural writing of the time. See for instance, Ali Al-Meligi, "Model Citizen," in *Al Emara Journal*, vol. 3, issue 2 (1941) pp. 76-79, also, Sayed Karim, "Village Reform: Between the Model Village and the Transitional Village," in *Al Emara Journal*, vol. 3, issue 2 (1941) pp. 55-64, and Hassan Fathy, "Some Problems Facing Egyptian Architecture," in *Al Emara Journal*, vol. 5, no. 4 & 5 (1945) pp. 25-26

[37] See Omnia El Shakry, *The Great Social Laboratory: Subjects of Knowledge in Colonial and Postcolonial Egypt* (Stanford, CA: Stanford University Press, 2007) pp. 123

[38] Ibid. Pp. 125

[39] Amy J. Johnson, *Reconstructing Rural Egypt: Ahmed Hussein and the History of Egyptian Development* (Syracuse, NY: Syracuse University Press, 2004) pp. 52

the countryside to the unaffordable technologies of modernization.[40] Government reform destabilized the traditional societies of rural Egypt, and building with mudbricks constituted a technique to balance the modernizing forces of reform with an alternative system designed to modernize with comfort.

Bahtim Farms

Among the earliest institutions to initiate model village programs was the Royal Agricultural Society. They constructed three model farms in the village of Bahtim in the years 1934, 1936 and 1941. The last one marked Fathy's first serious engagement with mudbrick construction, and the challenges presented in this project became responsible for his "discovery" of the lost Nubian tradition of mudbrick roofing without wooden centering.[41] The Society's approach focused on the improvement of farming, "and its work encompassed both the practical and scientific aspects of agriculture."[42] Aside from reorganizing the processes of agriculture to benefit the peasant, and establishing and managing the Agricultural Syndicate, the Society experimented with alternative construction technologies. For the farms to be emulated as model villages, the Society had to build with economy. While the first farm followed the modern

[40] Fathy narrated his struggles with the bureaucracy of the government in Egypt in *Architecture for the Poor*. Also, this argument on the effect of modernization on illuminating poverty was first made by Adam Smith in relation to nation states and the availability of natural and human resources, See Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, ed. James E. Thorold Rogers, vol. 1 (Clarendon Press, 1896)

[41] Fathy narrated his "discovery" of the vernacular construction method in *Architecture of the Poor*, pp. 6-12

[42] Omnia El Shakry, *The Great Social Laboratory: Subjects of Knowledge in Colonial and Postcolonial Egypt* (Stanford, CA: Stanford University Press, 2007) pp. 125

guidelines by building standardized housing out of fired (red) bricks and concrete roofs, this model remained too expensive. The decision was taken therefore by Fu'ad Abaza Pasha, the director of the Society, to replace red bricks with mudbricks, an idea that was validated when he saw mudbrick houses during his 1930 summer trip to California and Arizona.[43]

The second village was designed by Mustafa Fahmi, who is also considered a pioneer of Modern Architecture in Egypt, and a graduate of the École des Ponts et Chaussées in Paris.[44] The design of the village, which used mudbricks for walls and timber for flat roofs, applied the latest principles of modern architecture and planning, and followed a geometric layout to ensure maximum sunlight exposure. The fact that mudbrick construction reduced the total cost of the individual house by five times, paved the way for the 1941 farm village where Fathy pushed the boundaries even further by building entire structures out of mudbricks.[45]

While mudbricks provided solutions for a pressing economic issue, the material was not fully endorsed by the Egyptian elite. King Farouk, who supported rural reform projects, used his own royal estate to experiment with modern village reform. Fired bricks, rather than mudbricks, were used in the construction of the Royal model farm; a step that was considered an upgrade from the primitive material. The village was represented as "modern" with sanitary facilities and utilizing the latest technologies in machine irrigation. Additionally, the royal estate included

[43] Ibid, pp. 127

[44] Ibid

[45] Ibid, pp. 128

hospitals and social services dedicated for the well-being of the peasants working there, who were compensated with a rate above the national minimum wage.[46]

In 1941, when Fathy was asked to design and build structures for the third farm, mudbricks had already demonstrated economy. When timber supplies from Romania were cut off during the Second World War, Fathy proposed to build the entire structures out of mudbrick (Figure 2.3). Domes and vaults made of mudbricks would replace flat timber roofs; a bold statement that was justified at the time as an "economic necessity."[47] If the Bahtim farm project presented challenges at a relatively small scale, the New Gourna village included social challenges and implications that went beyond the conventional expertise of the architect. As Fathy stated:

> *However attractive may have been the project of at last building a whole village, it was also somewhat daunting to be presented with fifty acres of virgin land and seven thousand Gournis who would have to create a new life for themselves there. All these people, related in a complex web of blood and marriage ties, with their habits and prejudices, their friendships and their feuds – a delicately balanced social organism intimately integrated with the topography, with the very bricks and timber of the village – this whole society had, as it were, to be dismantled and put together again in another setting.*[48]

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[46] Amy J. Johnson, *Reconstructing Rural Egypt: Ahmed Hussein and the History of Egyptian Development* (Syracuse, NY: Syracuse University Press, 2004) pp. 73

[47] See Hassan Fathy, *Architecture for the Poor* (Chicago: University of Chicago Press, 1973) pp. 37. Timothy Mitchell argued that Fathy's justification represented "a solution to a problem that for most villagers in Egypt did not exist." Timber, Mitchell argued, was expensive only because Fathy "was obliged to purchase it commercially." See Timothy Mitchell, *Rule of Experts: Egypt, Techno-Politics, Modernity* (Berkeley and Los Angeles: University of California Press, 2002) pp. 194

[48] Ibid, pp. 17

The challenges at New Gourna surpassed the common design and construction problems that faced the architects of rural developments. Tradition, economy and the psychological comfort and well-being of the inhabitants became inseparable from decisions relating to architecture and building materials. Modernization forces change; and the choice of building with mudbricks could be better described as an attempt to manage these destabilizing forces of change. But to construct a complete village, that is to design and build at a large scale with consideration for the social, economic and cultural constraints, required adjusting mudbricks for large scale construction. In New Gourna, Fathy attempted to manage the complexities of the project through what could be described as the industrialization of mudbricks; a process that had its roots in an aspiration for, not a modern, but a contemporary form of architecture.

The Industrialization of Mud

Building with mudbricks was thought of as a comforting approach that aimed at countering the forces of modernization and consumerism. Retreating towards a primitive building material however, did not mean completely abolishing industrial methods of production. After all, in New Gourna, Fathy had to first secure the approval of the government – his actual client. If Fathy initially thought that just the idea of using mudbricks would comfort the Gournis – which turned out not to be the case – this was met with skepticism and suspicion from the multiple stakeholders involved. Mud brought its own discomforts, and its primitiveness had to be corrected through an industrial method of production. In other words, to justify his approach, Fathy had to first formulate an argument that places mudbricks in a favorable position relative to other modern building materials. This is where the concept of contemporaneity came to shape the theoretical framework through which Fathy's industrialization of mudbricks took place.

Mudbrick buildings, even for Fathy, could not be "modern" in the conventional sense of the term. This however did not preclude the appropriateness of the material. By replacing the category of modernity with contemporaneity, Fathy provided an alternative approach that would not only distance mudbricks from their primitive status but also present them as superior to modern building materials like concrete, steel and glass. To qualify as contemporary, mudbrick architecture must be in "consonance with the current stage of change in knowledge and science."[49] This immediately declares that the mudbrick left the countryside with its vernacular mentality; left the architectural studio with its aesthetic emphasis, and now belong in the laboratory where it becomes, like its modern counterparts, a product of scientific experimentation.[50] This definition of contemporaneity therefore paved the way for a fundamental shift in perception of mudbricks. To become contemporary, attention had to shift from the aesthetic and subjective qualities of mud, towards its functional and objective performance. This logic of performance is the logic of the machine; and mud bricks were not anymore utilized to *express* primitiveness, but rather to *perform* their attributes.[51] They were no longer expected to *appear* in a certain way; instead, mudbricks

[49] Hassan Fathy, "Contemporaneity in the City" (1961) In *Architecture for a Changing World*, ed. James Steele (London: Academy editions, 1992)

[50] On the influence of scientific experimentation on the development of concrete as a modern building material see, Amy E. Slaton, *Reinforced Concrete and the Modernization of American Building, 1900-1930* (Baltimore and London: The John Hopkins University Press, 2001, and Michael Osman, "The Managerial Aesthetics of Concrete" *Perspecta 45: Agency* (Cambridge, MA: The MIT Press, 2012) pp. 67-76.

[51] Attention to the aesthetic expressiveness of building materials was particularly prevalent between the 1940s and 1960: Le Corbusier's Béton Brut; Louis Kahn's Monumentality, and the Smithsons' New Brutalism just to name a few. See Louis Kahn, "Monumentality," in *New Architecture and the City Planning: A Symposium* (Freeport, NY: Books for Libraries Press, 1944), Alison and Peter Smithson, "The New Brutalism," in *Architectural Design*, vol. 25 (January 1955) and Reyner Banham, "The New Brutalism," in *Architectural Review* (December 1955). While the Smithsons intentions were not aesthetic, and in fact went against the aestheticization of materials, they nevertheless called for the material's "natural" expressiveness. The rise of phenomenological thinking, particularly through the works of philosophers like Martin Heidegger and Maurice Merleau-Ponty, furthered the attention on material

conduct heat in a lower rate relative to other building materials; they crack and eventually break relatively quickly when subjected to large forces, and most significantly, they excessively shrink by time. To think in terms of performance meant that mud had to enter the realm of scientific inquiry.

But this limited definition of contemporaneity only makes the performance of mud contemporary in the sense of being current or new; in other words, modern. The ultimate purpose of a contemporary form of architecture, as Fathy clarified, is to provide its subjects with the proper means for facing what he referred to as the dangers of rapid change.[52] This is where "the traditional," manifested in this case through replicating the vernacular method of building with mudbricks, operated as a stabilizing tool for countering the destabilizing forces of modernization. In other words, mudbricks were contemporary because they represented a constant that facilitated the management of "the rhythm of change."[53]

This link between the concept of contemporaneity and the use of mudbricks therefore, manifested the expansion in the understanding of comfort to include the management of the temporalities of change. Mudbricks would facilitate the development of a sense of balance between the constant and the changing: an equilibrium. It was the material's very primitiveness, however,

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expression. See for instance, Steen Eiler Rasmussen, *Experiencing Architecture* (Cambridge, MA: MIT Press, 1959) especially the chapter, "Textural Effects," pp. 159-185. Also, Kenneth Frampton, whose work was highly influenced by Heidegger and Merleau-Ponty revived this attention towards the tectonic and tactile expression of architecture, see Kenneth Frampton, *Studies in Tectonic Culture: The Poetics of Construction in Nineteenth and Twentieth Century Architecture* (Cambridge, MA: MIT Press, 1995)

[52] Hassan Fathy, "Contemporaneity in the City" (1961) In *Architecture for a Changing World*, ed. James Steele (London: Academy editions, 1992)

[53] Hassan Fathy, "Dwelling in Developing Countries," in *Hassan Fathy Archives,* Aga Khan Trust for Culture (Geneva, Switzerland: 22 June 1963)

that allowed Fathy to argue for its contemporaneity. Modern technology– through their fast-paced development – "affect man's stability"[54]. They do so, not only because they replace traditional crafts, but largely due to their ability to transform rural subjects from self-sufficient peasants, into helpless poor. For Fathy, "there is no factory on earth that can produce houses these villagers can afford…to talk of prefabrication to people living in such poverty is worse than stupid, it is a cruel mockery of their condition".[55] If modern building technology illuminates the poverty of peasants by subjecting them to the forces of consumerism, mudbricks allow for a retreat to a situation in which they are sheltered from such forces; a moment of comfort.

Technology, however, as Fathy claimed, should not exclusively suggest mechanization and industrialization. "Mudbrick making by hand is just as much technology as brick making by machinery…if we apply the definition of technology as the use of science for practical reasons, cement blocks would prove to be anti-technology".[56] Similarly, modern glass walls and prefabricated concrete were deemed anachronistic, and their anachronism could be precisely measured by "the number of BTUs and Kilocalories in excess of the economic ratio needed to bring the building up to the required temperature".[57] This way, the *performance* of mudbricks, as in their poor thermal conductivity, is contemporary: they are in consonance with the current stage of change in knowledge and science.

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[54] Ibid.

[55] Hassan Fathy, *Architecture for the Poor* (Chicago and London: University of Chicago Press, 1973) pp. 32

[56] Hassan Fathy, "Technology at the Service of National Culture and Economy in the field of Architecture and Urban Planning," in *Hassan Fathy Archives,* Aga Khan Trust for Culture (Geneva, Switzerland)

[57] Hassan Fathy, "Contemporaneity in the City" (1961) in *Architecture for a Changing World*, James Steele ed. (London: Academy editions, 1992)

But this is not the only way mudbricks perform. Mudbricks shrink; understandably, this characteristic of excessive shrinkage is considered one of the primary reasons that brought distrust in the material, not for anything but the inevitable threat it presents to the very permanence of architecture. However, by anticipating its impermanence, Fathy would provide mud with the space to shrink; not a literal space, but a hypothetical one created by the development of a mudbrick industry that would facilitate not only the continuous building of new houses, but also the maintenance of older ones. In other words, if poor thermal conductivity – an unchanging property – guarantees eternal satisfaction, shrinkage on the other hand, assures the brick's *temporality*. For mudbrick buildings to stand the test of time, they require maintenance; the bricks themselves need to be periodically replaced.

To ensure a uniform and continuous development of mudbrick housing, the brick had to be standardized. In New Gourna, Fathy designed what he referred to as the "Standard Gourna Brick;" a product of his ambition to create a "dependable unit" that could be incorporated in the whole project. The brick had a set size and consistency in its mixture that included earth, sand, straw and water. After multiple experimentation, he arrived at the optimum size and consistency that produced a brick not described as the lightest, the strongest or the most economic, but instead as one that suffered the least shrinkage.[58] Fathy therefore, was not aiming at achieving permanence in his architecture, but rather managing its *obsolescence*.

In *Obsolescence: An Architectural History*, Daniel M. Abramson noted how the vernacularism of Bernard Rudofsky and Christopher Alexander attempted at countering the temporariness of modern obsolescence in architecture by refocusing on the eternal qualities of the

[58] Hassan Fathy, *Architecture for the Poor* (Chicago and London: University of Chicago Press, 1973) pp. 89.

vernacular modes of building.[59] Alexander's *The Timeless Way of Building* for instance, paid particular attention to the problem of repair. "In the commonplace use of the word repair," he argued, "we assume that when we repair something, we are essentially trying to get it back to its original state. This kind of repair is patching, conservative, static."[60] Alexander's "repair" on the other hand, aspired for reaching a state of eternity by subjecting the building to the continuous process of growth. "In this new use of the word repair," he continued, "every entity is changing constantly … when we repair something in this new sense, we assume that we are going to transform it, that new wholes will be born."[61] This statement might appear in many ways to resemble Fathy's understanding of the notion of contemporaneity, particularly in how Fathy described architecture as "rather like a human body, which is said to change every single cell within seven years, but which does not change its shape."[62] While both understandings sound very similar, they actually present two fundamentally different, if not opposing, approaches to the utilization of vernacular knowledge and techniques towards the threat of obsolescence. Alexander's approach aspires for timelessness, where "repair" is considered a process of continuous addition or growth. The original vernacular building, in Alexander's view, is already complete and whole, and gives birth through repair to new wholes; and therefore, becomes timeless. "The process of repair, not replacement," as Abramson clarified, "should be the ruling

[59] Daniel M. Abramson, *Obsolescence: An Architectural History* (Chicago and London: The University of Chicago Press, 2016) pp. 113-114

[60] Christopher Alexander, *The Timeless Way of Building* (Oxford: Oxford University Press, 1979) pp. 485

[61] Ibid, pp. 485

[62] Hassan Fathy, "Contemporaneity in the City" (1961) in *Architecture for a Changing World*, James Steele ed. (London: Academy editions, 1992)

principle of change."[63] Fathy's approach on the other hand, aspired for eternity through assuming obsolescence as inevitable but manageable. The mudbrick to the building is like the "cell" to the "human body." To ensure an eternal sense of contemporaneity in the building, the bricks themselves need to become *replaceable*. Fathy's mudbrick buildings are not timeless, they are *temporal*.

The standardization of mudbricks became the managerial process that facilitated large-scale production (Figure 2.4). "You don't just scoop up some mud and fashion each brick as you need it," Fathy declared.[64] "In building Gourna we would need millions of bricks. To produce then on this scale involved working out methods of ensuring that the output was kept high and that the quality was consistently good, as well as ways of controlling the cost of labor."[65] Following the advice of the masons from the village of Gharb Aswan that came to teach Fathy the vernacular method of dome construction, the bricks measured 25 x 15 x 5 cm (10 x 6 x 2 in) "and were marked with two parallel diagonal grooves, drawn with the fingers from corner to corner of the largest face. These grooves … enabled the bricks to stick to a muddy surface by suction."[66] The process began by the production of the brick mixture; a "1:1/3 by volume" mixture of earth and sand. 45 pounds of straw are then added to each one cubic meter of the mixture before it is all mixed with water. After 48 hours, when the mixture is left to soak and ferment, it is carried to "the molding

[63] Daniel M. Abramson, *Obsolescence: An Architectural History* (Chicago and London: The University of Chicago Press, 2016) pp. 114

[64] Hassan Fathy, *Architecture for the Poor* (Chicago and London: University of Chicago Press, 1973) pp. 89

[65] Ibid, pp. 90

[66] Ibid, pp. 9

place" where molds of rectangular frames opened from top and bottom in order to form the bricks. Fathy then designed a special hand press that "enabled (them) to make bricks under pressure with a much drier mixture," hence minimizing the shrinkage effect. The bricks are then left to dry in the sun before they can finally be used in building.[67]

The brick manufacturing process took place in the New Gourna Brickyard (Figure 2.5). Designed by Fathy to maintain efficiency, the brickyard, like the modern factory, translated the temporal operations of manufacturing into a diagrammatic layout.[68]

> *Brick manufacture occupies a six-day cycle, so each team was provided with six mixing troughs and six molding grounds…each molding ground was big enough to hold 3,000 bricks – the estimated daily output of a four-man team – and these bricks would be laid out in rows of 32 bricks each, thus making it easy to check the number made. The number 32 was arrived at by observing how many bricks a seated man can conveniently lay side by side. One man can lay 16, two men 32.*[69]

The mudbrick therefore was subjected to the modern forces of scientific management, where to guarantee standardization and quality control, Fathy operated less as an architect with spatial ideologies, and more like a manager with temporal obligations. In that sense, the standardization of mudbricks involved a unique form of knowledge economy. Mudbrick construction in New

[67] Fathy's complete description of the brick-making process could be found in *Architecture for the Poor*, pp. 89-90

[68] On the scientific management of modern factories, see Michael Osman, *Modernism's Visible Hand: Architecture and Regulation in America* (Minneapolis: University of Minnesota Press, 2018) especially the chapter "Imaging Brainwork" pp. 127-164, Also see Hyungmin Pai, "Scientific Management and the Discourse of the Diagram," *The Portfolio and the Diagram: Architecture, Discourse, and Modernity in America* (Cambridge: MIT Press, 2002) pp. 162-197

[69] *Architecture for the Poor*, pp.90

Gourna required an unconventional form of knowledge exchange that saw the mason "teaching" the architect about construction techniques. In return, the architect organized and managed the production process, assuring its standard application. The questions of labor, its organization, division, hierarchy and codes of exchange were completely re-imagined. The agency of the masons, by virtue of knowing how to construct mudbrick domes, was magnified. The hierarchy that defined this agency, as well as the laborer's tasks, obligations and pay rate is conditioned by the subject's knowledge of vernacular construction.[70] The masons that Fathy brought along from the village of Gharb Aswan were not anonymous builders. They have been mentioned by name on several occasions in Fathy's writings and remained active partners in future work. The masons in this regard, were Fathy's *consultants*. In other words, in standardized mudbrick construction, the reduction in the rate of financial exchange is substituted by the added value of vernacular knowledge exchange: economic value is achieved through embodied knowledge.

But this does not mean a financial economy in New Gourna did not exist. The standardization and management of brick production meant that the brick could now follow what Timothy Mitchell, after Georg Simmel, referred to as "the Character of Calculability."[71] Managed and regulated in terms of work, time, labor and money, the mudbrick acquired the ability to engage with modernization primarily for its financial value. Similarly, architectural elements made of

[70] In the Appendix section of Architecture for the Poor Fathy included the cost analysis documents that showed in depth the division of labor and their pay rate. See "Appendix I: Cost Analysis of Labor and Rates of the Execution of Works," and "Appendix III: Organization of Work," in *Architecture for the Poor*, pp. 197-213 & pp. 216-220.

[71] See Timothy Mitchell, "The Character of Calculability," *Rule of Experts: Egypt, Techno-Politics, Modernity* (Berkeley and Los Angeles: University of California Press, 2002) pp. 80-122. On the application of the concept of calculability in modern development projects in Egypt see, Lucia Allais, "Integrities: The Salvage of Abu Simbel," in *Grey Room 50* (Cambridge, MA: MIT Press, Winter 2013) pp. 6-45

mudbricks, like domes, arches and vaults, could be equally represented in measurable units. Through the medium of the balance sheet (Figure 2.6), the dome for instance acquired new criteria for judgement. A 4-meters in diameter Byzantine dome cost less and required a shorter period of time to build than a dome on squinches of the same size and labor.[72] The balance sheet dismantled the monolithic dome into categories of labor, bricks, mortar and straw, each providing evidence not only of cost-effectiveness, but ultimately of the introduction of such vernacular architectural element to an industrial mentality, one that above all would generate *choice.* The breakdown of the dome opened up possibilities for measured adjustments, setting the blueprints onto which peasants themselves would, like Fathy, engage in the process of contemporary transposition. The balance sheet, therefore, besides providing room for development, offered pragmatic criteria for stylistic judgment: domes on squinches are less affordable.

This is where Fathy aligned mudbrick construction with the construction of the comfortable subject. In his 1963 letter to Nasser, Fathy discussed how the cooperative construction method implemented in New Gourna could, and should, be widely applied to national policies for rural housing. Full of nationalist sentiment, Fathy nevertheless made sure to differentiate between "the modern" and "the new," portraying prefabrication as an anachronistic building method that only supported a mode of self-colonization. Prefabricated concrete, Fathy argued, much like any other imported product would only "open a vast market for western consumer goods".[73] A cooperative policy built on the development of mudbrick industry in rural areas on the other hand, would "provide genuine aid that truly liberate (peasants) and prepare them for proper progress without

[72] See "Appendix I," in *Architecture for the Poor*, pp. 212

[73] Hassan Fathy, "Letter to Gamal Abdel Nasser regarding rural development," in *Hassan Fathy Archives*, Aga Khan Trust for Culture (Geneva, Switzerland: 23 March 1963) pp.3

losing their character, it would provide thousands of jobs and would set the principles for prosperity".[74] The letter described the obstacles facing peasants at the time as twofold; on the one hand, they lacked the financial means required for purchasing building materials, and on the other, they lacked artistic judgment and criticism.[75] The government role, therefore, similar to that of the architect, was to "provide peasants with opportunities to express their character".[76] In this regard, for the cooperative and self-build method to be implemented within a nationalist and socialist development policy, the contemporaneity of mudbricks became momentarily interchangeable with *liberation*.

[74] Ibid, pp.5

[75] Ibid, pp.10

[76] Ibid, pp.8

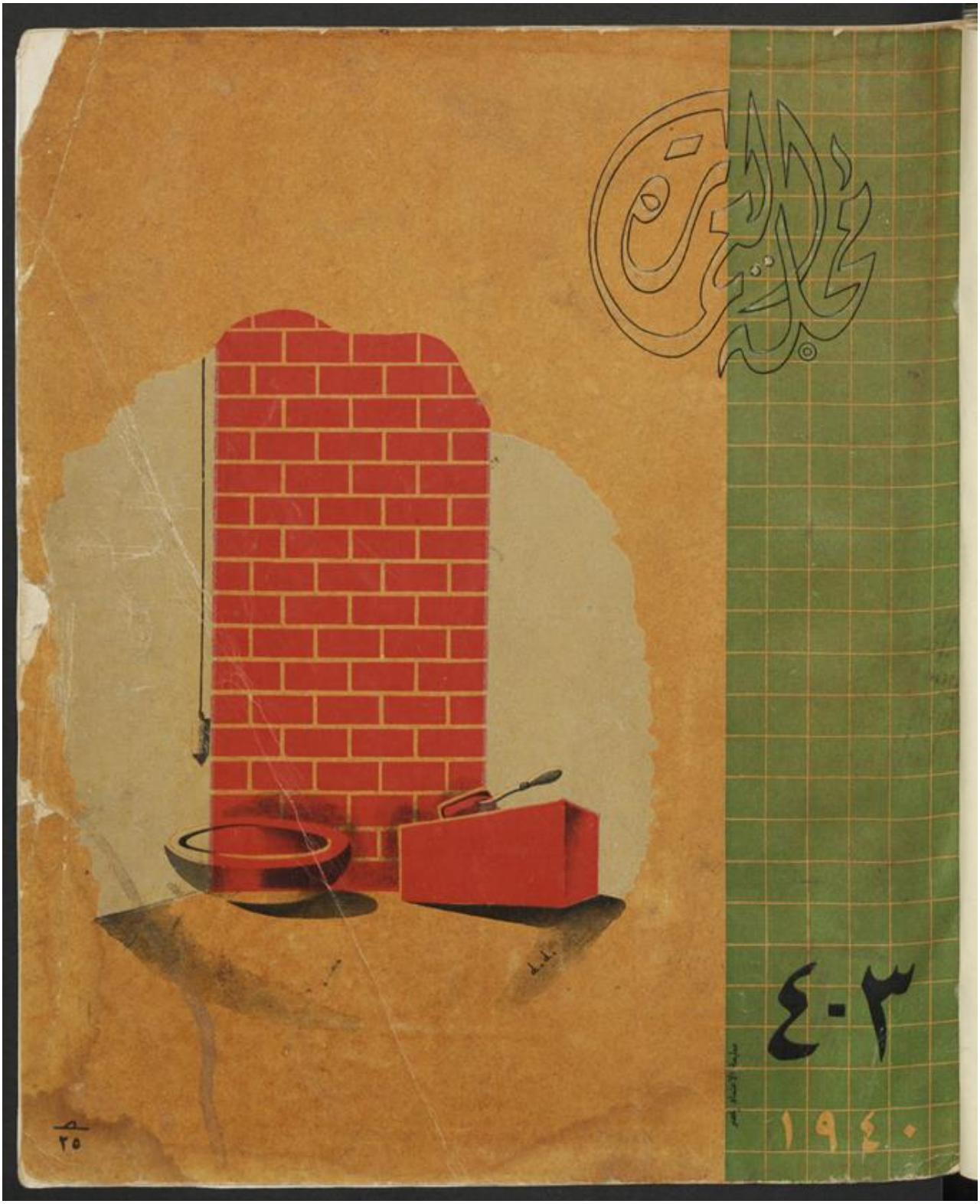


Figure 2.1 Cover of Al Emara Journal. From: *Al Emara Journal*, vol. 3, 4 (1940)

Figure 2.2 Mudbrick houses in the village of New Gourna. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973)

Figure 2.3 Society of Agriculture Farm in Bahtim, 1941. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973)

Figure 2.4 Mudbrick construction in New Gourna. From: Leila El-Wakil, *Hassan Fathy: An Architectural Life* (Cairo and New York: American University in Cairo Press, 2018)

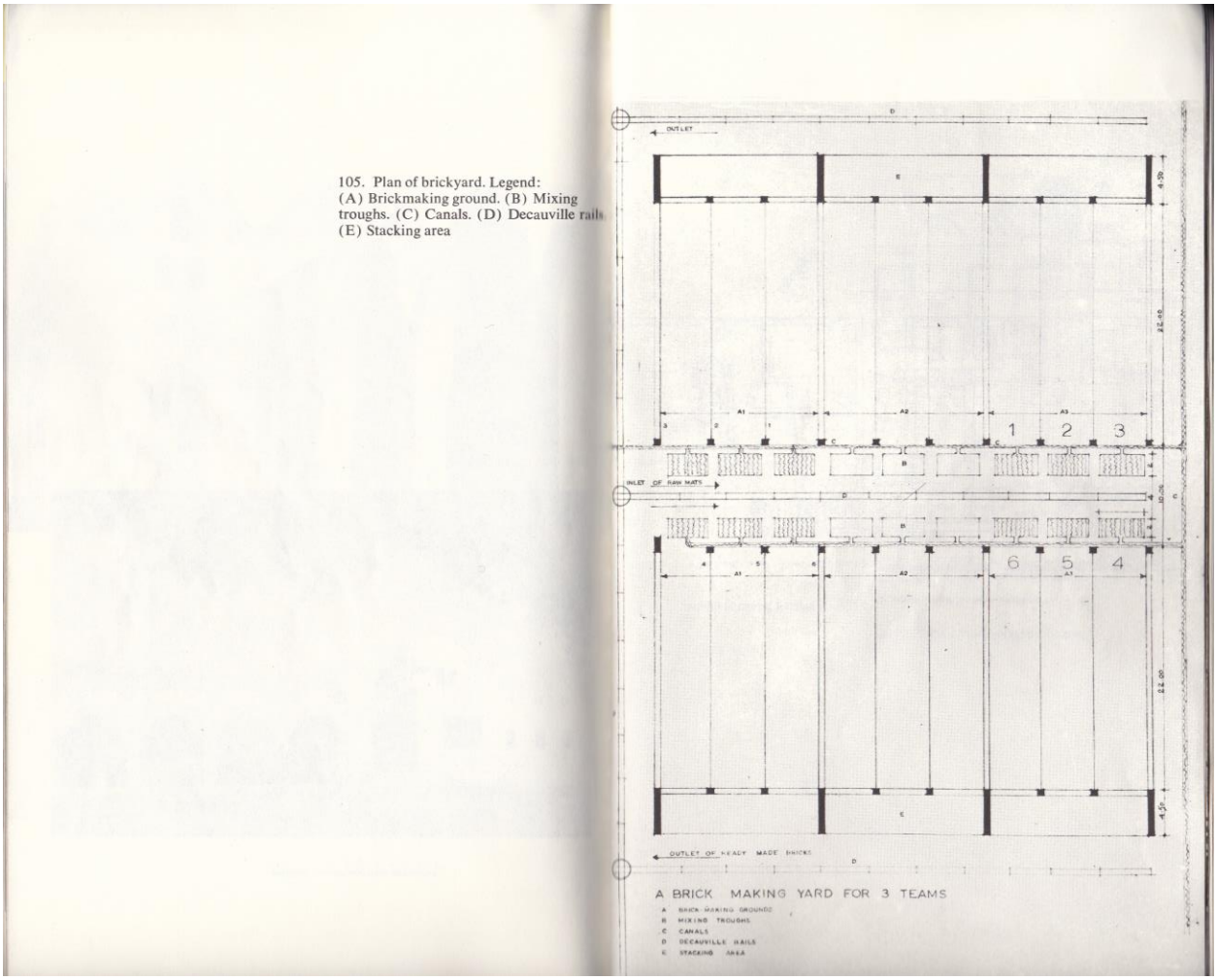
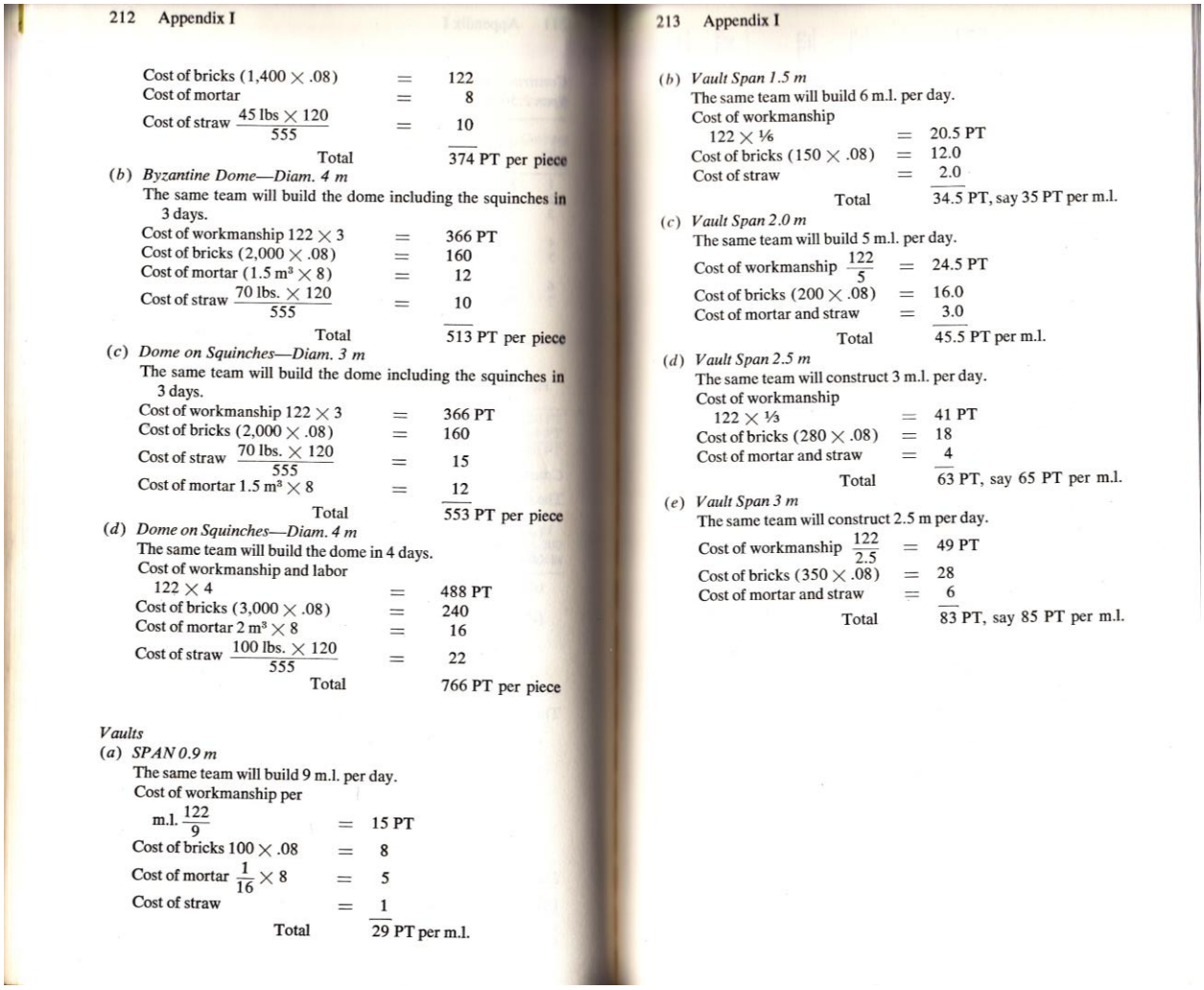


Figure 2.5 New Gourna Brickyard. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973)



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Cost of bricks (1,400 × .08) = 122
Cost of mortar = 8
Cost of straw $\frac{45 \text{ lbs} \times 120}{555}$ = 10
Total 374 PT per piece

(b) *Byzantine Dome—Diam. 4 m*
The same team will build the dome including the squinches in 3 days.
Cost of workmanship 122 × 3 = 366 PT
Cost of bricks (2,000 × .08) = 160
Cost of mortar (1.5 m³ × 8) = 12
Cost of straw $\frac{70 \text{ lbs.} \times 120}{555}$ = 10
Total 513 PT per piece

(c) *Dome on Squinches—Diam. 3 m*
The same team will build the dome including the squinches in 3 days.
Cost of workmanship 122 × 3 = 366 PT
Cost of bricks (2,000 × .08) = 160
Cost of straw $\frac{70 \text{ lbs.} \times 120}{555}$ = 15
Cost of mortar 1.5 m³ × 8 = 12
Total 553 PT per piece

(d) *Dome on Squinches—Diam. 4 m*
The same team will build the dome in 4 days.
Cost of workmanship and labor
122 × 4 = 488 PT
Cost of bricks (3,000 × .08) = 240
Cost of mortar 2 m³ × 8 = 16
Cost of straw $\frac{100 \text{ lbs.} \times 120}{555}$ = 22
Total 766 PT per piece

Vaults
(a) *SPAN 0.9 m*
The same team will build 9 m.l. per day.
Cost of workmanship per
m.l. $\frac{122}{9}$ = 15 PT
Cost of bricks 100 × .08 = 8
Cost of mortar $\frac{1}{16} \times 8$ = 5
Cost of straw = 1
Total 29 PT per m.l.

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(b) *Vault Span 1.5 m*
The same team will build 6 m.l. per day.
Cost of workmanship
122 × ⅙ = 20.5 PT
Cost of bricks (150 × .08) = 12.0
Cost of straw = 2.0
Total 34.5 PT, say 35 PT per m.l.

(c) *Vault Span 2.0 m*
The same team will build 5 m.l. per day.
Cost of workmanship $\frac{122}{5}$ = 24.5 PT
Cost of bricks (200 × .08) = 16.0
Cost of mortar and straw = 3.0
Total 45.5 PT per m.l.

(d) *Vault Span 2.5 m*
The same team will construct 3 m.l. per day.
Cost of workmanship
122 × ⅓ = 41 PT
Cost of bricks (280 × .08) = 18
Cost of mortar and straw = 4
Total 63 PT, say 65 PT per m.l.

(e) *Vault Span 3 m*
The same team will construct 2.5 m per day.
Cost of workmanship $\frac{122}{2.5}$ = 49 PT
Cost of bricks (350 × .08) = 28
Cost of mortar and straw = 6
Total 83 PT, say 85 PT per m.l.

Figure 2.6 Cost Analysis documents. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973)

CHAPTER 3

Expressive Dwellings: Space

"A house is not a machine for living in, it is a private world, dependable, unchanging, a constant refuge in the cultural avalanche that we are pleased to call civilization."[1] The attention to the materiality of the brick was mirrored by the attention to the immateriality of space. Against the rise of criminological discourse and the modernizing calls for administrative control through architecture and planning, Fathy's project pursued a different form of mediating the modernizing process through attending to the individuality and self-expression of his domestic subjects. When it comes to the question of housing, therefore, especially in developing countries, Fathy's basic premise consciously went against the modernist understanding at the time. The house is a place for comfort, but in the absence of the infrastructure for mechanization, the modern house fails, and comfort must acquire a new meaning; expanded and holistic. For Fathy, to manage the subjects' relationship with modernization in developing countries meant to pursue the fabrication of this state of equilibrium, not only in terms of temperature–as modern comfort often alludes to–but also in terms of economic and spatial balance in relation to domestic objects. The house, for Fathy, should exist only at this state of balance between rationalization and individuation. Fathy substituted the unattainable mechanical conveniences of the modern house with a revived form of what could be referred to as spatial comfort. Attention to spatial configuration, this chapter argues, sought to capitalize on the void created by the unattainability of the commercial domestic machine–itself a factor responsible for peasants' anxiety–filling this void with "spaces" that cultivate individuality. Fathy's architecture and planning principles therefore, rejected

[1] Hassan Fathy, "Dwelling in Developing Countries," in Hassan Fathy Archives. Aga Khan Trust for Culture (Geneva, Switzerland: 22 June 1963) pp.5

modernization's attention to the excessive administrative control of the town and the commercialization of its interiors, in favor of considering the peasants' access to self-expression as its ultimate goal. By substituting the language of power with that of comfort, architectural qualities such as theatricality and display, this chapter argues, became for Fathy the predominant qualities responsible for the introduction of dwellings in developing countries into the context of contemporary architecture.

Fathy's identification of space as a viable alternative to the mechanical comforts of the house was not developed in isolation and reflects, not only the wider historical interest of the post-war era in identifying forms of comfort outside those determined by mechanization and consumer culture, but also the determinism within modern architecture to anachronistically review historical objects through its own paradigm. The medieval era, perhaps more than any other historical period, presented opportunities for post-war architects and historians to project their modernist worldview onto pre-industrial spaces. In *Mechanization Takes Command*, Sigfried Giedion declared, "From today's point of view the Middle Ages had no comfort at all … yet there was medieval comfort, but it must be sought in another dimension, for it cannot be measured on the material scale."[2] In his 1948 study of the gradual mechanization of the domestic sphere–a process that he argued was driven by developments in the idea of comfort–Giedion stated that medieval comfort could be found in "the configuration of space … a medieval room seems finished even when it contains no furniture. It is never bare … it lives in its proportions, its materials, its forms."[3] This intimate relationship between comfort and architectural space "lasted until nineteenth-century

[2] Sigfried Giedion, *Mechanization Takes Command: A contribution to Anonymous History* (New York: Oxford University Press, 1948) pp. 299, 301

[3] Ibid

industrialization blurred the feelings."[4] What Giedion's writing demonstrates, is not that a concept of comfort existed before the introduction of mechanical commodities in domestic environments, but that medieval architecture became admissible to modern architects and historians through the intersection of the two concepts of space and comfort. In that sense, medieval spaces acquired their historical value within architectural modernism because a spatial quality could be projected onto them. But more crucial for Giedion nonetheless, was the fact that these effects would have existed regardless of modern mechanization. In the mind of the post-war historian, if comfort can exist without the machine, then it must have been the product of architecture itself; not architecture in its entirety, but more specifically architectural space.

Occupied with the problem of housing in developing countries and challenged with scarcity in the resources required to support the mechanization of the house, especially on mass scale, Fathy arrived at a similar understanding.[5] "Spatial arrangement," he argued, "is the sovereign in planning and design."[6] Fathy's fascination with the medieval, particularly that of Islamic architecture, is well known and well documented.[7] In his writings he repeatedly emphasized the unique qualities found in medieval Arab houses. But besides their apparent value as romanticized objects of cultural significance–a value particularly appreciated within the post-colonial discourses that followed the

[4] Ibid

[5] I am not suggesting here that Fathy's fascination with medieval architecture was shaped or influenced by Giedion's reading. And I cannot make the argument that Fathy's attention to medieval "space" directly followed Giedion's understanding since while Fathy read several of Giedion's writing, there is no evidence suggesting he read *Mechanization Takes Command*.

[6] Hassan Fathy, "Dwelling in Developing Countries," in Hassan Fathy Archives. Aga Khan Trust for Culture (Geneva, Switzerland: 22 June 1963) pp.15

[7] While Giedion was referring to European medieval architecture, Fathy shared the same level of enthusiasm about the comforting effects of medieval Arab and Islamic spatial configurations.

independence of many third world countries in the second half of the 20th century, and certainly directed the majority of the scholarship on Fathy–medieval architecture provided further lessons to be learnt. The Modernist attitude of breaking with the past represented for Fathy the missed opportunities to engage local populations in developing countries with the progressive processes of modernization. The efforts to modernize, he repeatedly argued, remained ineffective as long as it disallowed connections with the past. Once the architect reestablishes this lost connection between the past and the present, a superior form of architecture takes shape; a form that is not merely modern, but ultimately contemporary.[8]

Dwellings in Developing Countries

This theme of change mentioned in the previous chapters consumed Fathy throughout his career and consistently appeared in his writing, especially between the 1960s and 1970s. This notion of rapid change as a threat became repeatedly the lens through which Fathy exposed and dealt with the problems of architecture and planning.[9] In a 1963 paper submitted to the thirteenth International Course in Criminology, Fathy discussed what he believed were the main challenges facing planners and architects in developing countries. "Planning," Fathy clarified, "means influencing change, and we have to know where change tends."[10] When identifying the causes of these turbulent forces of change, Fathy echoed the fears expressed by many post-war critics of

[8] See Hassan Fathy, "Contemporaneity in the City," (1961) in *Architecture for a Changing World*, James Steele ed. (London: Academy Editions, 1992)

[9] "Most developing countries are undergoing a vast and rapid change and transformation of every kind – in technology, economy, society, culture etc., and we have to consider its effect on dwelling and vice-versa." Hassan Fathy, "Dwelling in Developing Countries," in Hassan Fathy Archives. Aga Khan Trust for Culture (Geneva, Switzerland: 22 June 1963) pp.1

[10] Ibid

modern architecture. The uncontrolled mechanization that took over the house and the city, disturbed the seemingly stable fabric of societies. In developing countries, the effects of these changes were even more visible, and were fundamentally intertwined with the very nature of modernization:

> *One aspect of change in developing countries is that from tribal to state organized socio-economic system and from native to Western directed technology in building. The tribal economic system cannot resist the pressure exerted on it by taxation, but change to cash economy would take several generations. During this period, the effects of the disorganizing forces caused by the antiquation of the tribal system should be considered together with the rate of progress of the organizing power inherent in the new system.*[11]

The changing conditions reshaping towns and cities, therefore, included in Fathy's mind the simultaneous operation of mechanization and modern administration. On the one hand, Fathy aligned himself with the newfound fears of uncontrolled mechanization, while on the other, recognized modernization's uncompromising administrative tactics.

Tradition in this occasion acquired a new value that transcended nostalgic sentiments and became conceptualized as the stabilizing force that offsets the effects of change. "Planning for change," Fathy argued, meant "not abolishing any traditional institution before it is replaced by an equally valid one."[12] The example that he provided for such institutions was the communal water-point, which stood for traditions that held cultural and social significance too critical to suddenly

[11] Ibid

[12] Ibid, pp.2

replace with the more convenient "house-to-house water supply."[13] Sudden mechanization for Fathy, on the one hand, brought uncertainty with the social void it created; on the other, it generated an unnecessary sense of 'poverty' that resulted from the inability of peasants to purchase mechanical devices; problems that were deemed avoidable by limiting this mechanization process. "It is as if technology has entered the country before the community is ready for it – before, that is, a balanced economy exists in which the products of Western technology can find a natural place."[14]

Cities of the Future

The post-war conditions brought disagreement and dispute–especially in relation to the question of mass housing–within the international architectural circles at the time. The meetings held by the *Congres Internationaux d'Architecture* (CIAM) had established a collective voice for the dissemination of Modernist ideas and became since La Sarraz declaration of 1928 one of the primary ideological sources driving the town planning and architecture of the modernizing developments taking place in the first half of the 20th century.[15] The declaration reinforced the

[13] Ibid

[14] Ibid, pp.19

[15] While CIAM was historically viewed as driven solely by Le Corbusier's and Giedion's ideas on Architecture and Urbanism, this view was later disputed by writings that shed light on the discursive nature of the group. And while differences and disagreements often occurred between the members of CIAM, the publications following each meeting presented an image of a single collective voice. On CIAM, see for instance Eric Mumford, *The CIAM Discourse on Urbanism, 1928-1960* (Cambridge, MA and London: MIT Press, 2000). The writings on CIAM are extensive, and the group's appearance in almost every publication on Modern Architecture stands for their international influence and outreach in the first half of the twentieth century. Among these numerous publications, the work taking place in CIAM's gatherings had substantial mentions in Sigfried Giedion, *Space, Time & architecture: the growth of a new tradition* (Cambridge, MA and London: Harvard University Press, 1941) as well as in more recent publications like Kenneth Frampton, *Modern Architecture: A Critical History* (London: Thames & Hudson Ltd, 1980) and Alan Colquhoun, *Modern Architecture* (Oxford and New York: Oxford University Press, 2002) just to name a few.

modernist calls for rational design with a particular emphasis on town planning as sharing identical conditions, and in turn solutions to architecture.[16] "1. Town Planning is the organization of the functions of collective life," stated the declaration, "urbanization cannot be conditioned by the claims of a pre-existent aestheticism: its essence is of a functional order."[17] The declaration remained primarily concerned with the problem of housing, "the true problems of the dwelling have been pushed back behind artificial sentimental conceptions. The problem of the house is not posed."[18] In the group's collective opinion, the slow developments in housing design had their roots in the lack of proper communication between architects and their clients. It was, however, the client who was to blame for the larger part of the problem. The perception of clients as individuals who are "generally very bad at formulating their wishes," led CIAM architects and planners to call for developing an educational agenda that would "bring up generations with a healthy and rational conception of the house."[19] Such educational programs rationalized domesticity and set aside the aesthetic and emotional preferences in favor of a functional conception of the house. [20]

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[16] CIAM, "La Sarraz Declaration," (1928) in *Program and Manifestoes on 20th Century Architecture*, Ulrich Conrads ed., translated by Michael Bullock (Cambridge, MA: MIT Press, 1970) pp. 109-113.

[17] Ibid, pp. 110, Bullock's translation uses the term "town planning" to describe the process of urbanization. Other translations used the term "urbanism" instead. Eric Mumford pointed out how the term urbanism generated debates between CIAM members. Hugo Haring objected that the term might be "incomprehensible to the public at large," while Le Corbusier and Andre Lurcat insisted that the term should be included in the French text. See Eric Mumford, *The CIAM Discourse on Urbanism, 1928-1960* (Cambridge, MA and London: MIT Press, 2000) pp. 25

[18] CIAM, "La Sarraz Declaration," (1928) in *Program and Manifestoes on 20th Century Architecture*, Ulrich Conrads ed., translated by Michael Bullock (Cambridge, MA: MIT Press, 1970) pp. 111

[19] Ibid.

[20] "Through educational work carried out in schools, a body of fundamental truths could be established forming the basis for a domestic science (for example: the general economy of the dwelling, the principles of property and its moral significance, the effects of sunlight, the ill effects of darkness,

As Eric Mumford argued, the declaration marked the beginnings of the idea of "the functional City" where a fundamental shift took place in planning approaches from the "three-dimensional urban design of the Hausmannian or Berlagian type," towards two-dimensional planning "based on zoning by functional categories."[21] 5 years later, the tenets of the modern "functional city" became fully formulated and the four functions of housing, work, recreation and traffic that were identified in the Athens Charter of 1933 set the stage for the modern cities of the future to function as rational machines for bringing order and control to modern life.[22] It was through these attempts at conceptualizing the cities of the future, therefore, that one of architectural modernisms' pillars became collectively agreed upon: the need to break with the past. The beaux-arts inspired academies became labelled in this process as regressive "guardians of the past."[23] To achieve progress, CIAM called architects to abandon the aestheticism and formalism of such academies.[24] The modern house, therefore, not only acquired the new language of mechanization and rationalism, but also became in the process forcibly separated from any traditionalist associations that might stand in the way of progress.

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essential hygiene, rationalization of household economics, the use of mechanical devices in domestic life, etc.)" Ibid.

[21] Mumford's conclusion that the idea of the functional city had emerged from the first CIAM meeting instead of later in the 1933 meeting in Athens was deduced from CIAM's early characterization of urbanism through the three functions of dwelling, producing and relaxation. These three functions, Mumford argued, later evolved into the four constituents of the functional city. See Eric Mumford, *The CIAM Discourse on Urbanism, 1928-1960* (Cambridge, MA and London: MIT Press, 2000)

[22] CIAM, "Charter of Athens: tenets" (1933) in *Program and Manifestoes on 20th Century Architecture*, Ulrich Conrads ed., translated by Michael Bullock (Cambridge, MA: MIT Press, 1970)

[23] Ibid, pp. 112

[24] Ibid.

The ideas publicized by CIAM enjoyed international influence, and it did not take long to reach places like Egypt. As Mohamed Elshahed argued, Egyptian architects were keen on applying modernist architectural principles in their designs, especially during the mid-century era when the country witnessed increased building activity as part of multiple political regimes' initiatives to modernize Egypt.[25] Unsurprisingly, therefore, the CIAM ideas on the functional city made several appearances in the designs of new Egyptian towns, and were particularly instrumental in setting the guidelines for the new model villages. But Fathy had perhaps enjoyed a first-hand account of CIAM's planning principles while working in Greece with Doxiadis Associates.

Among the earliest global planners with multiple commissions in the Middle East, Constantine Doxiadis, who found the "science of human settlements," or Ekistics, also believed in many of the rationalizing principles outlined in the Athens Charter.[26] As Panayiota Pyla argued, Doxiadis was particularly influenced by "this technocratic model, which subsumed ideological conflicts transforming administrative power to specialists, scientists and technicians."[27] Ekistics grew out of Doxiadis' belief in science to provide a systematic approach to overcome the global challenges facing post-war societies. At its core, Ekistics principles remained comprehensive and

[25] On Modernism and modernization developments in Egypt and their relation to the political transformations of the time see, Mohamed Elshahed, "Revolutionary Modernism? Architecture and the politics of Transition in Egypt 1936 – 1967," PhD Dissertation (New York University, 2015)

[26] Doxiadis fascination with CIAM meetings best revealed itself when he organized "the Delos Symposion" in July 1963. Like the Athens 1933 meeting, the 1967 meeting was organized aboard the cruise ship *New Hellas* where Doxiadis attempted to bring together "a more diverse and more technocratic group" that included Sigfried Giedion, Jaqueline Tyrwhitt, Buckminster Fuller, Margaret Mead and Marshall McLuhan along with other architects, planners, scientists, economists and government officials. For a detailed account on the Delos symposion see Panayiota Pyla, "Planetary Home and Garden: Ekistics and Environmental-Developmental Politics," in *Grey Room 36* (Cambridge, MA: MIT Press, Summer 2009)

[27] Panayiota Pyla, "Ekistics, Architecture and Environmental Politics, 1945 – 1976: A Prehistory of Sustainable Development." PhD Dissertation (MIT, 2002) pp. 31-32.

were formalized to guide planners and architects through challenges that ranged from designing mass housing projects to organizing entire regions.[28] As Doxiadis put it, Ekistics responded to the growing changes at the time. "Society does not function as well as in the past," and consistent with the criticisms voiced by his contemporaries, Doxiadis considered the undisciplined application of machinery as the main cause for the decline of the human habitat.[29]

Like Fathy, Doxiadis identified the "crisis" of contemporary architecture as largely resulting from the shift from crafts to industry.[30] Unlike Fathy, however, Doxiadis had a different role for architects in mind. "In describing our epoch as one of transition," he claimed, "we asserted that not only architecture but everything in it is characterized by a high rate of change, that everything is in transition and that architecture is merely following the broader trend."[31] When

[28] Ibid, pp. 37

[29] "We certainly have motor cars, but it has not been proved that, because of them, the daily contacts of all members of the family are as many, as effortless, and as pleasant as they used to be. This could theoretically be done if every person – including small children who used to run to their grandmother's house – had a car, but again this would work only if this car could cover all distances in the same length of time as it used to take people to walk in the past. Certainly, the car gives to its owner in a metropolitan area a much greater number of choices for contacts, but how many of them can be actually used, and how about the housewife and the children?

We certainly have telecommunications, but does the telephone replace the contact between the sexes, or the television set the talk with a father who is driving back home at the time in the evenings when his children need him? Until it does, we cannot say that telecommunications replace all-important daily contacts, and we cannot avoid remembering that they lead to a mass culture which eliminates many opportunities to the proper development of individual identity." Constantinos A. Doxiadis, *Between Dystopia and Utopia (*Hartford, CT: The Trinity College Press, 1966) pp. 6-7

[30] "We looked into the problem in the way in which architects usually look at it, to find ourselves in a transition from academic to modern, to discover that we have been caught between old and new and to realize that we are not sure of what we mean by new and have to define it. Thus, we moved on to problems related to the substance of architecture, asserting that we are moving from handicraft towards industry in architectural production, that we are caught between local and international forces; above all, that we are facing quantitative problems and that we architects, hindered by megalomania, lack a realistic view of our problems." Constantinos A. Doxiadis, *Architecture in Transition* (New York: Hutchinson & Co. Ltd, 1963) p. 39.

[31] Ibid

reading Doxiadis' *Architecture in Transition*, Fathy noted his disagreement with a number of arguments set up by the author. He found particularly troubling Doxiadis' overly passive calls for architects to "follow the general trends of (their) epoch."[32] (Figure 3.1) For Doxiadis, architects had "no right to oppose industrialization and standardization, because these are general forces now in development serving humanity its goals of socialization and the raising of standards of living."[33] When stating that "(the architect's) role is to produce the best that can be achieved inside these trends, and not to reverse the general trends themselves," Fathy's response was "no, this is servility to ignorance and greed. The marks of the time."[34] Furthermore, when Doxiadis argued that "Nor is it the architect's right to stand against urbanization in general or try to conceive ceilings for the growth of settlements," Fathy questioned this assumption by stating, "why not (?) It is the role of any well informed man to lead not to follow!"[35] Fathy provided a clearer position in relation to the author's argument when in a statement that appeared in an earlier chapter, Doxiadis concluded that "we are here to serve human needs and not to impose any kind of acquired ideas and disciplines." Which Fathy responded to by stating (Figure 3.2):

> *"Serve" is the clue. Serve ready made habitats like cars – or help people do what they have to do for themselves instead of depriving them from their only chance in*

[32] In this instance, Fathy questioned Doxiadis' argument by asking, "what if this trend is heading to disaster? Should we follow it still?" I am referring here to the notes written by Fathy on his own copy of Doxiadis' book. Constantinos A. Doxiadis, *Architecture in Transition* (New York: Hutchinson & Co. Ltd, 1963) pp. 68. In Hassan Fathy Archives, Personal Library, Rare Books and Special Collection Library, The American University in Cairo.

[33] Ibid.

[34] Ibid.

[35] Ibid.

expressing themselves as human creatures with creative imagination and skills.

"The remedy is worse than the disease."[36]

Fathy's complaint regarding the lack of opportunities for expression in the architecture and planning of modernization projects reflects the larger concern over the imposition of unfamiliar conditions over traditional societies. Doxiadis statement exclusively referred to architects and architecture, and his call for passive and non-imposing approaches could be better understood as a transference of power from architects to other agents – particularly to government officials – rather than a democratic initiative that hands the power down to society.

The state apparatus was indeed a significant agent within Doxiadis' planning approach, and any suggestion of democratic cooperation within projects of modernization would be misleading. As M. Ijlal Muzaffar argued, the unity-driven logic of modernization fundamentally contrasts with the fragmenting nature of democratic politics; "only the para-political and centralized authority of military rule can carry out the coordination demanded by the modernization process."[37] What separated a modernizing regime from other authoritarian models, as Muzaffar claimed, "was its construction around the idea of transition … nation(s) in transition."[38] Doxiadis' planning approach, as Muzzaffar argued, presented opportunities for military governments to "appear as distant managers of a self-mobilized modernization process, making them both ever present and unidentifiable."[39] Such a seemingly contradictory tactic of

[36] Ibid, pp.40

[37] M. Ijlal Muzaffar, "Boundary Games: Ecochard, Doxiadis, and the Refugee Housing projects under Military Rule in Pakistan, 1953-1959," in *Governing By Design: Architecture, Economy, and Politics in Twentieth Century*, Aggregate ed. (Pittsburgh, PA: University of Pittsburgh Press, 2012) pp. 148.

[38] Ibid, pp. 149

[39] Ibid, pp. 165

combining centralized power with distant management "formed the very mode through which power was preserved. Such contradictions did not undo power but made its stable exercise possible."[40] Facilitating the dissemination of governmental power was the construction of local populations as subjects in transition from tradition to modernity. Direct control, Muzaffar argued, was thought unnecessary as subjects were represented as possessing within them the potentials of modernization. The state in this case presents itself in the same way Doxiadis described his vision for the new architect's role: as merely "serving" to unlock these self-modernizing potentials.[41] For the achievement of full modernization, in other words, for the successful transition from tradition to modernity, this "liberating" service must be performed from a distance, for it is such distance that allow these modes of power to remain unnoticed, and thus sustained.[42]

Doxiadis appropriation of the courtyard space in Korangi project and in the Iraqi Housing programme (which Fathy was involved in its design), as Muzaffar puts it, best demonstrate these invisible processes of modernization. Placed on the side or in the back of the house, and therefore lacking any climatic or social purpose, the courtyard fulfilled the purely functional requirements of providing spaces for storage, livestock and future expansions.[43] This intentional misplacement of the courtyard space served precisely its modernizing purpose; "the courtyard could now be recognized by the cultural agent herself as an opportunity for expanding the house or for providing

[40] Ibid.

[41] Ibid.

[42] Ibid. For the practice of indirect rule as an effective way of colonial management also see Mahmood Mamdani, *Citizen and Subject: Contemporary Africa and the Legacy of Late Colonialism* (Princeton, NJ: Princeton University Press, 1996)

[43] M. Ijlal Muzaffar, "Boundary Games: Ecochard, Doxiadis, and the Refugee Housing projects under Military Rule in Pakistan, 1953-1959," in *Governing By Design: Architecture, Economy, and Politics in Twentieth Century*, Aggregate ed. (Pittsburgh, PA: University of Pittsburgh Press, 2012) pp. 165

storage for a small home-run business."[44] The house with its courtyard set aside, relinquished its cultural, social and climatic purposes in favor of an economic one, allowing its inhabitants to enter the new market economy, and therefore become modernized.[45]

When identifying sudden economic transformations–such as the one facilitated by this seemingly minor adjustment to the courtyard location and design–as the primary condition destabilizing traditional societies, Fathy was not only appearing to be directly responding to Doxiadis' indifferent appropriation of the courtyard, but most importantly discrediting entirely the values of modernization. Indeed, this rhetoric of liberation, when described as being facilitated by the acknowledgement of the role of tradition in the modernization process, seems at first to resemble to a certain degree Fathy's concepts.[46] When it came to the issue of culture and tradition however, Fathy held a very different, if not contradictory opinion to those in support of modernization.[47] If Doxiadis' architecture of *transition* characterized subjects as transitioning

[44] Ibid, pp.167

[45] Ibid.

[46] Pyla made this argument of how Fathy's ideas aligned with many of the principles of modernization theory. See Panayiota Pyla, "Ekistics, Architecture and Environmental Politics, 1945 – 1976: A Prehistory of Sustainable Development." PhD Dissertation (MIT, 2002) See also, Panayiota Pyla, "Hassan Fathy Revisited: Postwar Discources on Science, Development, and Vernacular Architecture," *Journal of Architectural Education* (2007) pp. 28-39

[47] In fact, Muzaffar revealed how within the camp of modernization, culture often performed varying roles, all nevertheless remained as serving state authority. "For Ecochard … it was necessary to preserve culture so as not to expose the native populations too quickly to modern life. Layers of culture were to be dismantled and reassembled by the colonial and the nation-state overtime to ensure that all cultural identities slowly transformed toward greater integration and modernization. For Doxiadis, state did not need to claim this role. It was only a custodian of culture that itself bore the potential of modernization as long as it was not hijacked by political contestations. Culture too, like modernization, possessed a self-regulating internal unity and logic that, given the right circumstances, complemented (not opposed) modernization." M. Ijlal Muzaffar, "Boundary Games: Ecochard, Doxiadis, and the Refugee Housing projects under Military Rule in Pakistan, 1953-1959," in *Governing By Design: Architecture, Economy, and Politics in Twentieth Century*, Aggregate ed. (Pittsburgh, PA: University of Pittsburgh Press, 2012) pp. 167

from tradition to modernity, and as such sustained forms of authoritative control, Fathy's pursuit of an equilibrium dismissed the question of modernity altogether and sought to construct a new local subject that evaded this authoritative process by transitioning from tradition to what he referred to as contemporaneity; this was a progressive process that required only selective interaction with the doctrines of Western modernity.[48] In other words, by identifying tradition as a source of comfort, Fathy aimed at realizing a form of progress that was not confined to the conventional Western means of modernization.

Criminality and Progress

One of Fathy's most elaborate discussions of how comfort relates to questions of modernization, and, in turn, how it could be achieved through providing spaces for expression, came in the "Dwelling in Developing Countries" paper discussed earlier. Written for a conference on the science of criminology, the paper shed new lights and brought a certain level of specificity to Fathy's arguments by considering additional contextual layers to an otherwise consistent point of view. The study of crime, and the application of crime prevention strategies through architecture had, in fact, influenced buildings and cities throughout history. Attention to architectural configurations that generate spatial transparencies and visual surveillance had been consistently tied to the processes of modernization.[49]

[48] This argument was explicitly made in Hassan Fathy, "Contemporaneity in the City," (1961) in *Architecture for a Changing World*, James Steele ed. (London: Academy Editions, 1992

[49] From Haussmann's boulevards of 19th century Paris that aimed at countering riots and revolutions, to architectural modernism's grids and oversized open public spaces that aimed at bringing hygiene, morality and social justice to the masses, all the way to advanced urban planning theories of the 1970s that applied rigorous scientific approaches to constitute urban techniques for crime prevention; all of which relied primarily on strategies based, one way or another, on spatial transparency and visual surveillance. Similar techniques were also applied to the architecture of public buildings ever since the late 18th century. To enforce discipline and good behavior in the nonetheless functionally variant

The same was seen in Egypt. As Omnia el Shakry claimed, "criminology was part of a larger social and political process that occurred in tandem with the construction of the modern Egyptian state."[50] It was by the 1930s and 1940s that a larger discourse on criminality began to take shape.[51] Indeed, the peasant was the central figure in this new field of inquiry. Approached as an undisciplined rural subject by colonial and postcolonial governments alike, the peasant was always seen as requiring the enforcement of disciplinary measures.[52] Rural crime, as a distinct action from urban crime, had been largely blamed on the peasant's unique "mentalité."[53] Identified as ignorant, irrational, violent and deeply attached to rural manners and customs, the peasant was equally "characterized by an unbroken stability, timelessness, and changelessness."[54]

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institutions such as prisons, factories, hospitals, mental facilities, schools, as well as cultural spaces like museums, the need for unobstructed surveillance remained the standard. On urban crime preventions strategies emerging in the 1970s see for instance, Oscar Newman, *Defensible Space: Crime Prevention through Urban Design* (New York: Collier Books, 1972) For the exercise of power through transparency and surveillance in public buildings see Jeremy Bentham, *The Panopticon Writings*, introduction by Miran Bozovic (London and New York: Verso, 1995) Originally written and published in 1787 and 1791, Michel Foucault, *Discipline and Punish: The Birth of the Prison*, translated from French by Alan Sheridan (Penguins Books, Ltd, 1977) Originally published as *Surveiller et Punir: Naissance de la prison* (Paris: Editions Gallimard, 1975), "The Eye of Power: a conversation with Jean-Pierre Barou and Michelle Perrot," in *Power/Knowledge: Selected Interviews and Other Writings 1972-1977*, Colin Gordon ed. (New York: Vintage Books, 1980) pp. 146-165 Originally published as "L'Oeil du Pouvoir" (Paris: Belfond, 1977), and "Space, Knowledge, and Power: interview with Paul Rabinow," in *The Foucault Reader*, Paul Rabinow ed. (New York: Random House, Inc., 1984) For the exercise of power in various modern building types see, Thomas A. Markus, *Buildings and Power: Freedom and Control in the Origin of Modern Building Types* (London & New York: Routledge, 1993) For museums in particular see Tony Bennett, *The Birth of the Museum: History, Theory, Politics* (London & New York: Routledge, 1995) especially the chapter "The Exhibitionary Complex"

[50] Omnia El Shakry, *The Great Social Laboratory: Subjects of Knowledge in Colonial and Postcolonial Egypt.* (Stanford, CA: Stanford University Press, 2007) pp.120

[51] The rise of criminology owed itself to the rise in the production of statistical data. It was by the 1930s that social scientists began compiling data on peasant crime. Ibid, pp.119-120

[52] Ibid, pp.89

[53] Ibid, pp.120

[54] Ibid, pp.96. "Egyptian intellectuals," El Shakry claimed, "often invoked graphic images of rural decay and criminality to demonstrate the urgency of social reform." Ibid, pp. 114. This was particularly true in

The solution, as it was thought at the time, involved the establishment of new governmental institutions that would work on cultivating modernized and rational subjects through educational initiatives that aimed at eliminating the traditional social customs that were believed to be responsible for the creation of criminal mentalities.[55] In that sense, the modernizing processes of criminological discourse ran parallel to the discourses on architectural modernism: both found, in the conscious elimination of the past, an effective path to the future.

Fathy believed otherwise. His engagement with criminality generated a counter philosophy that aimed at capitalizing on the past to build for the future. What Fathy shared with the advocates of modernization, however, was the proper identification of the current "crisis" as one that grew from the fast and sudden mechanization of the peasant's environment. If modernization developments found the future in altering the peasants' tradition, then Fathy found the future in an alternative modernity that not only retained but built on existing traditions.

The Expressive Dwelling

"The permanent point of reference in the design of dwelling, as in the design of the whole city," Fathy stressed, "is man."[56] The house therefore – the "shelter" and "refuge" of man – enjoyed

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the case of New Gourna where the inhabitants were continuously portrayed in negative terms – including of course from Fathy himself in *Architecture for the Poor.* The story of New Gourna gained a fair amount of publicity in the media, as the disuptes surrounding the relocation project appeared in novels, movies and newspaper articles. On New Gourna in popular media see Hana Taragan, "Architecture in Fact and Fiction: The Case of the New Gourna Village in Upper Egypt," in *Muqarnas,* vol. 16 (1999) pp. 169-178.

[55] Omnia El Shakry, *The Great Social Laboratory: Subjects of Knowledge in Colonial and Postcolonial Egypt.* (Stanford, CA: Stanford University Press, 2007) pp.123

[56] Hassan Fathy, "Dwelling in Developing Countries," in Hassan Fathy Archives. Aga Khan Trust for Culture (Geneva, Switzerland: 22 June 1963) pp. 8

a privileged position within larger town planning projects.[57] But, besides its role as the most basic unit of the village or the city, the house is a place of comfort. "If the family is the fundamental social group–the interpreter and buffer between the individual and society," Fathy argued, "then the house has an analogous function as between the individual and the world of things."[58] For this intervention to take place, Fathy had to first rethink the common understanding of the modern house.

Guarding individuality was, in Fathy's mind, conditioned by fostering self-expression; a strategy that was thought achievable by providing special attention to the design of space.[59] For Fathy, planning and architecture are "first and foremost the manipulation of space."[60] In comparison, "macadamized roads, electricity and even provision of house-to-house water supply are all costly items in the land developments projects that may well be left till later… all the others are luxurious by comparison with the provision of enough space for each family to live in."[61] Fathy's argument was indeed as much economical as it was architectural. He advocated for an architectural strategy that can effectively overcome economic difficulties. "As an example," Fathy added, "when planners deal with mass housing schemes for low-income groups, they follow

[57] This argument consistently appeared in Fathy's writings including more planning-related texts like "Dwelling in Developing Countries," as well as broader writings like *Architecture for the Poor* and *Natural Energy and Vernacular Architecture.*

[58] Hassan Fathy, "Dwelling in Developing Countries," in Hassan Fathy Archives. Aga Khan Trust for Culture (Geneva, Switzerland: 22 June 1963) pp. 5

[59] Around 10 years later, Oscar Newman published his theory of the defensible space. Deeply invested in the problem or urban crime, Newman saw the potentials od spatial manipulation in bringing control and order to urban environments. See Oscar Newman, *Defensible Space: Crime Prevention through Urban Design* (New York: Collier Books, 1972)

[60] Ibid, pp.15

[61] Ibid, pp.16

unquestionably the idea launched by P. Geddes in planning; to reduce the street frontage of the plots, proportionate to their length, to economize on roads and sewers, so as to reduce the cost of land-development."[62] This approach, he argued, generates efficient but nonetheless "difficult" spaces for living; it fundamentally contradicts the basic traditional organization found in domestic spaces worldwide.[63] In other words, while Fathy understood architecture in economic terms when highlighting the necessity of providing "enough space," he balanced this rationalist perception by highlighting the significance of the quality of space.

Modern planning and architecture for Fathy, eliminated for the sake of economy the most fundamental of spaces in the house: the focal point.[64] In Egypt, whether applied in an urban or a rural setting, Fathy found the medieval principle of the Qa'a space–or at least a spatial arrangement not far removed from it–to be the effective producer of this traditional focal point. But the house in the age of modernization, required more than just a central gathering space. This space must also foster individuality and self-expression; and the Qa'a as an architectural organizational principle simultaneously fulfilled such role. Perceived more as a set of principles and guidelines that drive the spatial organization of the house rather than a rigid architectural composition, Fathy

[62] Ibid, pp. 9. While Patrick Geddes' ideas on planning were very influential at the time, and his book *Cities in Evolution* helped initiate the modern town planning movement in the early 20th century, his work particularly influenced Doxiadis ideas on planning, whom Fathy was possibly referring to in this statement. See Patrick Geddes, *Cities in Evolution: An Introduction to the Town Planning Movement and to the study of Civics* (London: Williams & Norgate, 1915)

[63] Hassan Fathy, "Dwelling in Developing Countries," in Hassan Fathy Archives. Aga Khan Trust for Culture (Geneva, Switzerland: 22 June 1963), pp.10

[64] "In fact, this shape will be so demanding as to limit the architect himself to a small variety of plans which would be too technical to be living, living in the sense that all of house-type plans in whatever country and evolved by whatever people, have one feature in common: the rooms are grouped spatially around some focal-point – be it hearth, stove or courtyard – which draws the family together, when this basic arrangement is rendered impossible by the plot shape, the family's movements are altered. Ibid, pp.10

found in the Qa'a a valid traditional system that was flexible enough to accommodate the various programmatic requirements of multiple domestic contexts. Whether applied in rural or urban settings; low-income or luxurious spaces, compact or spacious environments, the Qa'a became for Fathy the organizing principle not only shaping the architectural spaces but ultimately the lives of its inhabitants.

The Qa'a, as Fathy argued, lends itself naturally to mudbrick architecture.[65] (Figure 3.3) It is "a square, domed room with vaulted alcoves off it."[66] It was, as Fathy clarified, a logical and straightforward solution to a structural problem. The *durqa'a*, the central square-shaped space, would be normally covered with a dome and span between 3 and 4 meters wide. Off of it would be a vaulted *iwan* perpendicularly spanning 2.5 meters. This way, Fathy explained, the thickness of the side walls of the *iwan* would increase by 0.25 meters, adding to the rigidity of the structure while reducing the space of the vault.[67]

Fathy applied this Qa'a layout throughout his entire career, and this unique spatial organization shaped the designs of various domestic spaces.[68] It was, for instance, applied as the typical living room and bedroom design in New Gourna, as well as in other large residential villas (Figures 3.4 & 3.5). Similarly, as Fathy hoped to demonstrate in "The Qa'a of the Cairene Arab

[65] Hassan Fathy, *Architecture for the Poor* (Chicago and London: University of Chicago Press, 1973) pp. 95

[66] Ibid

[67] Hassan Fathy, "The Qa'a of the Cairene Arab House: Its Development and some new Usage for its Design Concepts," in *International Colloquium on the History of Cairo* (Cairo: 1970) In Hassan Fathy Archives, Aga Khan Trust for Culture (Geneva, Switzerland) pp. 147

[68] Besides applying the Qa'a principle in domestic spaces, Fathy also used it in schools as the typical classroom design. See Hassan Fathy, *Architecture for the Poor* (Chicago and London: University of Chicago Press, 1973) pp. 95.

House," the layout could be successfully applied to the compact environments of urban apartments.[69] (Figure 3.6) To facilitate the performance of acts of expression, however, the architect must construct an elaborate relationship between the architecture of the house and its furniture design.

Built-ins

For Fathy, the Qa'a acquires its expressive character from its inherent capability to accommodate *built-in* spaces. When used as the main living space of the house, the Qa'a should be "clear of furniture, perhaps with a small fountain in the middle, and the iwans leading off it, each with its built-in seats, its carpet spread across the middle of the floor, and its runners round the edge for people to walk on."[70] In a bedroom, "the vaulted alcoves, or iwan, would contain a built-in bed, with room for keeping things underneath it."[71] In any case, the most significant space in the Qa'a layout is its center. It would, besides giving a sense of "dignity" to the room, provide the space for expression. Kept clear of furniture, the central space required minimal decorative intervention by the architect. "Within the limits imposed by the resistance of materials – mud – and by the laws of statics," Fathy argued, "the architect finds himself suddenly free to shape space with his building, to enclose a volume of chaotic air and to bring it down to order and meaning to the scale of man, so that in his house at last there is no need of decoration put on afterward. The

[69] See Hassan Fathy, "The Qa'a of the Cairene Arab House: Its Development and some new Usage for its Design Concepts," in *International Colloquium on the History of Cairo* (Cairo: 1970) In Hassan Fathy Archives, Aga Khan Trust for Culture (Geneva, Switzerland) pp. 147

[70] Hassan Fathy, *Architecture for the Poor* (Chicago and London: University of Chicago Press, 1973) pp. 95.

[71] Ibid, pp.96

structural elements themselves provide unending interest for the eye."[72] In that sense, architects can fulfil their aestheticizing role by simply following the structural principles of the Qa'a while relinquishing the acts of expression to the inhabitants of the house.

In its developed state–in the urban houses of Old Cairo–the central space of the Qa'a provide the space for expression by performing the role of a modern theatre (Figure 3.7). With the variations in floor levels between the central space and the side iwans, and with the possibility of having screened loggias on upper floors, the Qa'a operated as a space for hosting festivities that could be observed from multiple vantage points.[73] In the rural condition, the Qa'a puts on display not only the inhabitants of the house and their guests, but most importantly their handmade objects. The acts of expression are maximized by clearing out spaces for the display of everyday domestic objects (Figure 3.8). This, as Fathy believed, would unleash the creative potentials of local communities; and when such crafts grow out of necessity to functionally replace unattainable modern mechanical conveniences, then, as Fathy argued, the house of traditional objects will serve its emancipatory purpose by giving up the discomforting process of modernization in favor of the expressive process of creative self-building. And, therefore, the traditional Qa'a house for Fathy, would successfully operate as a stabilizing shelter countering the forces of change.[74]

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[72] Ibid, pp.11

[73] "The varied floor levels of these elements, *durqa'a*, main and subsidiary *iwans* and *Kunjas* (Built-in cupboards) had its *raison d'étre*. It made the seating arrangement in the *qa'a* to perform the role of an amphitheatre and the screened loggias at the first floor to serve as boxes in a modern theatre. The *qa'a* is usually a fairly large room that holds a great number of guests who, according to the oriental custom are all to be seated. By such a seating arrangement with the different levels, the guests will be able to see one another and be together, which is necessary in such a social gathering." Hassan Fathy, "The Qa'a of the Cairene Arab House: Its Development and some new Usage for its Design Concepts," in *International Colloquium on the History of Cairo* (Cairo: 1970) In Hassan Fathy Archives, Aga Khan Trust for Culture (Geneva, Switzerland) pp. 140-141

[74] See Hassan Fathy, "Dwelling in Developing Countries," in Hassan Fathy Archives, Aga Khan Trust for Culture (Geneva, Switzerland: 22 June 1963)

This was applied in the houses of New Gourna, where Fathy paid special attention to the adaptation of modern domestic functions. Refrigeration, baking and heating for instance, as Fathy argued, were among the domestic functions normally fulfilled by mechanical devices, yet these devices remained unattainable.[75] "If (the peasant's) house is to be made pleasanter to live in and easier to manage, then simple homemade appliances must be devised to do the same job as the costly, factory-made ones of the city."[76] This, he argued, not only could be achieved independently but also involved a creative and self-expressive process that would generate economic progress. Passive refrigeration of water through handmade clay pottery was simple and still in use. The storage and refrigeration of oil and milk, however, was more complicated and required the development of a glazed pottery industry that would not only fulfil a functional need, but also generate income.[77] "Glazed tiles," Fathy argued, "if they could be cheaply produced, would greatly lift the standard of comfort of the houses."[78] Glazed pottery, considered itself an art form, would relieve the anxieties of poverty and fulfil the function of modern machines.

Baking and heating would be achieved following the same path, witnessing this time more direct involvement by Fathy. The two functions were traditionally fulfilled by the baking oven, which as Fathy noted, was placed inside the bedroom for heating in the winter; a solution that he argued was neither healthy nor efficient.[79] Combining the two functions, primarily for financial

[75] "To equip his kitchen up to the most modern standards would cost the peasant more than he earns in a lifetime. A refrigerator or an electric stove would be as far beyond his means as an aeroplane; even such apparently humble appliances as a hardware sink or a porcelain washstand are far too dear for him." Hassan Fathy, *Architecture for the Poor* (Chicago and London: University of Chicago Press, 1973) pp. 93

[76] Ibid.

[77] Ibid, pp. 94 Fathy outlined the requirements needed for developing a glazed pottery industry in New Gourna in *Architecture for the Poor*, pp. 64-65

[78] Ibid, pp. 94

[79] Ibid, pp. 97

reasons, remained desirable; and as Fathy described, he found a superior alternative in the Austrian *Kachelofen*; (Figure 3.9) "a stove with a very intricate system of partitioning inside that directs the hot gases of combustion backwards and forwards to allow more time for the heat to radiate into the room before they escape."[80] The Kachelofen, which he realized could be built easily with cheap materials, also developed in design and application to become a form of folk art.[81]

> *I found an old woman who made the ordinary village baking ovens out of mud and donkey droppings, and taught her to make kachelofens out of the same materials. She learned very quickly and could soon turn them out for the same price as the baking ovens, about thirty piasters.*[82]

What the glazed pottery industry and the kachelofen technology would generate, as Fathy hoped, would be new local industries that rely primarily on vernacular forms of knowledge and provide the space for Gournis to exercise their individuality while making profit.

The acts of expression in mudbrick architecture, one might say, were not limited to the interior of the house – which would remain, more or less, a private space with only few members of the extended family allowed in – but should also be exercised on the architecture of the self-built mudbrick house itself. In that sense, the Qa'a layout in the rural condition not only lends itself to vernacular mudbrick architecture for its structural logic, but also for its very capability of becoming self-produced and self-built. In calling for an architecture that fosters self-expression, Fathy's approach towards the problem of dwelling called for the active involvement of the

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[80] Ibid.

[81] Ibid.

[82] Ibid

inhabitants in the design and construction of their houses. Architects in this cooperative process ceased to become the ones singularly providing architectural expression. Their role, as demonstrated, becomes elevated to the scanning and choosing among a variety of available historical and traditional stabilizing objects–like the Qa'a and the kachelofen–that when strategically transposed would generate spaces for expression.[83] Or a form of architecture that Reyner Banham once referred to as "reasonably permissive … with built in directions about where to put things".[84]

Fathy's approach, therefore, could be understood to echo a common theme in the 1950s and 1960s reimaging of domestic spaces.[85] Banham's arguments presented in his 1961 essay "Design by Choice", for instance, which discussed the state of architecture and its relation to the rising influence of industrial design, surprisingly shared with Fathy a common understanding of the role architecture has in the domestic sphere. Fathy's response to challenges of rural architecture especially to larger village and town designs echoed Banham's understanding of the architect as

[83] Fathy outlined in detail his logic behind the transposition of historical and traditional objects in "Constancy, Transposition and Change in the Arab City," in *Medina to Metropolis*, Carl Brown ed. (Princeton, NJ: Darwin Press, 1973) While the essay described in detail the process of scanning and filtering out the objects appropriate for replication and transposition, the decision on the appropriateness of objects was greatly shaped by each object's potentials for comforting its subjects.

[84] Reyner Banham, "Design by Choice," in *The Architectural Review*, 130 (July 1961) pp. 76

[85] Built-in architecture became particularly popular among architects in the 1950s and 1960s as an effective technique to allow for the display of household objects. The Appliance House and The House of the Future by Alison and Peter Smithson – who were influential members of Team X and especially critical of CIAM's planning and architectural principles – remain prime examples of this approach. Similarly, architects like Richard Neutra argued for the comforting effects of built-ins, which he believed increase the members of the household "control" over the house. See Alison and Peter Smithson, "The Appliance House," in *Architectural Design* (April, 1958) and "Caravan: Embryo Appliance House?" in *Architectural Design* (September, 1959), Also see Richard Neutra, *Survival Through Design* (New York: Oxford University Press, 1954) On the utilization of built-ins in the work of Neutra and the Smithsons see Sylvia Lavin, *Form Follows Libido: Architecture and Richard Neutra in a Psychoanalytic Culture* (Cambridge, MA: MIT Press, 2004) and "The Temporary Contemporary," in *Perspecta* 34 (Cambridge, MA: MIT Press, 2003) pp. 128-135

"no longer (attempting) to impersonate all the characters of the drama of design, as in the days of the universal analogy, but becomes the producer of the play, handling a mixed cast of metropolitan professionals and local talents."[86] In aspiring to turn New Gourna into a center of local industry that generate economic opportunities through showcasing local skills, Fathy advised government officials that "the greatest service a government can render to its people is to give each family the chance to build its own individual house, to decide at every stage how it is to be, and to feel that the finished building is a true expression of the family's personality."[87]

This chapter should end with Fathy's choice of photographs for New Gourna included in *Architecture for the Poor* (Figures 3.10 - 12) The photographs portrayed an image of a rural village made of plain walls and curved domes. They intentionally represented a quality of flatness with minimal depth that is often interpreted as an attempt to generate a modernist aesthetic. Additionally, the photographs with Gournis in it were mostly staged, representing them in awkward positions that perhaps only offer a sense of scale to the image (Figures 3.13 & 3.14). But considering Fathy's engagement with the problem of self-expression in rural dwellings suggests an alternative reading where the photographs could be understood to represent a moment *before* expression. Not surfaces of modernist abstraction, but spaces for expression operating simultaneously as empty canvases for artistic display, as well as theatrical stage sets for the everyday performance of traditional culture. Given the opportunity, the Gournis would paint over the flat walls of their houses, much like others have been doing in the village of Gharb Aswan in Nubia where Fathy first learned the techniques of building mudbrick domes (Figure 3.15).

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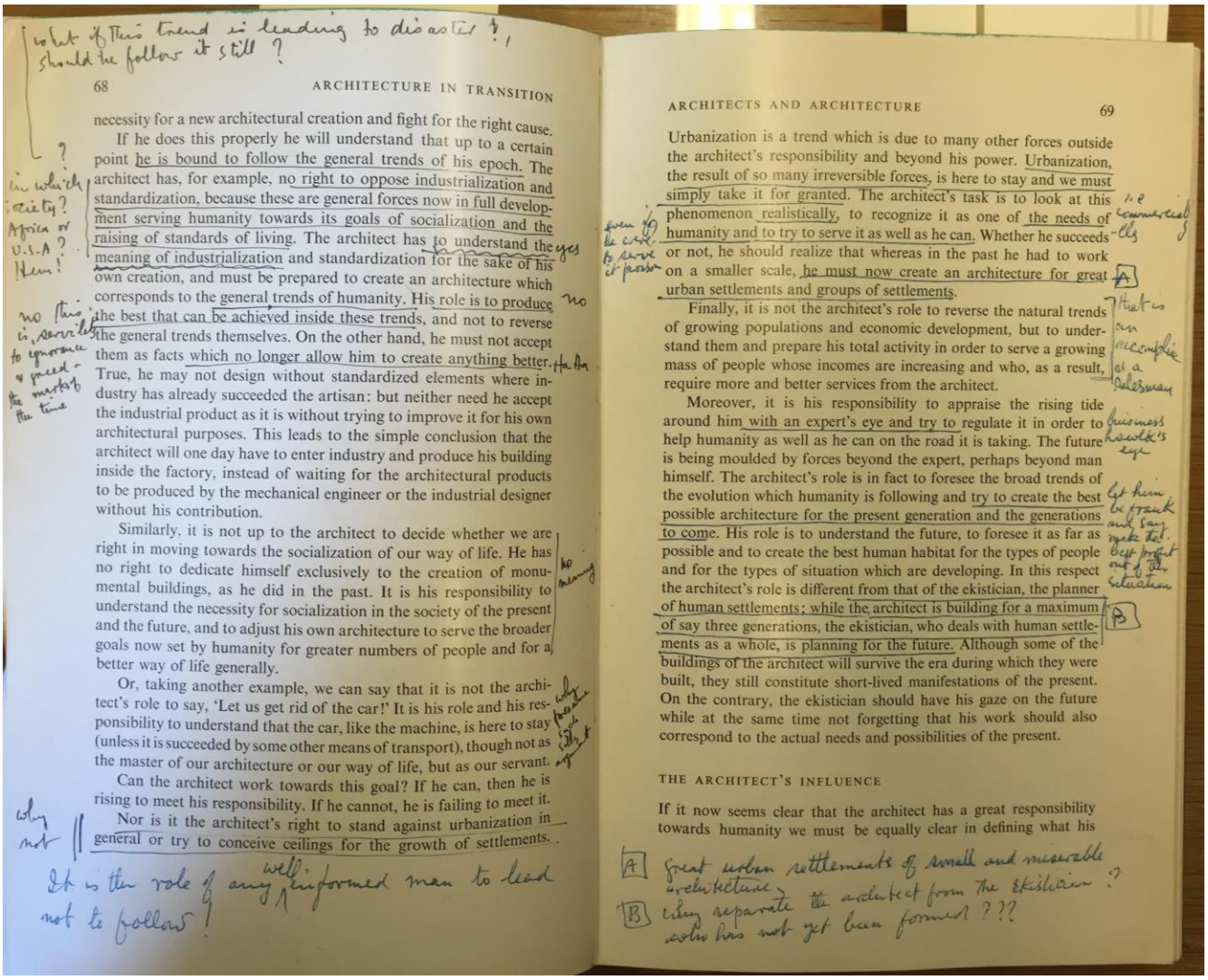
[86] Reyner Banham, "Design by Choice," in The Architectural Review, 130 (July 1961) pp. 77

[87] Hassan Fathy, *Architecture for the Poor* (Chicago and London: University of Chicago Press, 1973) pp.33

The publication of these images almost 20 years after the fact was perhaps Fathy's way of representing an unfulfilled vision: *failure*. In a few instances, however, the photographs were animate, and this mostly occurred when the villagers interacted with their crafts; moments such as when clay water jars–strategically placed next to an opening–came to replace unaffordable mechanical refrigerators; moments of comfort (Figure 3.16). Fathy's contemporary architecture therefore, as Banham would describe it, was "to exercise choice and background control over the choice of others, to advise, suggest and demand on the basis of knowledge and understanding".[88]

[88] Reyner Banham, "Design by Choice," in *The Architectural Review*, 130 (July 1961)



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necessity for a new architectural creation and fight for the right cause.

If he does this properly he will understand that up to a certain point he is bound to follow the general trends of his epoch. The architect has, for example, no right to oppose industrialization and standardization, because these are general forces now in full development serving humanity towards its goals of socialization and the raising of standards of living. The architect has to understand the meaning of industrialization and standardization for the sake of his own creation, and must be prepared to create an architecture which corresponds to the general trends of humanity. His role is to produce the best that can be achieved inside these trends, and not to reverse the general trends themselves. On the other hand, he must not accept them as facts which no longer allow him to create anything better. True, he may not design without standardized elements where industry has already succeeded the artisan: but neither need he accept the industrial product as it is without trying to improve it for his own architectural purposes. This leads to the simple conclusion that the architect will one day have to enter industry and produce his building inside the factory, instead of waiting for the architectural products to be produced by the mechanical engineer or the industrial designer without his contribution.

Similarly, it is not up to the architect to decide whether we are right in moving towards the socialization of our way of life. He has no right to dedicate himself exclusively to the creation of monumental buildings, as he did in the past. It is his responsibility to understand the necessity for socialization in the society of the present and the future, and to adjust his own architecture to serve the broader goals now set by humanity for greater numbers of people and for a better way of life generally.

Or, taking another example, we can say that it is not the architect's role to say, 'Let us get rid of the car!' It is his role and his responsibility to understand that the car, like the machine, is here to stay (unless it is succeeded by some other means of transport), though not as the master of our architecture or our way of life, but as our servant.

Can the architect work towards this goal? If he can, then he is rising to meet his responsibility. If he cannot, he is failing to meet it.

Nor is it the architect's right to stand against urbanization in general or try to conceive ceilings for the growth of settlements.

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Urbanization is a trend which is due to many other forces outside the architect's responsibility and beyond his power. Urbanization, the result of so many irreversible forces, is here to stay and we must simply take it for granted. The architect's task is to look at this phenomenon realistically, to recognize it as one of the needs of humanity and to try to serve it as well as he can. Whether he succeeds or not, he should realize that whereas in the past he had to work on a smaller scale, he must now create an architecture for great urban settlements and groups of settlements.

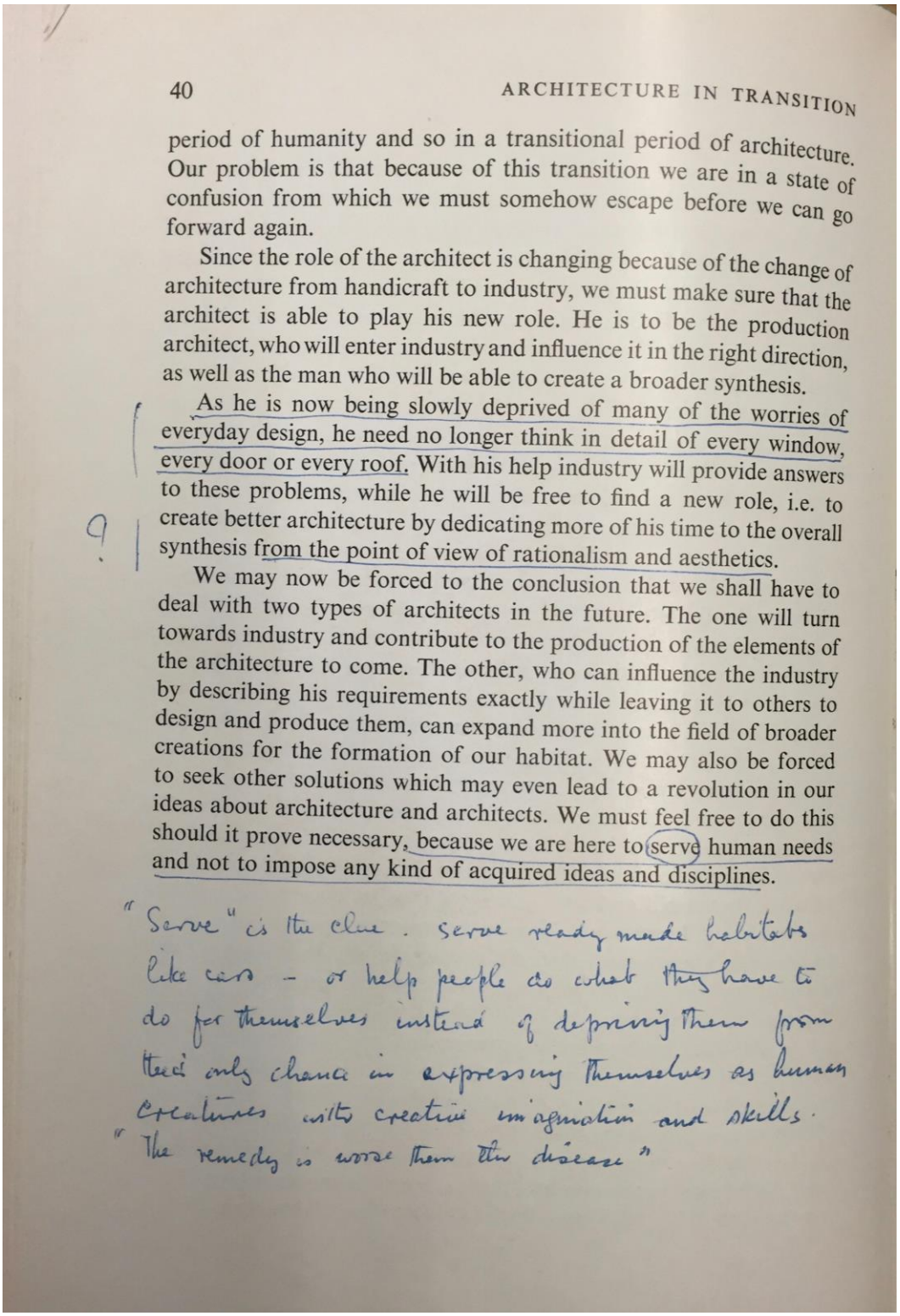
Finally, it is not the architect's role to reverse the natural trends of growing populations and economic development, but to understand them and prepare his total activity in order to serve a growing mass of people whose incomes are increasing and who, as a result, require more and better services from the architect.

Moreover, it is his responsibility to appraise the rising tide around him with an expert's eye and try to regulate it in order to help humanity as well as he can on the road it is taking. The future is being moulded by forces beyond the expert, perhaps beyond man himself. The architect's role is in fact to foresee the broad trends of the evolution which humanity is following and try to create the best possible architecture for the present generation and the generations to come. His role is to understand the future, to foresee it as far as possible and to create the best human habitat for the types of people and for the types of situation which are developing. In this respect the architect's role is different from that of the ekistician, the planner of human settlements; while the architect is building for a maximum of say three generations, the ekistician, who deals with human settlements as a whole, is planning for the future. Although some of the buildings of the architect will survive the era during which they were built, they still constitute short-lived manifestations of the present. On the contrary, the ekistician should have his gaze on the future while at the same time not forgetting that his work should also correspond to the actual needs and possibilities of the present.

THE ARCHITECT'S INFLUENCE

If it now seems clear that the architect has a great responsibility towards humanity we must be equally clear in defining what his

Figure 3.1 Fathy's notes on Doxiadis' *Architecture in Transition.* From: Hassan Fathy Archives, Personal Library, Rare Books and Special Collection Library, The American University in Cairo.



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period of humanity and so in a transitional period of architecture. Our problem is that because of this transition we are in a state of confusion from which we must somehow escape before we can go forward again.

Since the role of the architect is changing because of the change of architecture from handicraft to industry, we must make sure that the architect is able to play his new role. He is to be the production architect, who will enter industry and influence it in the right direction, as well as the man who will be able to create a broader synthesis.

As he is now being slowly deprived of many of the worries of everyday design, he need no longer think in detail of every window, every door or every roof. With his help industry will provide answers to these problems, while he will be free to find a new role, i.e. to create better architecture by dedicating more of his time to the overall synthesis from the point of view of rationalism and aesthetics.

We may now be forced to the conclusion that we shall have to deal with two types of architects in the future. The one will turn towards industry and contribute to the production of the elements of the architecture to come. The other, who can influence the industry by describing his requirements exactly while leaving it to others to design and produce them, can expand more into the field of broader creations for the formation of our habitat. We may also be forced to seek other solutions which may even lead to a revolution in our ideas about architecture and architects. We must feel free to do this should it prove necessary, because we are here to serve human needs and not to impose any kind of acquired ideas and disciplines.

"Serve" is the clue. serve ready made habitats like cars – or help people do what they have to do for themselves instead of depriving them from their only chance in expressing themselves as human creatures with creative imagination and skills.
"The remedy is worse than the disease"

Figure 3.2 Fathy's notes on Doxiadis' *Architecture in Transition.* From: Hassan Fathy Archives, Personal Library, Rare Books and Special Collection Library, The American University in Cairo.

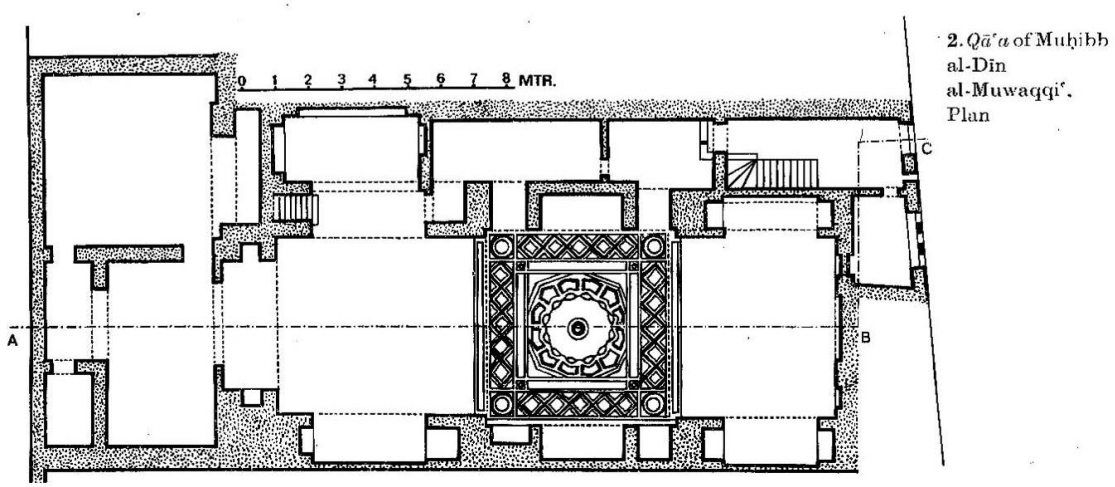
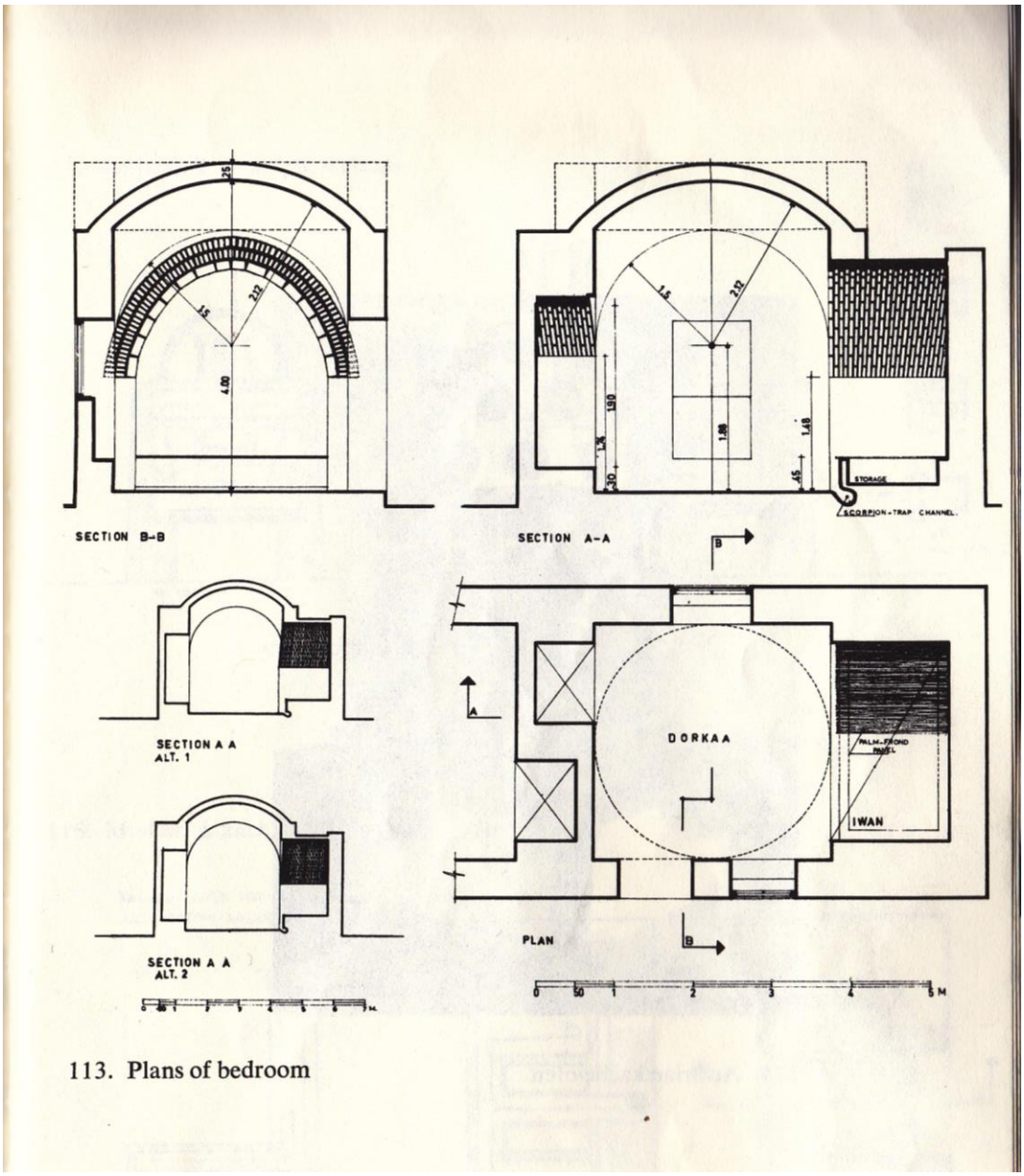


Figure 3.3 The Qa'a Layout at Muhibb al-Din al-Muwaqqi House, one of the major medieval inspirations for Fathy. From: Hassan Fathy, "The Qa'a of the Cairene Arab House: Its Development and some new Usage for its Design Concepts," in *International Colloquium on the History of Cairo* (Cairo: 1970)



113. Plans of bedroom

Figure 3.4 Qa'a Layout of Typical bedroom design in New Gourna. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973)

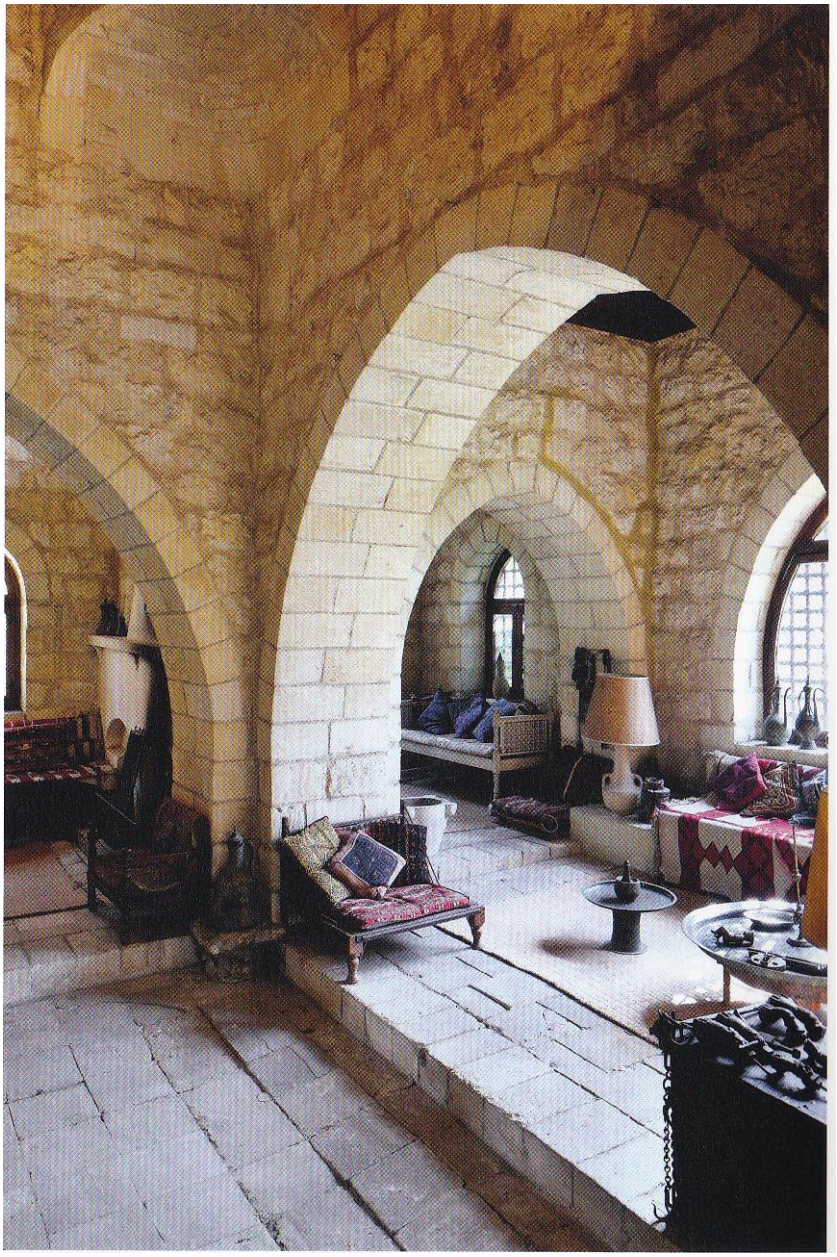


Figure 3.5 Qa'a Layout in the main living space at Mit Rehan House, 1981. From: Leila El-Wakil, *Hassan Fathy: An Architectural Life* (Cairo and New York: The American University in Cairo Press, 2018)

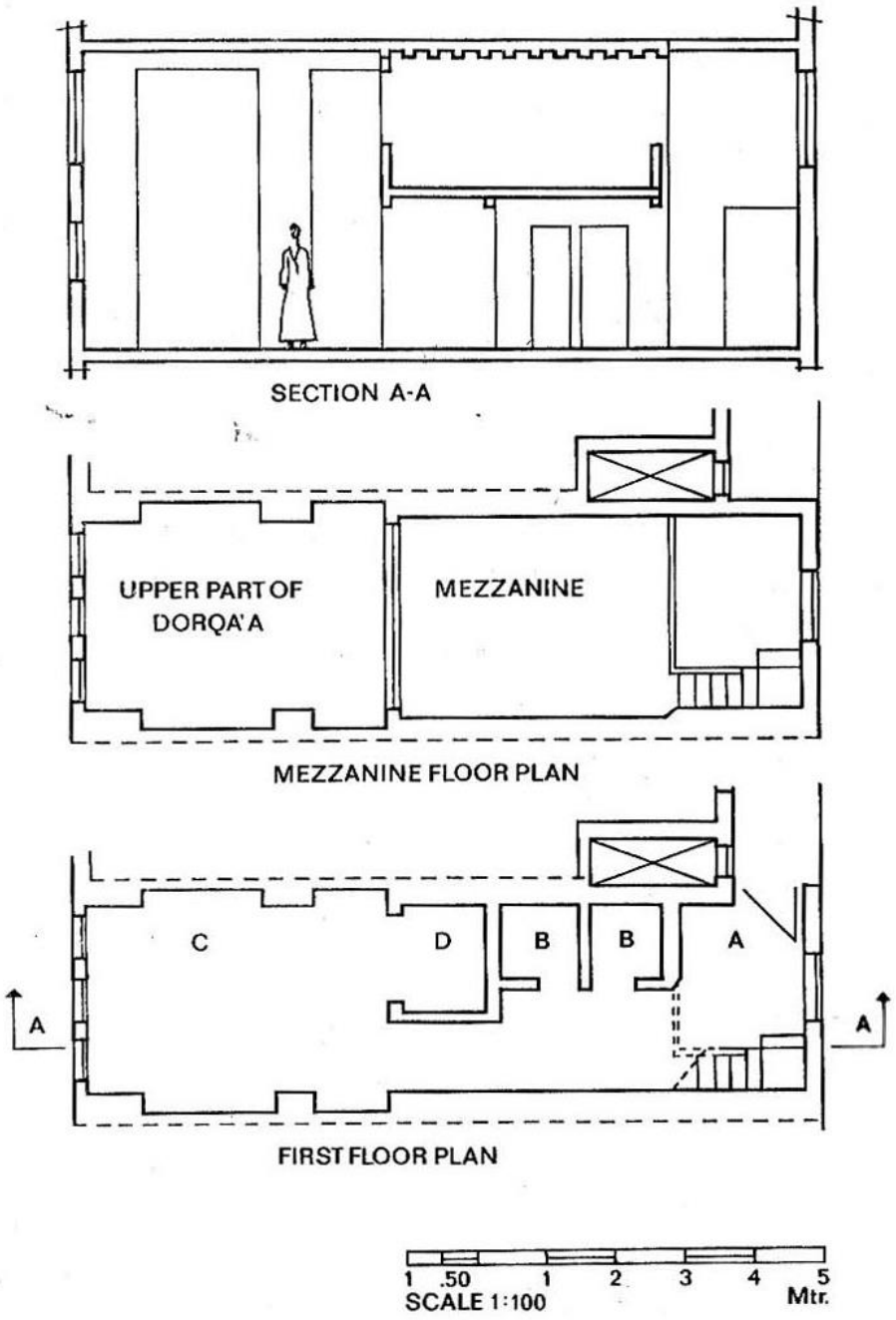


Figure 3.6 Qa'a Layout as solution to compact urban spaces. From: Hassan Fathy, "The Qa'a of the Cairene Arab House: Its Development and some new Usage for its Design Concepts," in *International Colloquium on the History of Cairo* (Cairo: 1970)

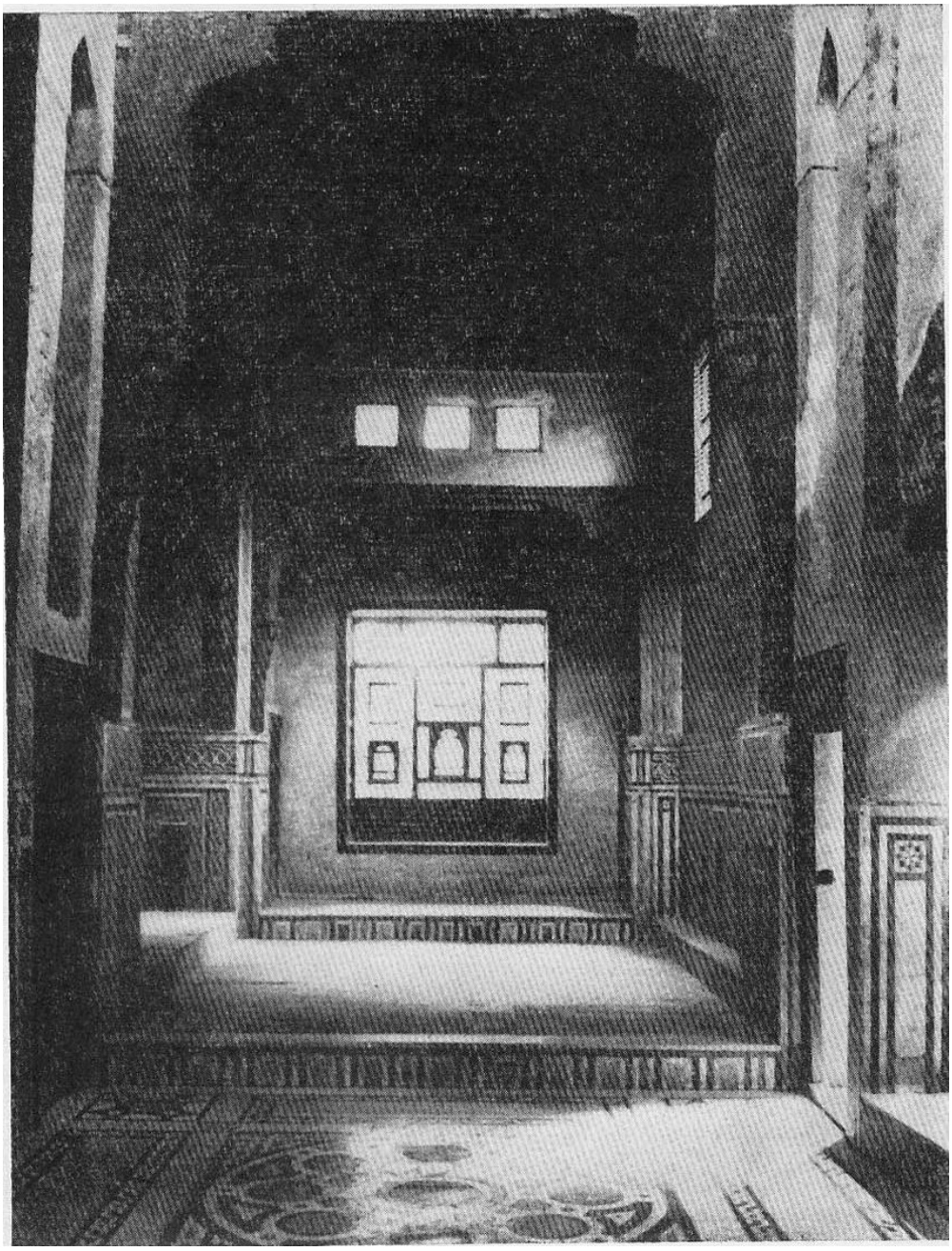


Figure 3.7 Qa'a as a Modern Theatre. Qa'a space at Djamal al-Din al-Dhahabi, 1637. From: Hassan Fathy, "The Qa'a of the Cairene Arab House: Its Development and some new Usage for its Design Concepts," in *International Colloquium on the History of Cairo* (Cairo: 1970)

Figure 3.8 Fireplace Alcove in New Gourna. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973)

Figure 3.9 Mudbrick houses in new Gourna, 1948. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973)

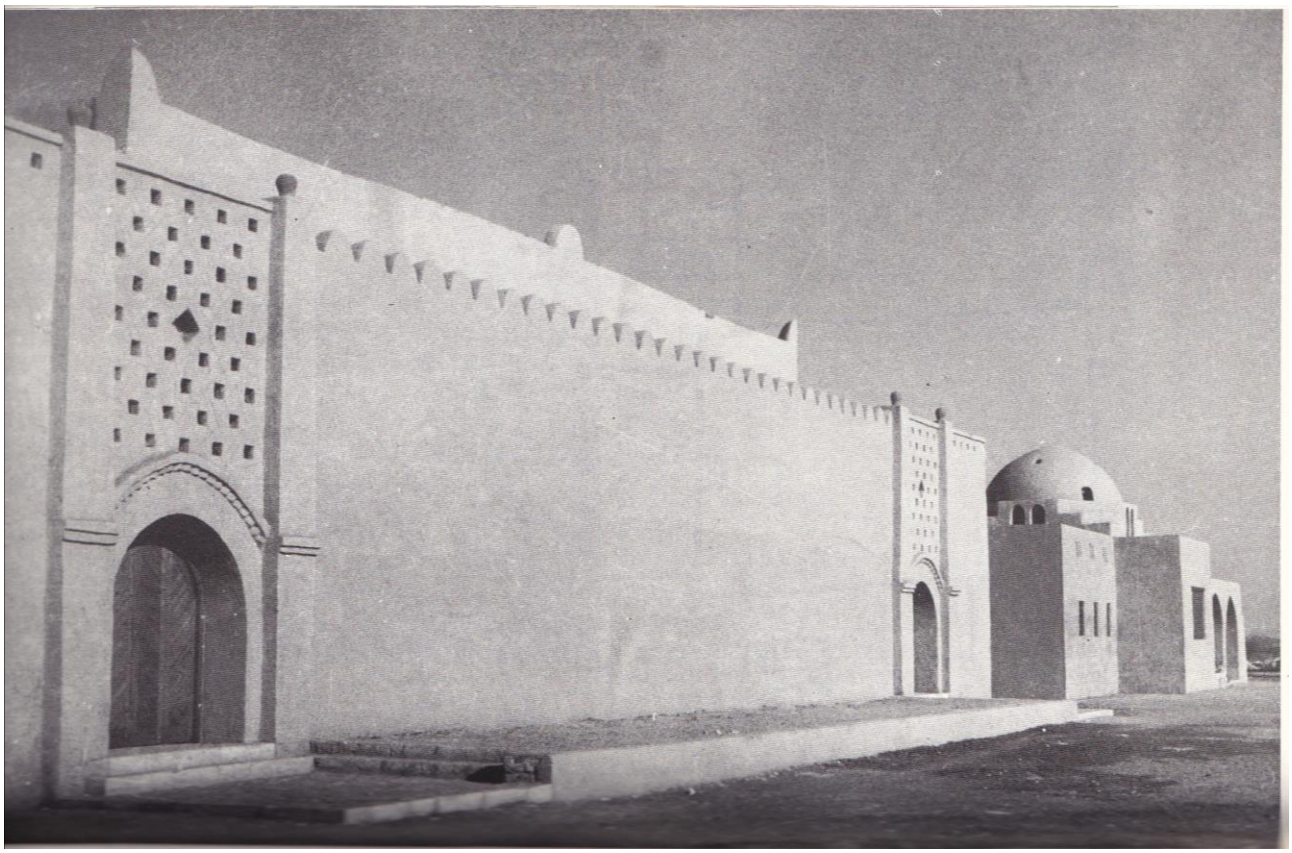


Figure 3.10 The Theatre in New Gourna. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973)

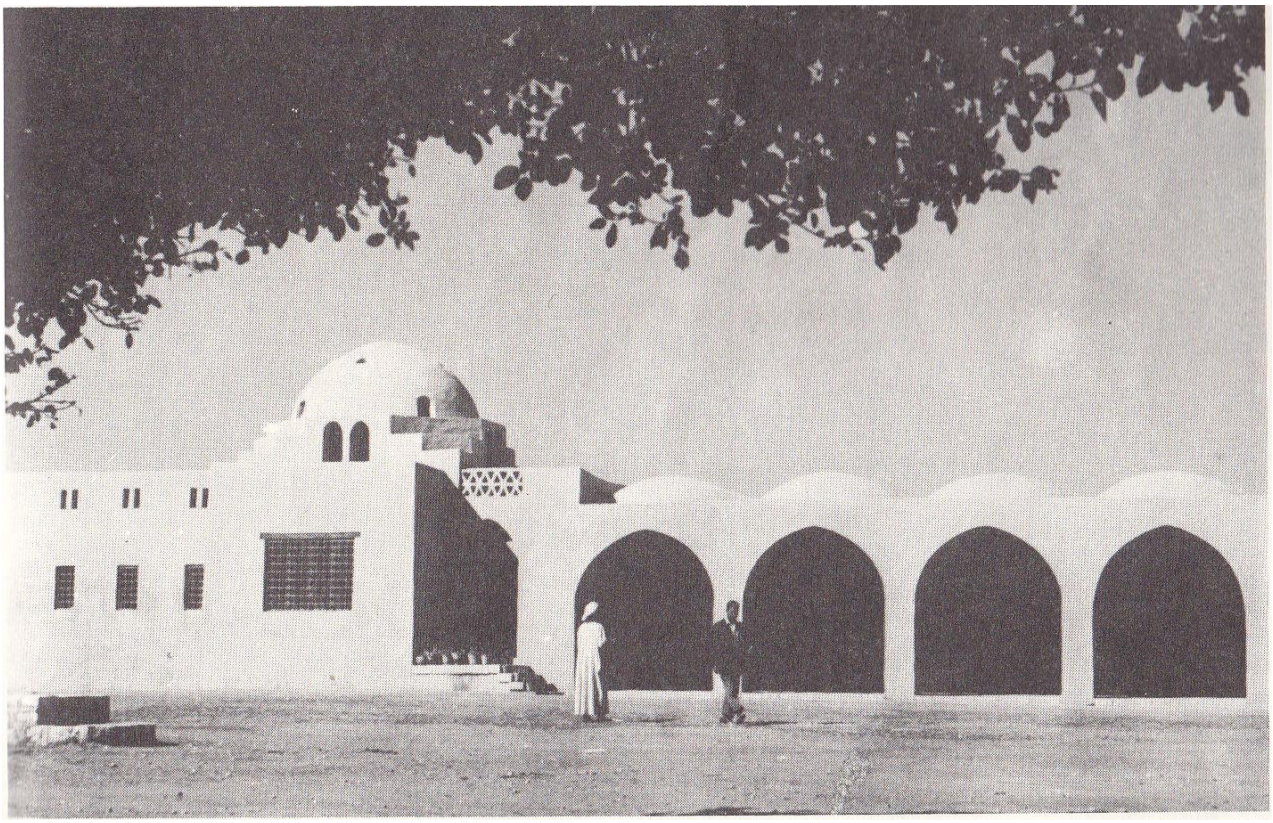


Figure 3.11 The Market at New Gourna. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973)

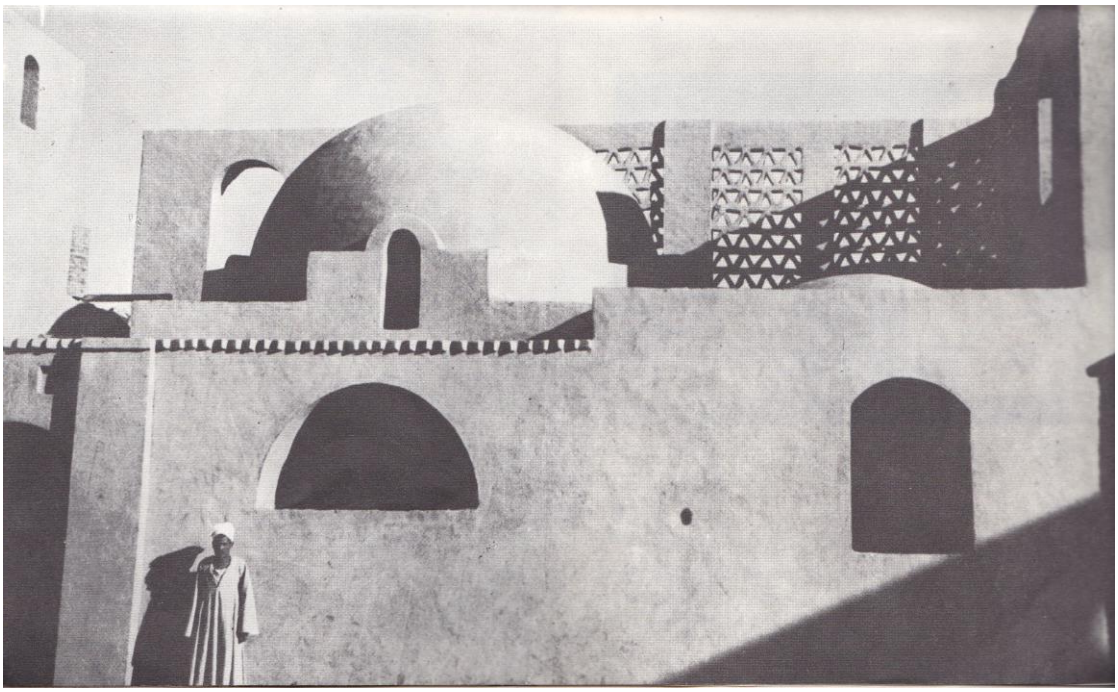


Figure 3.12 House in New Gourna. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973)

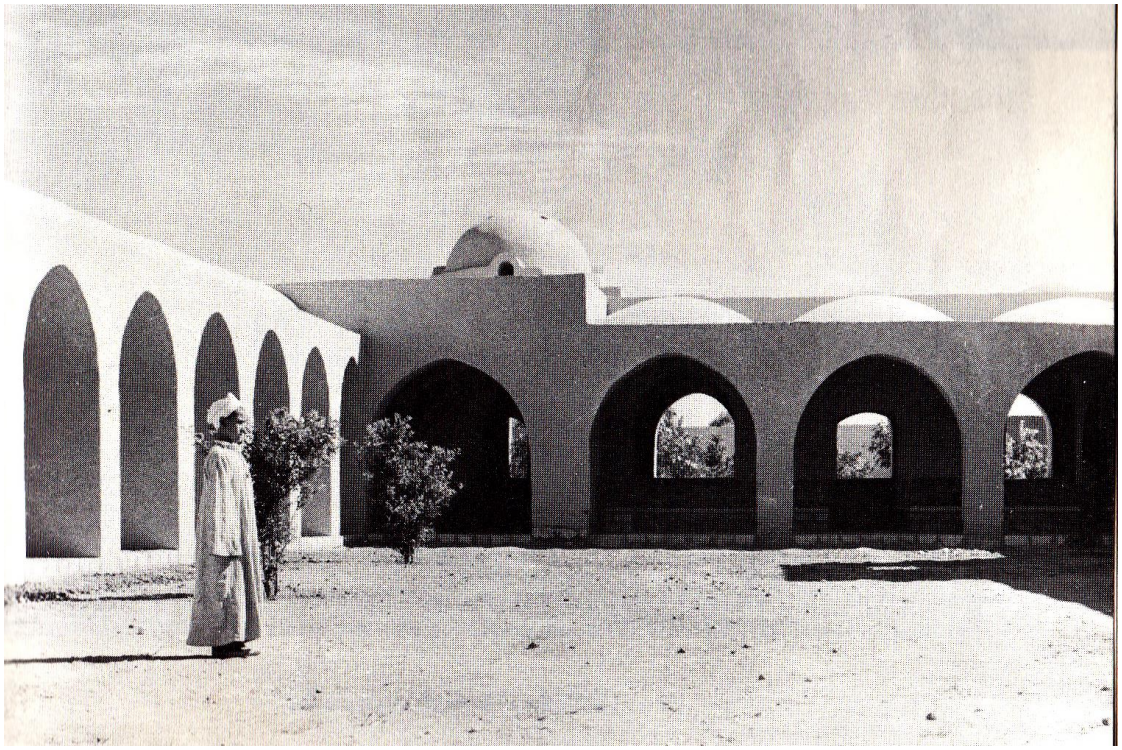


Figure 3.13 School in New Gourna. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973)

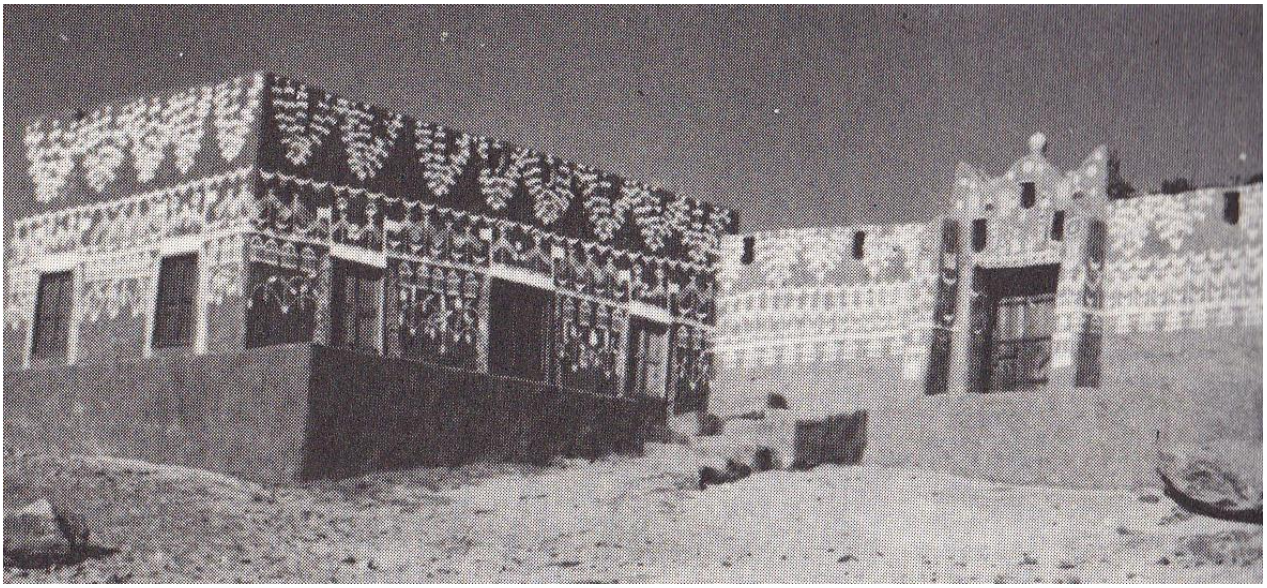


Figure 3.14 Village of Dahmit, Gharb Aswan, Nubia. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973)

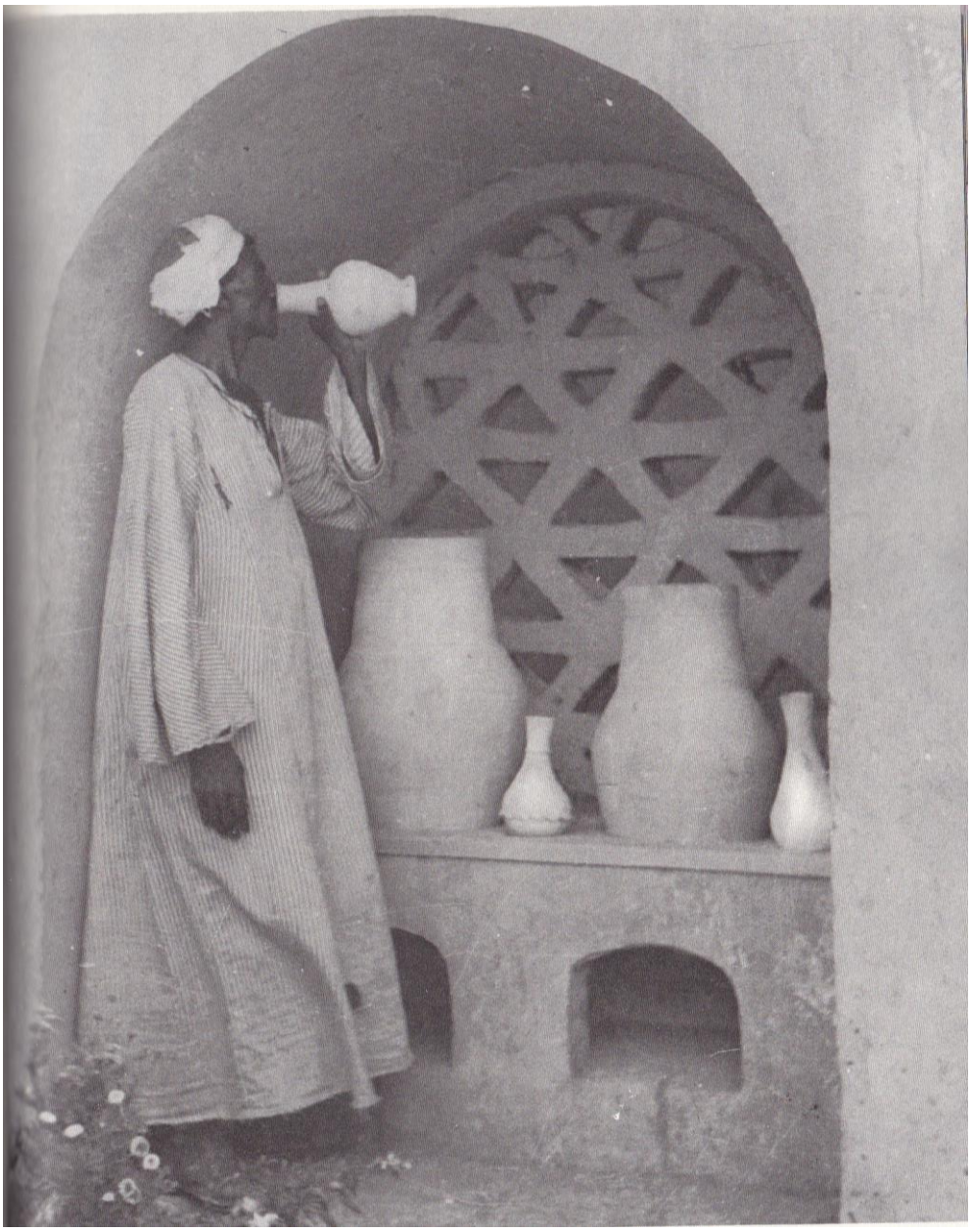


Figure 3.15 *Maziara*, Alcove for Water Jars in New Gourna. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973).

CHAPTER 4

Regulated Microclimates: Architectural Machine

Between the 1940s and 1960s, the rising discourse on the topic of the environment registered an expansion in the field of architecture. This expansion stretched the architectural object itself, where the specificities of materiality and spatial conceptions, by themselves, became insufficient. Architecture within the discourse on the environment was approached as an all-encompassing mechanism. Environmental design, now an essential component of the post-war forces of modernization, displaced architecture as the more comprehensive approach "in which objects (were) conceived in relation to one another and to their ecological, constructed, and socio-cultural environments."[1] In expanding the architectural field beyond its conventional boundaries, environmental design at once elevated the roles of architects in shaping the lives of their subjects, while simultaneously threatened the established disciplinary boundaries keeping the profession in place. The pressing urgency towards questions of climate-regulation, thermal comfort, efficiency, and the utilization of natural resources meant that architectural knowledge and techniques took a step back in favor of the emerging scientific and managerial methods of environmental control. To counter such forces, which had their effects rendered more visible in the contexts of developing countries, Fathy was among the architects who found in the pursuit of environmental design strategies to not only reconstitute the disciplinary boundaries of architecture, but to also reclaim architecture's position as an essential component of modernization.

[1] Emilio Ambasz, "The Museum of Modern Art and the Man-Made Environment: An Interim Report" cited in Felicity D. Scott, *Architecture or Techno-utopia: Politics after Modernism* (Cambridge, MA and London: The MIT Press, 2007) pp.90

This chapter focuses on the question of regulating interior microclimates, particularly between the 1940s and 1960s, and thus predates the further expansion in environmental discourse that took place in the 1970s and 1980s and paved the way for postmodernism through engaging fields like linguistics and visual communications.[2] This also positions environmental design as a primarily modern phenomenon and, therefore, while certainly contributing to its rise, remained ideologically separate from the late postmodern efforts towards sustainability.[3]

This chapter begins by exploring developments in the air-conditioning industry, revealing how the popularization of the technology factored heavily in undermining the role of architecture into mere shelter, particularly in the domestic sphere. Consequently, the work of Fathy represented a form of resistance to such forces by approaching architecture as itself a climate-regulating machine.[4] This chapter benefits from examining Fathy's ideas alongside those of Reyner Banham, who despite holding an opposing view on the use of technology in architecture, helps illuminate the extent to which the engagement with the climatic challenges came to facilitate the disciplinary

[2] For Environment and Postmodernity see for instance. Reinhold Martin, *Utopia's Ghost: Architecture and Postmodernism, Again* (Minneapolis and London: University of Minnesota Press, 2010) and Felicity D. Scott, *Architecture or Techno-utopia: Politics after Modernism* (Cambridge, MA and London: The MIT Press, 2007)

[3] On the distinction between environmentalism and sustainability see Mario Carpo, "Sustainable?" in *Log, no.10* (Summer/Fall 2007) pp. 19 – 21. Carpo, following Martin Bressani's work on ecology, understood environmentalism as the "offspring of modern science." Growing from the 19th century field of ecology, modern environmentalism for Carpo was closely tied to notions of progress and evolution. In architecture, this materialized in the form of wall thickness and thermal mass. Sustainability on the other hand, Carpo argued, is postmodern and concerned not with progress, but with the idea of simple life. Its architecture is characterized by its lightness and its reliance on high tech materials.

[4] This approach to architecture as climate regulating was certainly not unique to Fathy, but in fact characterized a wider movement that came to explore architecture's interaction with its surrounding natural and man-made environment. This stretched from initiatives that saw building with responsive forms, especially vernacular ones, as organic components of the "whole" or "total" environment such as Amos Rapoport's, *House Form and Culture* (New Jersey: Prentice-Hall, Inc., 1969) to initiatives that approached architecture, not as an object, but as an ecological interface, like the work of Ralph Knowles. See Albert Narath, "The Historiography of Mud: Vincent Scully, Ralph Knowles and the image of Ecology," in *The Journal of Architecture,* vol. 21:8 (2016)

restoration of architecture. In bringing these two figures together however, the established lines that separates the futurist from the primitivist, the technological from the architectural, and the scientific from the aesthetic appears less obvious. Whether in the form of historiography or architectural design, by declaring the production of comfort as architecture's primary intention, both Banham and Fathy afforded the field with a role that surpassed shelter; to comfort became essentially progressive.

Air Conditioning

Developments in air-conditioning technology in the early years of the 20th century presented new challenges for the field of architecture. Such challenges appeared at first as natural components of modernization and did not seem particularly problematic. This changed between the 1940s and 60s as attempts to introduce the technology into the domestic sphere sparked debates about its potentials and shortcomings. Central to such debates was the confusion around the very notion of comfort; its definition, purpose, and moral value. Before identifying the comforting abilities of air-conditioning, climate-regulating technologies like refrigeration were cast as mechanisms of reducing and managing risk.[5] Regulating the interior environments of public spaces however, first appeared in theaters and department stores, and hence became commonly associated in the minds of the 1920s and 30s Americans with entertainment and consumption.[6] Therefore, applying air-conditioning to other public spaces like governmental buildings was considered by

[5] See Michael Osman, "Preserved Assets," in *Governing by Design: Architecture, Economy, and Politics in the Twentieth Century,* Aggregate (Pittsburgh, PA: University of Pittsburgh Press, 2012) pp. 1-20

[6] See Marsha E. Ackermann, *Cool Comfort: America's Romance with Air Conditioning* (Washington D.C: Smithsonian Books, 2002) pp.75

many as an unnecessary luxury; "comfort alone was a politically suspect indulgence."[7] The technology found greater appeal in workplace environments when the industry momentarily detached itself from "comfort" and forged new relationship between climate regulation and workers' efficiency. Pledging "an ideal day repeated over and over again", connected the uniformity in interior weather with the desired uniformity in workers' production.[8]

Carrier corporation executive Logan Lewis aimed at shifting the public perception of air-conditioning systems away from the luxury label associated with comfort towards "the more politically and morally persuasive claims of health and efficiency."[9] In a 1943 meeting of the American Society of Heating and Ventilating Engineers (ASHVE) in Pittsburgh, Lewis declared, "no, our ultimate objective is not comfort … it is to give man or woman a fair chance to apply the fundamental of creating wealth by producing up to the limit of his latent capacity."[10] In his 1948 speech "Is Air-Conditioning a luxury?", Lewis attempted at further convincing his audience of the significant impacts of air-conditioning in the domestic sphere, still however through its links with efficiency. Thermal comfort, he claimed, maximized human efforts, and while "cooling for a bedroom looks like pure unadulterated luxury" it should instead be understood as the rebirth of the worker.[11] In other words, the subject of modernization was only made comfortable for the sake of efficiency.

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[7] Ibid. Pp.72

[8] Ibid. Pp. 44

[9] Ibid, pp.144

[10] At the ASHVE meeting in Pittsburgh, 8 June 1943. Cited in Marsha E. Ackermann, *Cool Comfort: America's Romance with Air Conditioning* (Washington D.C: Smithsonian Books, 2002) pp.144

[11] Ibid.

By the 1920s the ASHVE had already distanced itself from earlier methodologies of measuring thermal comfort. As Marsha Ackermann mentioned "physiological experiments conducted on predominantly young, male subjects under laboratory conditions took a back seat as research began to focus on the psychological comfort reactions of "real" people working or living in actual buildings."[12] The earliest calculation of a thermal comfort zone took place in 1923 by engineers F.C Houghten and Constantin Yaglou at the Pittsburgh laboratory of the ASHVE.[13] The engineers added the new variable of "effective temperature", which accounted for both temperature and relative humidity. Relative humidity was measured by identifying the difference between the dry-bulb and wet-bulb readings. The readings were then added to the Willis Carrier's psychrometric chart to identify the ideal range: the comfort zone.[14] Houghten and Yaglou identified the comfort zone as ranging between 61.8° F and 68.8° F, with 64.5° F as the optimal temperature.[15]

Between the 1920s and 1960s, not only did an increase in relativism mark the development of comfort zone calculations by identifying different numerical ranges for different geographical zones, but the very definition of what constituted a comfortable environment gained further expansion. By 1966, the American Society of Heating, Refrigerating & Air-Conditioning Engineers (ASHRAE) defined thermal comfort as "the state of mind which expresses satisfaction

[12] Ibid. Pp. 166

[13] For a comprehensive discussion on the development of the comfort zone, see Gail Cooper, *Air Conditioning America: Engineers and the Controlled Environment, 1900 – 1960* (Baltimore & London: The John Hopkins University Press, 1998)

[14] Marsha E. Ackermann, *Cool Comfort: America's Romance with Air Conditioning* (Washington D.C: Smithsonian Books, 2002) pp.166

[15] Ibid

with the thermal environment."[16] The very idea of comfort became all-encompassing; stretching from the well-defined and collective numerical range to the ambiguous and more personalized "state of mind". In other words, the ASHRAE were establishing a positive relation between climate regulation and comfort through which the industry found an alternative route towards the domestication of air-conditioning. By representing comfort as a "state of mind", air-conditioning effectively broke-off its association with luxury, setting the stage for creating market demand as an essential domestic commodity.[17]

Air Conditioning in place of Architecture

The slow domestication of air-conditioning technology could be attributed to multiple factors. Questions of affordability and conflicts with architectural styles, among other things, contributed to the technology's relatively hostile reception. Not only were central air-conditioning systems unaffordable in the 1940s which sometimes could cost up to the price of an average single family house, the way the system required interference with and adjustments to the aesthetic and formal visions of architects contributed to their reluctance in utilizing climate-regulation systems for their residential projects. This authority that architects enjoyed, however, only lasted for a short time. By the 1950s, a shift occurred in the way air-conditioning systems interacted with domestic spaces. To become affordable, A.C. systems had to become a commodity available on a mass-

[16] Ibid, pp. 167

[17] In fact, the negative association of comfort with luxury persisted at least until the 1960s – if not until this day. In his 1960 essay "Humanism in Contemporary Architecture: Tough- and Tender-Minded," William H. Jordy associated comfort with the rise of a "tender" form of humanism that was "centered exclusively in the shallowest convenience, relaxation, and escape – aspects of human experience which are on the periphery of genuine humanism, but at the core of pseudo-humanism masking as the real thing." See William H. Jordy, "Humanism in Contemporary Architecture: Tough- and Tender-Minded," in *Journal of Architectural Education,* 15:2 (1960) pp.5

scale. This commodification process, however, was not limited to price reduction, but instead devised methods to compensate for the added prices of air-conditioning. Houses with built-in central air conditioning, and not necessarily air-conditioning system itself, were the objects becoming more affordable. To accommodate the new central air-conditioning, the architecture of the house compensated for its price.

"Costly construction details", one Frigidaire's ad for a "one temperature Home summer and winter" declared, had been eliminated.[18] Both General Electric and Carrier announced a "New Affordability." A Carrier ad claimed the emergence of "a new kind of house… (where) comfort is built in."[19] As Ackermann mentioned, "the ad suggested walls, doors, and windows could be located anywhere or even omitted."[20] Architectural methods, like cross ventilation, were instead rendered unaffordable, and subsequently defined as unnecessary luxuries.[21] In 1952, Carrier hired an architectural firm to design a mass-produced house:

> *It needed not depend on natural ventilation. Ells and wings wouldn't be necessary. Only a few windows need have movable sash. The bathrooms needn't require a*

[18] Marsha E. Ackermann, *Cool Comfort: America's Romance with Air Conditioning* (Washington D.C: Smithsonian Books, 2002) pp. 122

[19] Ibid, pp.118

[20] Ibid.

[21] Ibid. In fact, as Cooper revealed, there was a deliberate resistance to natural ventilation as it contradicted the industry's effort to develop a scientific character for heating and ventilating engineering. Cooper cited F. Paul Anderson, then the leader of the ASHVE laboratory declaring that "the heating and ventilating engineer resents the philosophy that "the winds will provide." Understandably, reformist groups such as the ones referring to themselves as the "Open Air Crusaders" developed their criticism against air-conditioning by rejecting the new technology all together. Gail Cooper, *Air Conditioning America: Engineers and the Controlled Environment, 1900 – 1960* (Baltimore & London: The John Hopkins University Press, 1998) pp. 70 & 51.

window. Windows, doors, and even the rooms themselves could be placed to suit the convenience of the owner, not to catch the breeze.[22]

To introduce air-conditioning into the domestic sphere, the climate-regulating system was portrayed as not only capable of fulfilling and surpassing the functional requirements of architectural elements, but also similarly measurable in monetary terms. Like the multiple parts constituting the architecture of the house, air-conditioning became a commodity. And to add a part without substantially increasing the price of the whole often required the removal of others.

Reyner Banham and Air Conditioning

In 1965 Reyner Banham published his first attempt at engaging with the problem of climate regulation.[23] In "A Home is not a House", Banham's argument shared some of the rationale pushed forward by the air-conditioning industry. His Environment-bubble (Figure 4.1) even took a step further by entirely ridding the house of its architectural components. Banham's proposal however, was neither derived from technical concerns, nor from economic ones, instead, albeit futurist, his Environment-bubble remained primarily architectural. Unlike the initiatives presented by the A.C corporations, which were understandably formulated in disregard to the aesthetic and formal considerations of the architecture profession, Banham's approach to the problem of technology remained closely associated with the development of the architectural discipline. He considered the A.C revolution to have occurred not when central air-conditioning became affordable, but instead, when air conditioning systems became *portable*. "What had finally wrought the revolution and brought in the air conditioning flivver", Banham declared,

[22] Marsha E. Ackermann, *Cool Comfort: America's Romance with Air Conditioning* (Washington D.C: Smithsonian Books, 2002) pp. 118

[23] Reyner Banham, "A Home is not a House," in *Art in America,* vol. 2 (New York: 1965)

> *... was not a central station system servicing the house through ducts, it was not a room-cooler with a remote refrigeration plant, it was not a compound unit like Carrier's Weathermasters. It was a simple, self-contained box, needing connection only to an electrical outlet; it could usually be lifted by one man, or two if unusually large; its bulk might not be more than two or three cubic feet; and it provided full and complete air conditioning.*[24]

Air-Conditioning revolutionized the domestic sphere when it became a portable self-contained box; an affordable commodity that could be bought, transported, and installed with ease. (Figure 4.2) Air conditioning was a commodity, unlike the central air-conditioning system, that through its self-containment and portability not only presented the least possible friction between technology and architectural visions, but also became a commodified equipment among others; a category that is detached from and supplementary to the architecture of the house. Air conditioning for Banham, can now "be installed in a hole in the wall or opened window, plugged in to the electrical main, and can deliver genuine air-conditioning."[25] The self-contained window unit, "finally made air-conditioning comprehensible as domestic equipment comparable with the cooker, the refrigerator and the television set."[26] But, besides the commercial availability of the portable window A.C, the rise of the technology signaled a more fundamental shift in the public perception of cooling. As Gail Cooper argued in *Air Conditioning America: Engineers and the Controlled Environment, 1900 – 1960*, central air conditioning technology which was favored by

[24] Reyner Banham, *The Architecture of the Well-tempered Environment* (1969) Second Edition (Chicago and London: The University of Chicago Press, 1984) pp. 186-187

[25] Ibid, pp.187

[26] Ibid.

the majority of design professionals for its ability to generate and maintain an "ideal" weather, was soon presented with a challenger in the form of the window air conditioner which ultimately became the public's favorite for its potentials to comfort instead.[27] In other words, the A.C. revolution that Banham associated with the commodification of the window A.C. had its roots in the more fundamental shift from idealism to comfort.

Air-conditioning for Banham was "a portent in the history of architecture … it is now possible to live in almost any type or form of house … (where) all precepts for climate compensation through structure and form are rendered obsolete."[28] Such obsolescence, however, presented for Banham an opportunity towards "absolute variety and infinite choice of building form;" a justification that was often provided by the air-conditioning industry as well.[29] But while both Banham and the A.C industry arrived at the same conclusion that architecture in its conventional form was obsolete, their underlying intentions were quite different. The viewpoint of the A.C industry was that of disregard to architectural agendas as unnecessary luxuries; any architectural approach in turn was measured through its economy: the cheaper the better. If architectural modernism, with its purist aesthetics and claims of economy appeared as an ideal fit, it was only celebrated as long as the architectural vision did not interfere with the performance or economy of the climate regulating system. In other words, the rhetoric of design variation went only as far as stripping buildings from unnecessary decorative elements, and the architectural idea as such became of the least relevance. Form and structure however, remained essential components

[27] Gail Cooper, *Air Conditioning America: Engineers and the Controlled Environment, 1900 – 1960* (Baltimore & London: The John Hopkins University Press, 1998) pp. 3

[28] Reyner Banham, *The Architecture of the Well-tempered Environment* (1969) Second Edition (Chicago and London: The University of Chicago Press, 1984) pp. 187

[29] Ibid, pp.190

as thermal insulators to the efficient performance of air-conditioning systems, and in that sense, architecture degenerated towards its primordial role as mere shelter.

When it came to the problem of climate regulation technologies, Banham's account on the other hand, was quite straightforward: to become functional, architects must abolish monumental form in favor of technological devices. His ideology, however, had its roots in an entirely different set of problems. In *Theory and Design in the First Machine Age,* Banham already expressed his disillusionment with Modernism's use of the term functionalism. For Banham, the "machine-for-living-in" remained a metaphorical expression through form rather than an actual utilization of technology.[30] Banham's project, and his calls for replacing architectural form with technology, was as Michael Osman argued, "an attempt to disentangle modern architecture from an accompanying stylistic rhetoric that did not account for the building's environmental performance."[31] For Banham, architecture was the problem, and his project, although shifted attention towards environmental technologies, remained focused on the development of the architecture discipline. If the A.C industry contributed to the forces applied by environmental design on the architectural profession, Banham's historiography absorbed such forces by stretching architecture's disciplinary boundaries, while re-assembling counter-canons to reshape the relation architecture had with technology. If the A.C. corporations and professional organizations worked on developing the technology, and on its way found architectural ideas prohibiting, Banham's efforts remained focused on the progression of modern architecture. For

[30] Reyner Banham, *Theory and Design in the First Machine Age* (1960) Second Edition (Cambridge, MA: The MIT Press, 1980)

[31] Michael Osman, "Banham's Historical Ecology," in *Neo-avant-garde and Postmodern: Postwar Architecture in Britain and Beyond* eds. Mark Crinson and Claire Zimmerman (New Haven, CT: Yale University Press, 2010) pp. 240

architecture to progress, its value had to surpass that of shelter; architecture must be understood as a tool for comfort.

The Architecture of the Well-tempered Environment

Banham's project aimed at reshaping the relationship between architecture and technology. In 1969, he published *The Architecture of the Well-tempered Environment,* which called attention to comfort-producing technologies and their significant impact on the modern building industry. Such emphasis revealed for Banham the value of other forms of scientific knowledge and the fundamental deficiencies in the expertise architects held. These deficiencies, Banham claimed, were direct outcomes of the traditional pedagogy of architectural education. His work tested the disciplinary boundaries of the profession by shifting attention from the works of the Masters of Modern Architecture towards the developments in mechanical systems of environmental regulation. This way, Banham emphasized a counter-canon defined by the historical lineage of the most significant changes in comfort technologies.[32] By highlighting projects like the Royal Victoria Hospital in Belfast, the air ducts of Frank Lloyd Wright's Larkin Administration building, the self-contained air conditioner units, and the artificial lights of Las Vegas, Banham reorganized the history of architecture away from the narratives of formal styles and towards those of environmental control systems. Such thematic arrangements, Banham claimed, revealed "how far environmental technology can be driven beyond the confines of architectural practice by designers who (for worse or better) are not inhibited by the traditions of architectonic culture, training and taste."[33]

[32] Ibid

[33] Reyner Banham, *The Architecture of the Well-tempered Environment* (1969) Second Edition (Chicago and London: The University of Chicago Press, 1984) pp. 272

Banham's project therefore suppressed the monumental forms of architecture in favor of technological devices, repeating the sentiments presented earlier through the Environment-bubble—only this time through a historiographical argument. Mary Banham's illustrations (Figure 4.3) that appeared in *The Architecture of the Well-tempered Environment* further demonstrated his arguments. The cross-sectional drawings push architecture aside to expose the buildings' mechanical systems. The sections effectively render architecture present yet invisible. Reyner Banham had already questioned the significance of architectural form in the opening paragraphs of "A Home is not a House". "When it contains so many services that the hardware could stand up by itself without any assistance from the house" he questioned, "why have a house to hold it up?"[34] For Banham, therefore, the characterization of architecture as shelter, precisely due to the superior climate-regulation capabilities of technological devices, became invalid. In other words, in replacing monumental forms with technology, Banham stripped architecture from its most fundamental role as shelter in favor of the progressive quality of comfort. The house shelters, while the home comforts; in Banham's own words therefore, "A Home is not a House".

For Banham, the notion of comfort was often taken for granted and approached through rather simplistic terms within the architectural circles at the time. Comfort, however, was not only a desired quality experienced in regulated environments, but most importantly an essential aspect for progress. "In order to flourish, rather than merely survive" Banham claimed, "mankind needs more ease and leisure than a barefisted, and barebacked, single-handed struggle to exist could permit".[35] Progress, thus, was driven by the continuous desire to enhance comfort technologies

[34] Reyner Banham, "A Home is not a House," in *Art in America,* vol. 2 (New York: 1965) pp. 70

[35] Reyner Banham, *The Architecture of the Well-tempered Environment* (1969) Second Edition (Chicago and London: The University of Chicago Press 1984)

and mechanisms, and architecture therefore, must follow the path of technology and device methods to continuously develop its comforting capabilities, even if this meant the abolishment of architectural form. Without providing the added value of comfort, architecture would not permit societies to flourish. In other words, Banham's functionalism meant that architects must avoid the metaphorical statement of "machine-for-living-in", in favor of developing a form of architecture that was itself a climate-regulating machine.[36]

Banham's association of comfort with progress nonetheless came as a way of setting up his argument against the advocates of primitive and vernacular modes of building who claimed the possibility of producing comfortable environments by adopting traditional methods and techniques of construction. Indeed, Fathy was at the forefront of this opposing group. Ironically, however, his anti-technological methods of creating climatically regulated architecture, as the following argues, could best be described in terms of Banham's understanding of functionalism: architecture as a climate-regulating machine.

Comfort in the Local Environment

In 1986, Fathy published his last book *Natural Energy and Vernacular Architecture: Principles and Examples with reference to Hot Arid Climates*. The book concluded his approach at utilizing vernacular knowledge towards solving housing problems in developing countries. This time however, through providing empirical evidence supporting the contemporaneity of traditional architecture. Approaching architecture as "scientific" solidified Fathy's earlier claims of traditional architecture's comforting effects within the destabilizing forces of new comfort technologies. These destabilizing forces, as Fathy referred to them, presented themselves in two

[36] See Reyner Banham, *Theory and Design in the First Machine Age* (1960) Second Edition (Cambridge, MA: The MIT Press, 1980)

different ways. On the one hand, they challenged, as previously discussed, the cultural, social, and economic stability of traditional societies. On the other, when it came to the problem of climate control, they challenged the stability of the disciplinary boundaries of architecture. For Fathy, these two problems were not entirely separate. His understanding of the architect as an "authoritative critic" driven by multiple forms of knowledge, and possessing the unique ability "to revive the peasant's faith in his own culture", was not merely a nationalist sentiment, but rather an attempt at re-affirming his own agency within modernization through re-affirming architecture's disciplinary authority.[37] Fathy's work, was a pedagogical attempt at stretching, redefining, and reconsolidating the disciplinary boundaries that shaped the technical expertise as well as the social status and responsibilities of the architect. For Fathy, however, the interdisciplinarity demanded by the complexities of environmental design, in contrast to Banham's position, represented itself through architectural form.

In establishing objective judgement criteria that were in accordance with those of climate-regulation technologies, Fathy sought to counter the forces that destabilized architecture's disciplinary boundaries by approaching the architectural object as itself a climate-control machine. The desire for — and the failure to acquire — expensive mechanical equipment brought physiological and psychological discomfort to his subjects. Fathy's reliance on passive methods of heating and cooling therefore, not only aimed at reclaiming architects' authority over the design of interior microclimates by prioritizing the formal and material articulation of architecture over mechanical intervention, but also responded to a wider desire for comfort that went beyond designing thermally convenient environments.

[37] Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973) pp. 43. Originally published as *Gourna: A Tale of Two Villages* (Cairo, Egypt: The Ministry of Culture, 1969)

"To be contemporary" Fathy claimed, "a work of architecture must be part of the bustle and turmoil, the ebb and the flow of everyday life; it must relate harmoniously to the rhythm of the universe."[38] In other words, architecture must be part of its local environment.[39] This emphasis on a harmonious relation between man and environment shaped Fathy's understanding of architecture, arguably, as early as the 1940s. His New Gourna project aimed at bringing people closer to their local environment by building climatically responsive houses using "materials offered by the landscape."[40] For Fathy, the rise of environmental discourse meant that architects had to cover a wider spectrum of expertise that ranged from "the mechanical sciences" of building to "the sciences that concern man in his environment and society."[41] Sciences like "sociology, economics, climatology, theory of architecture, aesthetics, and the study of culture in general", Fathy claimed, "are no less important to the architect than are the mechanical sciences, for they are directly concerned with man, and it is for man that architecture exists."[42]

Fathy's earliest encounter with the problem of environmental design came during his years of collaboration with Doxiadis. Like Banham, Doxiadis was influenced by the work of Buckminster Fuller and called for a better integration between architecture and the new emerging

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[38] Hassan Fathy, *Natural Energy and Vernacular Architecture: Principles and Examples with reference to Hot Arid Climates* (Chicago and London: The University of Chicago Press, 1986) pp. xxii

[39] This understanding of change as an inherent characteristic of the environment had been a consistent theme in studies of ecology since the 19th century. On works contemporaneous to Fathy that explored in detail this notion of change in relation to the natural environment and architectural form see Ian L. McHarg, *Design with Nature* (New York: The Natural History Press, 1969) whom Fathy was familiar with and had this book in his personal library.

[40] Hassan Fathy, *Natural Energy and Vernacular Architecture: Principles and Examples with reference to Hot Arid Climates* (Chicago and London: The University of Chicago Press, 1986) pp. xix

[41] Ibid, pp.3

[42] Ibid, pp.3

technologies.[43] Fathy's encounter with Doxiadis however, as mentioned earlier, was defined by debates and disagreements over the very understanding of issues like environmental design, human comfort, and the role of architects in modernization developments. As a global planner heavily involved in large modernization projects in developing countries, Doxiadis saw the environment as an object of resource management. The environment "encompassed the quantifiable and qualitative aspect of the built and the natural world, economic forces, and technological transformations."[44] He nevertheless, like Fathy, stressed on the significance of generating a "harmonious relationship" between subjects and their environment.[45] It was Doxiadis' understanding of the role of architects and architecture that Fathy fundamentally opposed. For Doxiadis:

> *The activity taking place in factories and in areas of low-cost housing – no matter whether created in organized private or governmental settlements or in a completely haphazard way – is far more important than what takes place in the ateliers of many big architects. A chemist or a production manager may in the end prove far more important to the architecture of the future than many architects.*[46]

[43] For a comprehensive study on Doxiadis, Ekistics, and environmental discourse see Panayiota I. Pyla, "Ekistics, Architecture and Environmental Politics, 1945-1976: A Prehistory of Sustainable Development," PhD dissertation (MIT, 2002) Also see Panayiota Pyla, "Planetary Home and Garden: Ekistics and Environmental-Developmental Politics," in *Grey Room*, 36 (Cambridge, MA: MIT Press, Summer 2009) pp. 6-35

[44] Panayiota Pyla, "Ekistics, Architecture and Environmental Politics, 1945-1976: A Prehistory of Sustainable Development," PhD dissertation (MIT, 2002) pp. 34

[45] Doxiadis cited in Pyla, "Ekistics, Architecture and Environmental Politics, 1945-1976: A Prehistory of Sustainable Development," PhD dissertation (MIT, 2002) pp. 41

[46] Ibid.

While Fathy encouraged interdisciplinary approaches in architecture and planning projects, he disagreed with the suggestion of replacing architects with chemists and production managers. As Panayiota Pyla described it, "Fathy confronted Doxiadis with this question: is it not possible to expand architecture's social and environmental responsibilities, without dissolving its disciplinary specificity into the managerial map of the development discourse?"[47] At the core of such dispute was the disagreement on what characterized human comfort. Fathy stressed that comfort comes from the concrete understanding of the social, cultural and economic conditions of his subjects. While for Doxiadis, "the human subject remained abstract with generic needs that corresponded to statistical standards of comfort, minimum sizes and spatial units."[48] Doxiadis' identification of the architect as a resource manager therefore, while complemented Fathy's concern over the lack of resources in developing countries, was a downgrade from the latter's "authoritative critic". If Doxiadis believed that "a better life cannot be created merely by the erection of better houses", Fathy held firmly to the belief that "there was nothing that could not be put right by good design and a broom."[49]

Technology at the Service of Culture

While Fathy suppressed the benefits of mechanical systems in favor of revealing the climate regulating potentials of architecture, his approach was not necessarily anti-technological.

[47] Panayiota I. Pyla, "Ekistics, Architecture and Environmental Politics, 1945-1976: A Prehistory of Sustainable Development," PhD dissertation (MIT, 2002) pp.109

[48] Ibid, pp. 53

[49] Doxiadis cited in Pyla, "Ekistics, Architecture and Environmental Politics, 1945-1976: A Prehistory of Sustainable Development," PhD dissertation (MIT, 2002) pp. 34, and Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973) pp. 5. Originally published as *Gourna: A Tale of Two Villages* (Cairo, Egypt: The Ministry of Culture, 1969)

His unique understanding of what constituted technology allowed him not only to undermine the significance of recent mechanical developments, but also to argue that traditional architecture, as a local craft, qualifies as a more appropriate form of contemporary technology. Fathy disagreed with the conventional association of technology with mechanization, constructing his argument with a particular interpretation of technology's definition as "the use of science for practical reasons."[50] Technology, he claimed, "comprises handicrafts as well as machine made products. Mud-brick making by hand as employed by the peasants for centuries is just as much technology as brick making by machinery according to the findings of recent science of soil mechanics".[51] The same understanding could be applied to climate regulation technologies, where local traditional architectural components like wind-catchers, courtyards, vaults, domes, and mashrabeya (screened windows) were transposed and assembled to operate as mechanisms comparable to air-conditioning systems. For Fathy, traditional architecture already operated as a climate control machine, and architects ought to refine and test their designs according to the latest scientific methodologies. This way, Fathy rendered his "traditionalist" architecture as contemporary; that is "(in) consonance with the current stage of change in knowledge and science."[52]

[50] Hassan Fathy, "Technology at the Service of National Culture and Economy in the field of Architecture and Urban Design," in *Hassan Fathy Archives*, Aga Khan Trust for Culture (Geneva, Switzerland)

[51] Ibid.

[52] Hassan Fathy, "Contemporaneity in the City" (1961) in *Architecture for a Changing World*, ed. James Steele (London: Academy editions, 1992)

Architecture as a Climate Control Machine

In *Natural Energy and Vernacular Architecture,* Fathy approached architecture as a scientific object of inquiry. It was through his second book, therefore, that he further emphasized his disidentification with the non-professional poor; solidifying his elite status by subjecting the objects of vernacular culture to the scientific criteria of the professional. To avoid arbitrary views of the vernacular, Fathy argued, architects must "establish some standards of reference that involve the concept of contemporaneity."[53] The scientific evidence produced out of multiple experimentations on the way architecture responded to its local environment therefore drew the line between the contemporary and the anachronistic.[54] These scientific evidence that highlight the superior climatic performance of traditional architecture however—its building materials and spatial configuration—were repeatedly juxtaposed with his observations of, and personal opinions about the customs and belief system of his subjects. Not only was Fathy granting scientific foundations for his views on how an un-mechanized way of life would bring his subjects to an optimum level of harmony with their environment, but most importantly, his approach portrayed architecture as the sole facilitator of such comforting relationship. This unproblematic relation between the scientific and the cultural complemented Fathy's understanding of the local

[53] Hassan Fathy, *Natural Energy and Vernacular Architecture: Principles and Examples with Reference to Hot Arid Climates* (Chicago & London: The University of Chicago Press, 1986) pp. xxii

[54] "The wholly contemporary design is in no way anachronistic. Anachronism can be precisely measured. It is well-known that any building in which thermal capacity is unnecessarily large, and in which the consequent load on the heating system is unduly high, is considered old-fashioned by American insurance companies, who will not insure such a house because it is uneconomical to run and hence difficult to sell. In such a case the degree of anachronism of this building, from the point of view of physical science, may be expressed in the number of BTUs or Kilocalories in excess of the economic ratio (building/heat) needed to bring the building up to the required temperature". In Hassan Fathy, "Contemporaneity in the City" (1961) in *Architecture for a Changing World*, ed. James Steele (London: Academy editions, 1992) pp.58-59.

Environment, which constituted both "visible elements such as work patterns, transportation patterns, climate, vegetation, and landscape, vs. invisible elements such as history, belief systems, (and) psychological needs."[55] It was the medieval forms of Islamic architecture that equally fulfilled the scientific criteria of climate regulation, and the cultural criteria of a traditional society. And it was only architecture, in Fathy's mind, that could bring these two unrelated forms of knowledge together; a role usually attributed to technology. This is where Fathy fabricated his own professional elitism by subjecting vernacular objects to his own "scientific" paradigm.

In the first paragraph of *Natural Energy and Vernacular Architecture*, Fathy described the design process of architecture as similar to "when an engineer designs a machine."[56] He then followed by presenting his arguments through graphs, tables and mathematical equations that accompanied his writings, photographs, and architectural drawings. His ideas in the book were pronounced through a comparative method that placed the environmental performance of traditional Islamic architecture against that of modern forms of building. By utilizing the means for representing scientific facts, and annotating the architectural sections with directional arrows, Fathy was approaching traditional architecture, and by extension his own work, as scientific. His architectural ideas thus developed through the very same means of advancing technological devices.

To test the environmental performance of traditional architecture, Fathy took part in an experiment in 1964 at the Cairo Building Research Center. Readings were gathered from six

[55] This definition of environment appeared in Hassan Fathy, "Course Outline, Climate and Architecture," (1959-60) pp.3, cited in Pyla, "Ekistics, Architecture and Environmental Politics, 1945-1976: A Prehistory of Sustainable Development," PhD dissertation (MIT, 2002) pp.103

[56] Hassan Fathy, *Natural Energy and Vernacular Architecture: Principles and Examples with Reference to Hot Arid Climates* (Chicago & London: The University of Chicago Press, 1986) pp. 3

experimental rooms constructed using different building materials to determine their thermal comfort capabilities. Fathy only published the findings from the two rooms (Figure 4.4) that represented extreme opposites.[57] One was built entirely out of mud bricks; with 50cm thick walls and covered with a dome and supporting vaults. The other was built with only a 10cm thick prefabricated concrete walls and a flat roof. The experiment presented a strong case for the superiority of traditional building methods when compared to the environmentally inferior modern construction. The readings taken in March, when temperatures were relatively moderate and varied from a low of 12˚C (53.6˚F) and a high of28˚C (82.4˚F), revealed that "the air-temperature fluctuations inside the mud-brick model did not exceed 2˚C (3.6˚F) during the 24-hour period."[58] Representing the findings of the two models on graphs (Figure 4.5) that occupied two opposite pages in the book, the mud-brick model produced a line with a very slight curve that remained within the Comfort Zone limits for Cairo throughout the entire day, while the concrete room produced a curve with large fluctuations that "fell within the comfort zone for only one hour in the morning (9-10 A.M) and between 8:40 P.M and 12:20 A.M."[59]

The experiment, as conducted and represented by Fathy, could hardly count as truly objective. The experiment itself lacked a proper control, since the walls and roofs thickness—dictated by the structural characteristics of the building materials—varied significantly. Additionally, there was no mention of the actual volumes of the two interior spaces, and, therefore, the level of accuracy of the readings cannot be determined. The most questionable aspect, however,

[57] See Fathy, *Natural Energy*, pp.40-41

[58] Ibid, pp.40

[59] Ibid, pp.40-41. The graphs are shown in pages 78-79

was that the 10 cm thin-walled concrete rooms would be most commonly conceived of with an air-conditioning system in mind. The supremacy of mud-brick thermal performance nonetheless, was already, by the time Fathy conducted his experiment, considered common knowledge within the scientific and architectural fields.[60] Hence, it is safe to say that the purpose of this experiment was not to highlight the already-known superiority of mud-bricks thermal performance, but instead, to highlight the capabilities of traditional mud-brick architecture to operate as fully functional climate control machine. The purpose was to represent this particular type of construction (load bearing mud-brick walls, supporting a roof of vaults and domes of the same material) as capable of maintaining a microclimate that remained within the thermal comfort zone throughout the entire day. The representation of the experiment in the form of architectural drawings supported by evidence in the form of numerical figures and comparative graphs presented a very powerful image of traditional architecture as a contemporary form of environmental regulation; a claim that only became possible when traditional architecture was approached as a scientific object of inquiry.

This mud-brick room that appeared in the experiment played for Fathy a role that went far beyond the measurement of thermal capabilities. The design of the room, like most of Fathy's residential work, followed the medieval organizational principle of the Qa'a. Identical room designs with minor modifications appeared in several of Fathy's projects; including ones that predated the experiment, like the typical bedroom designed in New Gourna (Figure 4.6) and later ones like the typical hotel room for The Nile Festival Village project (Figure 4.7). While this highlights Fathy's already pre-determined conclusion, it most importantly reveals how this experimental mud-brick room was only a moment in the larger process of developing passive

[60] Experiments in the thermal performance of building materials was first initiated by the A.C. industry. See Cooper, *Air-Conditioning America*, pp. 69

climate-regulating machines. The Qa'a principle was transposed, modified, tested, and then published as a scientific experiment that highlights its abilities to maintain an ideal interior microclimate throughout the changing conditions of the day.

"A principal purpose of building is to change the microclimate" Fathy claimed, and "the microclimate on each building site is changed into several different microclimates as the result of the construction of the house itself."[61] To respond to such variable conditions, Fathy approached the traditional system of architecture as comprised of independent entities that when assembled together generated a climate regulating system. In "The Qa'a of the Cairene Arab House, its development and some new usages of its design concept" Fathy claimed,

> *In temperate zones, where protection against heat is not of prime importance, the window serves three purposes: it lets in light, it lets in air, and it lets one see out. But for efficiency, these three functions would better be separated in the design of the Qa'a.*[62]

This separation of functions, however, did not only allow Fathy to claim better adaptation to the variable microclimates by adjusting the positioning and assembly of elements like courtyards and wind-catchers, but also represented the medieval organizational principle as an object of development. In a separate experiment conducted a year earlier for the Egyptian Ministry of Scientific Research, Fathy built a number of room models similar in scale to the ones described earlier, only this time to test the effects of variable combinations of architectural elements on the

[61] Hassan Fathy, *Natural Energy and Vernacular Architecture: Principles and Examples with Reference to Hot Arid Climates* (Chicago & London: The University of Chicago Press, 1986) pp. 7

[62] Hassan Fathy, "The Qa'a of the Cairene Arab House: Its Development and some new Usage for its Design Concepts," in *International Colloquium on the History of Cairo* (Cairo: 1970) pp. 141. *Hassan Fathy Archives,* Aga Khan Trust for Culture (Geneva, Switzerland)

interior microclimate. One room was formed of an open courtyard with a staircase leading to a sitting area on the flat roof of a 3m x 4m room (Figure 4.8). The model had walls on three sides, with one side left open to the exterior environment. The second room of the same size (Figure 4.9) had no courtyard, but instead tested the effects of a wind-catcher and a low window opening positioned on one side, with a higher window and a door on the opposite side. The third room, (Figure 4.10) which was a replica of a model developed earlier by Doxiadis, tested the effects of a triangulated roof that filled the entire area of the room. The roof had triangular openings from two opposite sides; one to allow cold air in, and the other to let hot air out.[63] This experiment demonstrated Fathy's approach towards traditional architectural elements as climate regulating entities to be designed, modified and assembled together as a complete system.

Many of Fathy's work, like the iconic New Bariz Market place (Figure 4.11) with its ventilating vaults, were thusly products of several developments in passive climate regulating technologies. His cross-sectional drawings that represented directional arrows signifying air movements without mechanical interventions, however, should not be simply considered a representation of cross ventilation (Figure 4.12). The directional arrows, like the graphs, tables and equations, were another layer of evidence that more effectively represented the success of architectural solutions in maintaining comfortable microclimates.[64] Cross ventilation, already deemed ineffective and luxurious by the advocates of air-conditioning, was for Fathy only a partial technique within the overall scheme of passive climate regulation.

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[63] Hassan Fathy. "Unpublished Experimental rooms for the Ministry of Scientific Research," *Hassan Fathy Archives,* Aga Khan Trust for Culture (Geneva, Switzerland: 1963)

[64] This attention to specific architectural forms and types is what separates Fathy's architectural diagrams from typical ecological representations that commonly aim at recording and understanding the natural environment. On the influence of ecologists and their techniques of representation on the architectural field in the second half of the 20th century, see Albert Narath, "The Historiography of Mud: Vincent Scully, Ralph Knowles and the image of Ecology," in *The Journal of Architecture,* vol. 21:8 (2016)

The separation of the climate regulating elements of Fathy's architecture, also meant the independency of such elements from the remaining architectural parts. These elements, as Fathy claimed, effectively respond to variable microclimates without interfering with the desired spatial organizations that fulfill other needs. In other words, Fathy's traditional system echoed Banham's futurist claims of the potentials of generating architectural variety independent from the surrounding climatic conditions; a quality that would counter the monotony of modernism. As Banham stated, "In freeing architecture from local climatic constraints, mechanical environmental management techniques have given carte blanche for formal experimentation."[65] Similarly, Fathy declared, "we could use the wind catch to free us from the need to orientate the house for the wind."[66] Fathy's architectural elements, when strategically assembled, generate a complete system of climate regulation that not only held the capabilities of countering those of the still relatively expensive, and in turn psychologically discomforting air-conditioning system, but also acquired potentials for future developments. Architecture without air conditioning was not an architecture without the machine; rather, it was architecture as a machine: a re-affirmative tool of the architect's elite status in the project of modernization.

[65] Reyner Banham, *The Architecture of the Well-tempered Environment* (1969) Second Edition (Chicago and London: The University of Chicago Press, 1984) pp.239

[66] Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973) pp. 50. Originally published as *Gourna: A Tale of Two Villages* (Cairo, Egypt: The Ministry of Culture, 1969)

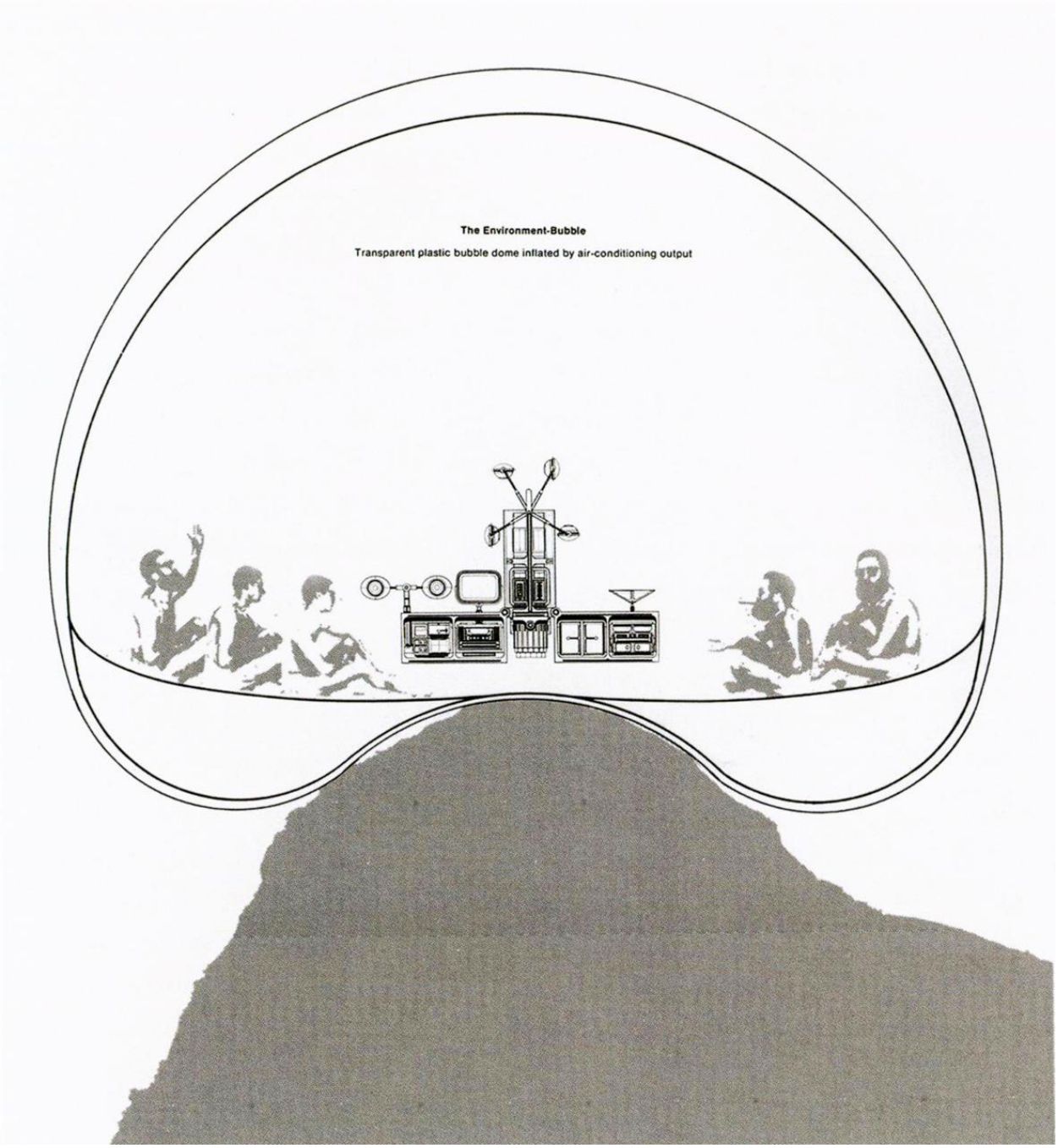


Figure 4.1 Environment Bubble, Reyner Banham and François Dallegret. From: Reyner Banham, "A Home is not a House," in *Art In America*, vol. 2 (New York: 1965)

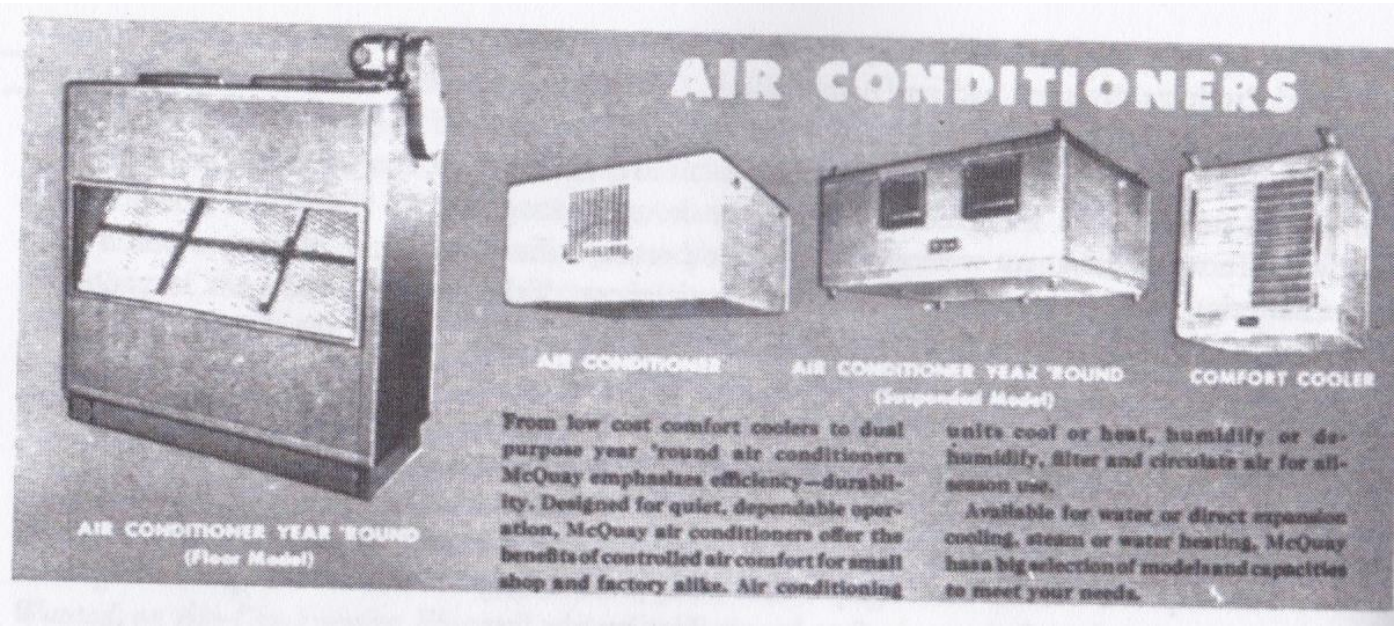
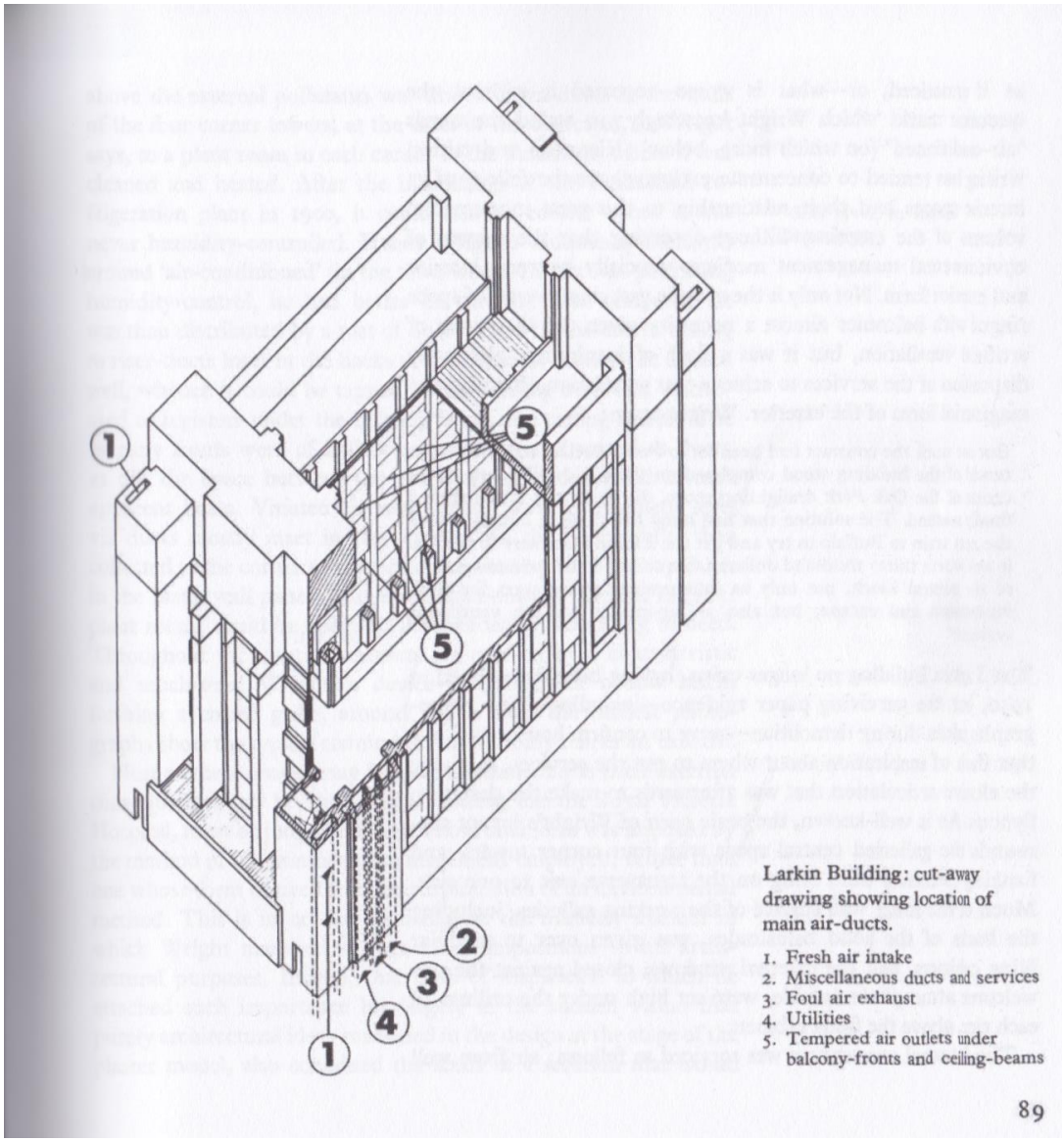


Figure 4.2 McQuay Company, Packaged air conditioners, 1948. From: Reyner Banham, *The Architecture of the Well-tempered Environment* (1969) (Chicago & London: The University of Chicago Press, 1984)



Larkin Building: cut-away drawing showing location of main air-ducts.

1. Fresh air intake
2. Miscellaneous ducts and services
3. Foul air exhaust
4. Utilities
5. Tempered air outlets under balcony-fronts and ceiling-beams

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Figure 4.3 Larkin Building: cut-away drawing showing location of main air-ducts. Section by Mary Banham. From: Reyner Banham, *The Architecture of the Well-tempered Environment* (1969) (Chicago & London: The University of Chicago Press, 1984)

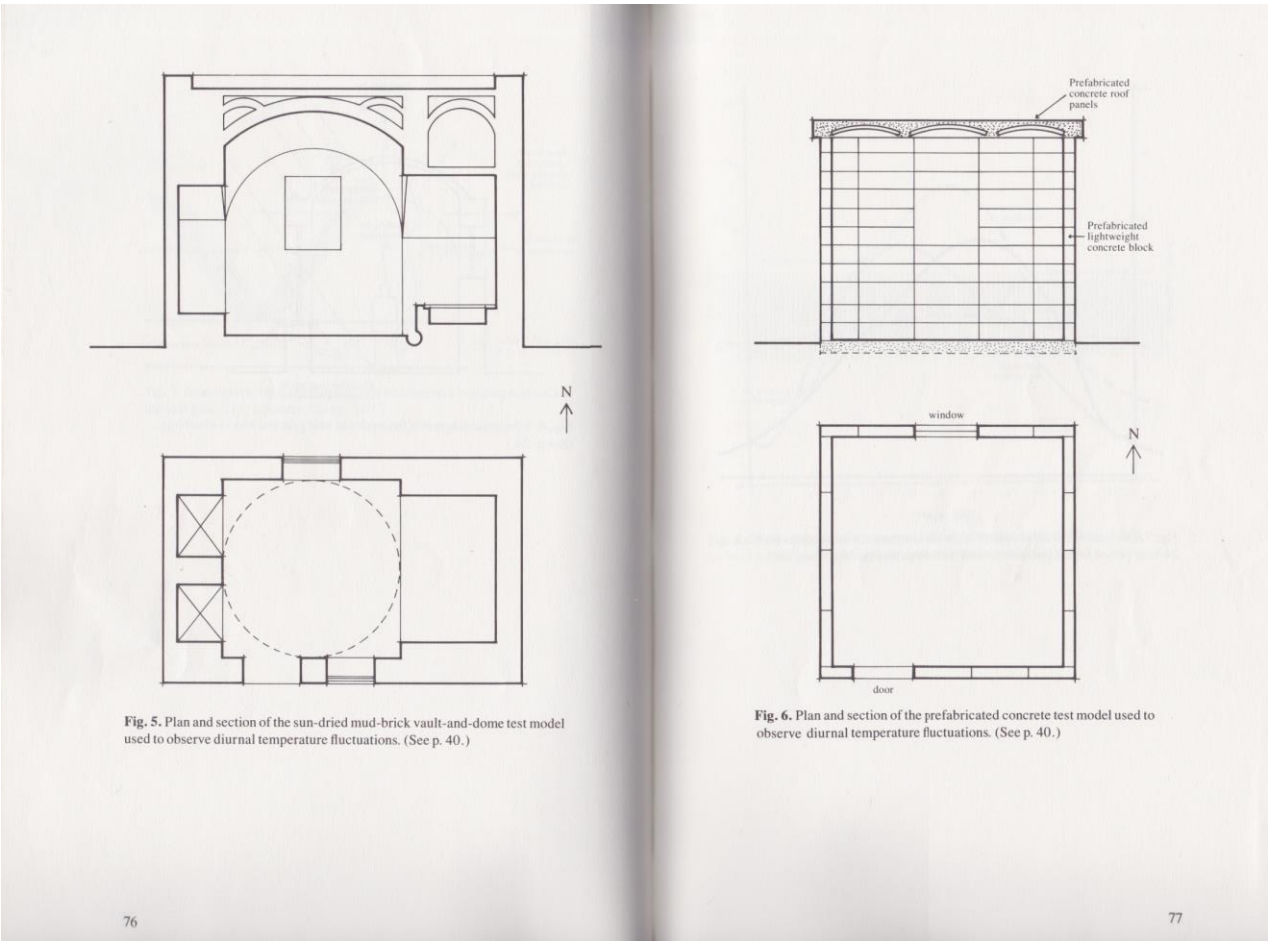

Fig. 5. Plan and section of the sun-dried mud-brick vault-and-dome test model used to observe diurnal temperature fluctuations. (See p. 40.)

Fig. 6. Plan and section of the prefabricated concrete test model used to observe diurnal temperature fluctuations. (See p. 40.)

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Figure 4.4 Experimental Rooms for the Cairo Building Research Center, 1964. From: Hassan Fathy, *Natural Energy and Vernacular Architecture: Principles and Examples with reference to Hot Arid Climates* (Chicago and London: The University of Chicago Press, 1986)

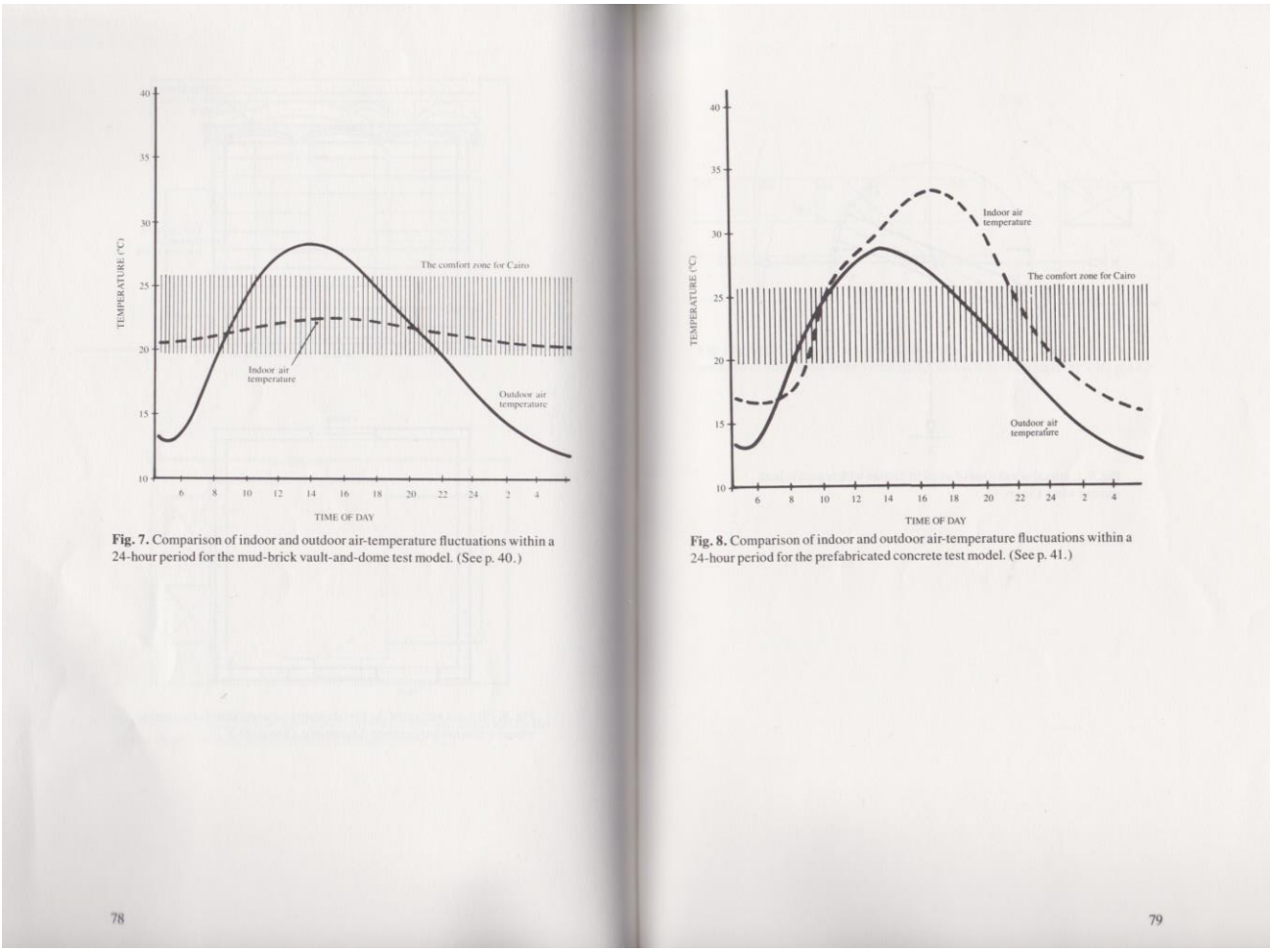
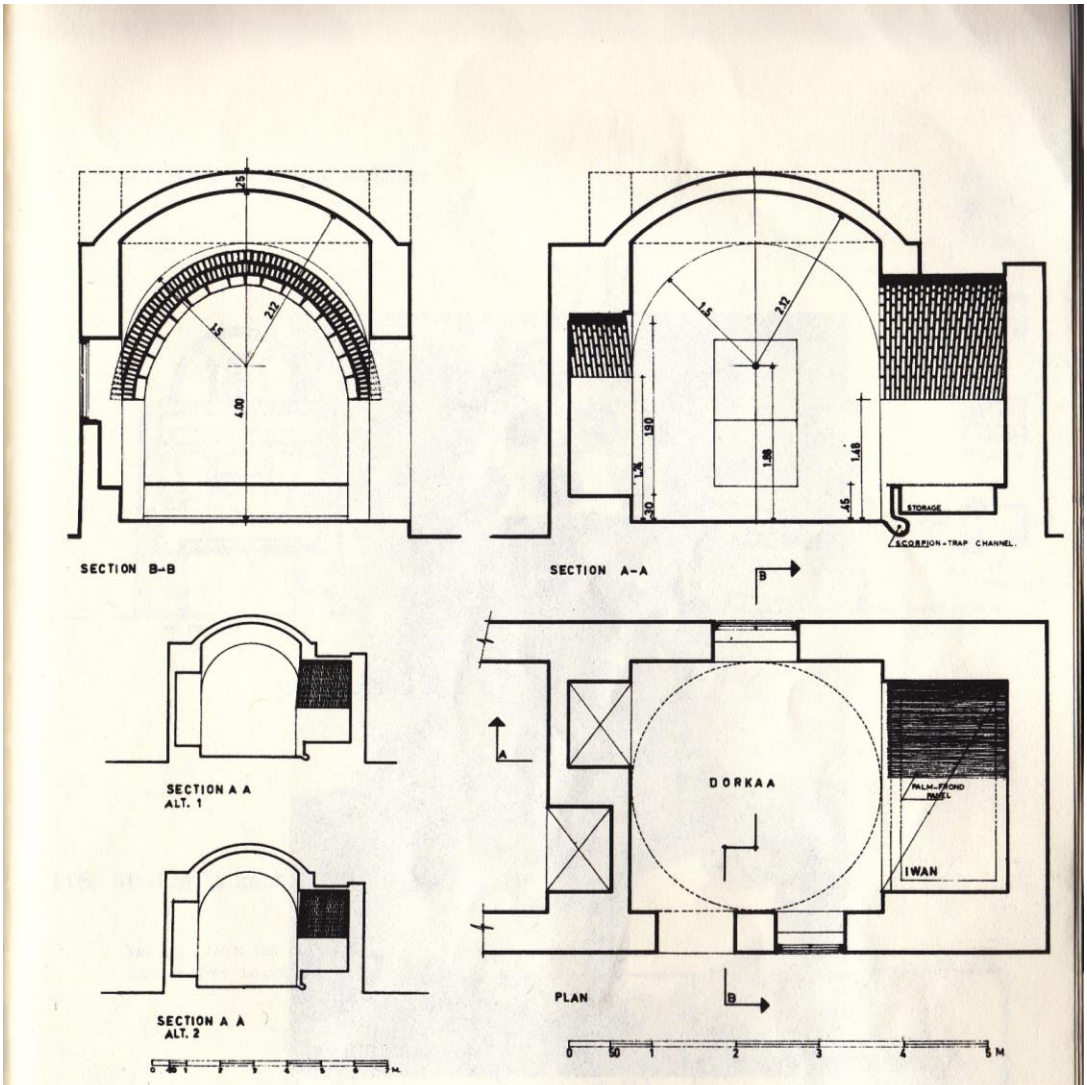


Figure 4.5 Two graphs showing "Comparison of indoor and outdoor air-temperature fluctuations within a 24-hour period". From: Hassan Fathy, *Natural Energy and Vernacular Architecture: Principles and Examples with reference to Hot Arid Climates* (Chicago and London: The University of Chicago Press, 1986)



113. Plans of bedroom

Figure 4.6 Bedroom design in New Gourna. From: Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973)

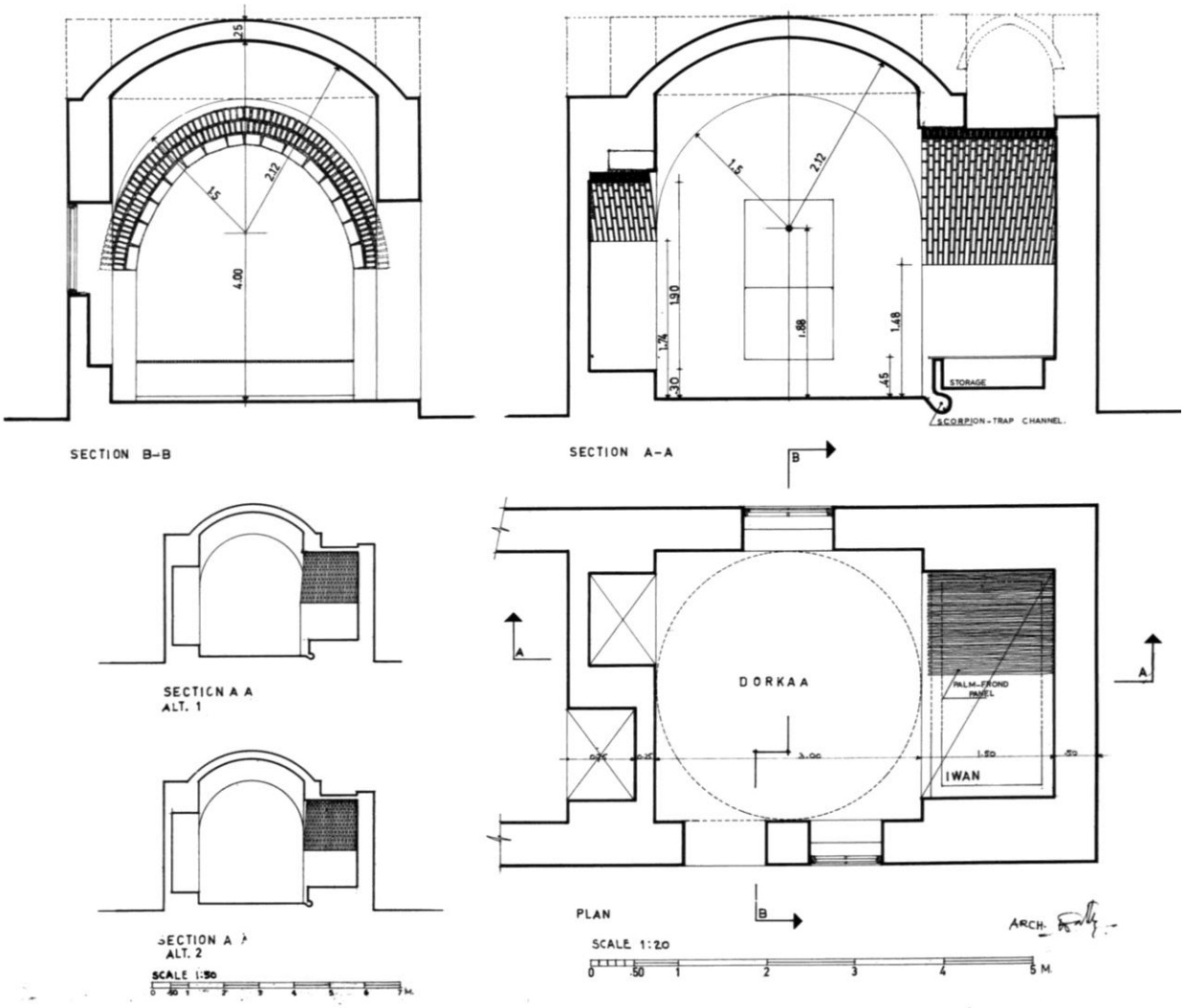


Figure 4.7 Typical Hotel Room, The Nile Festival Village, 1982. From: MIT Libraries. Aga Khan Visual Archive. URI: http://hdl.handle.net/1721.3/73794

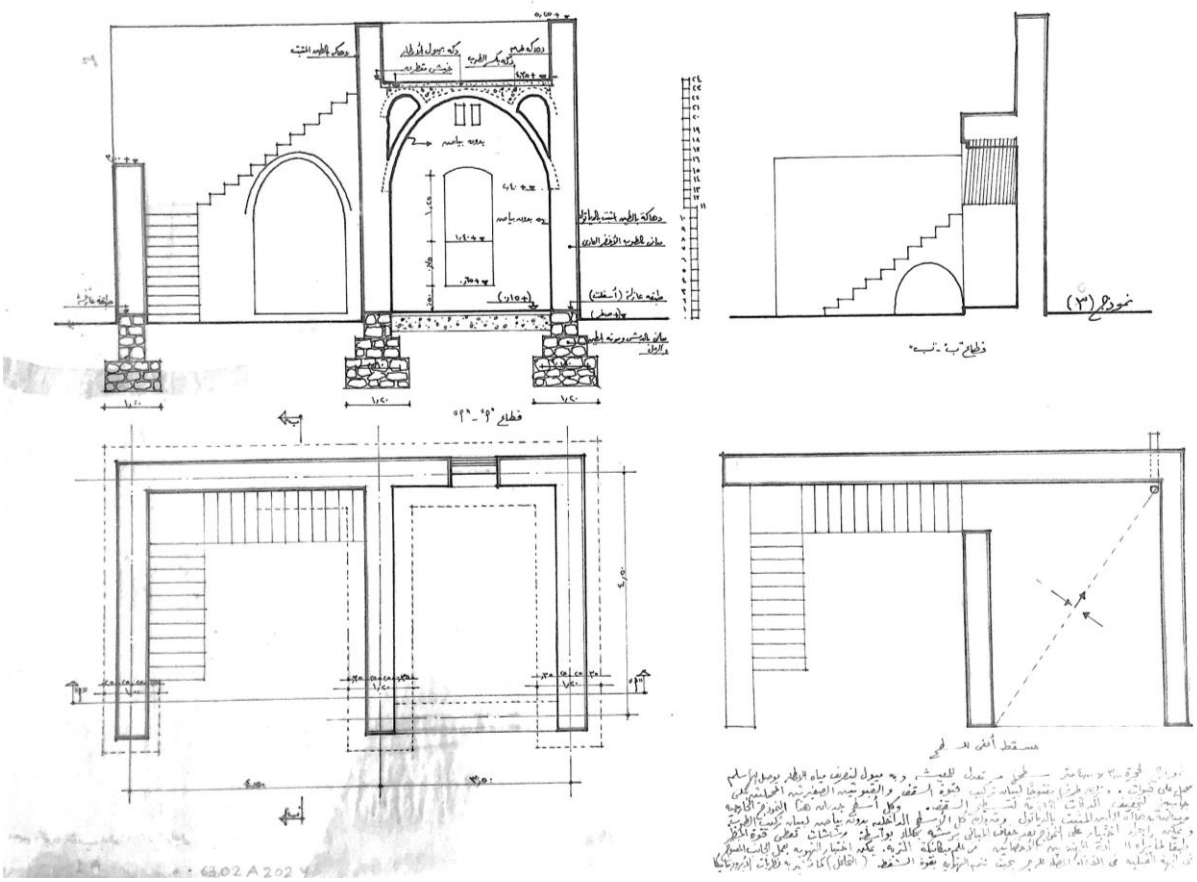


Figure 4.8 Experimental Room for The Egyptian Ministry of Scientific Research, 1963. From: Hassan Fathy Archive, Rare Books and Special Collection Library The American University in Cairo.

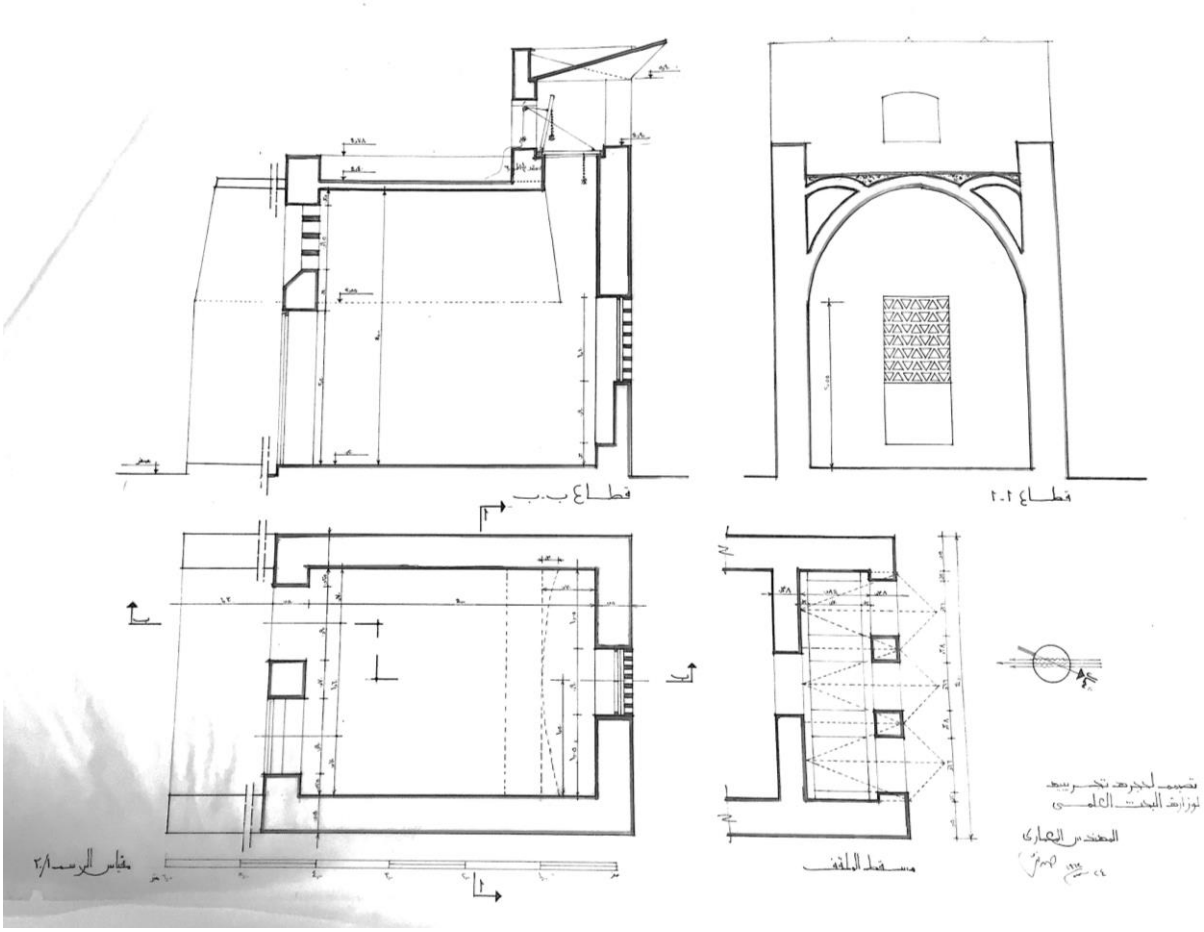


Figure 4.9 Experimental Room for The Egyptian Ministry of Scientific Research, 1963. From: Hassan Fathy Archive, Rare Books and Special Collection Library The American University in Cairo.

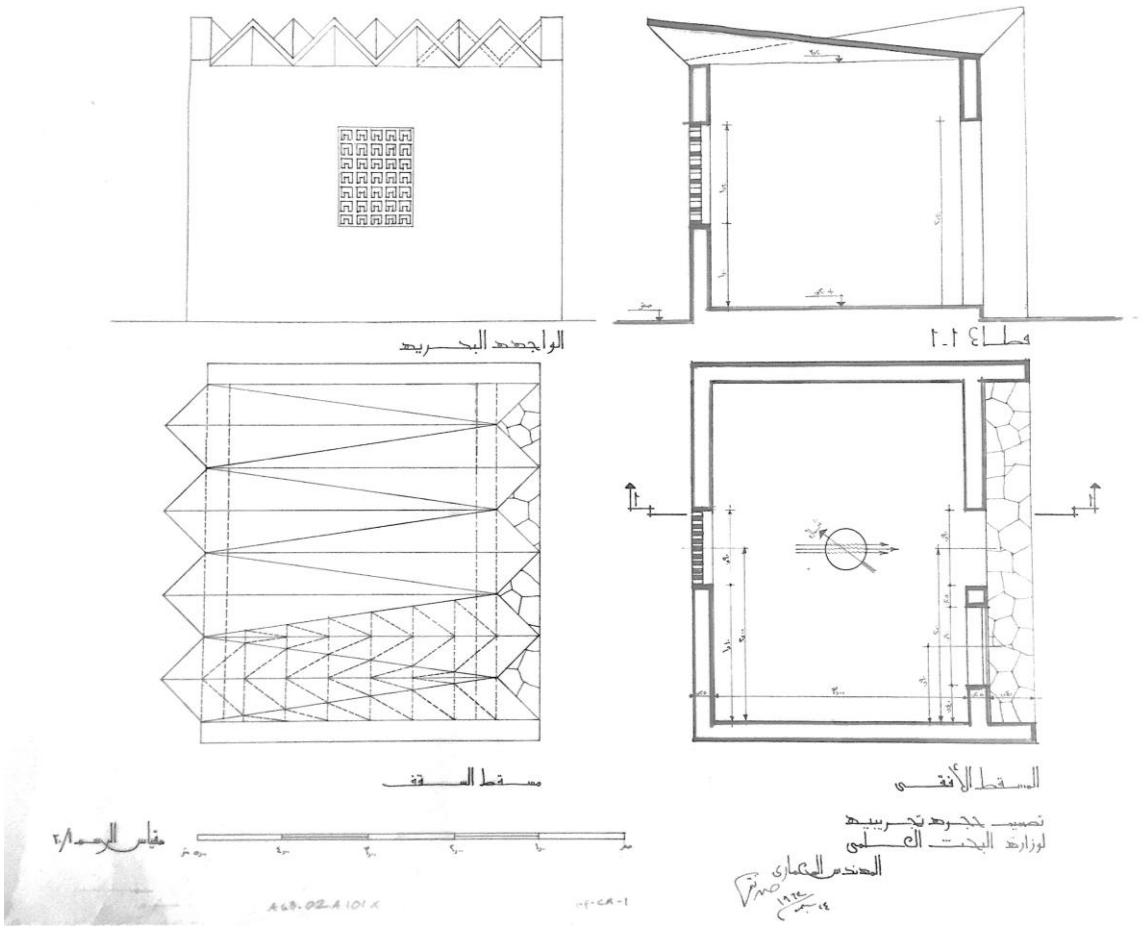


Figure 4.10 Experimental Room for The Egyptian Ministry of Scientific Research, 1963. From: Hassan Fathy Archive, Rare Books and Special Collection Library The American University in Cairo.

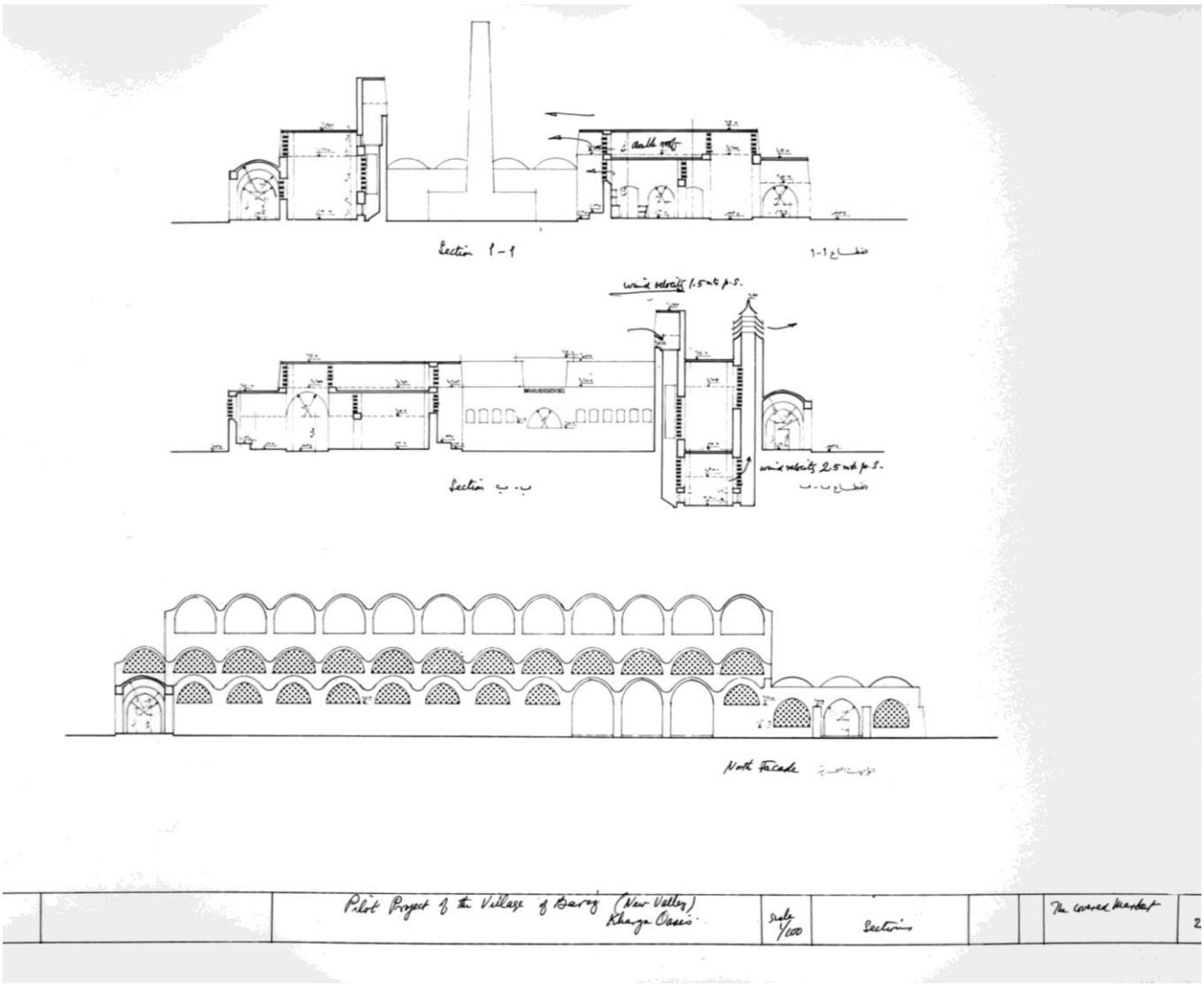


Figure 4.11 Market, The Village of New Bariz, 1967. From: MIT Libraries. Aga Khan Visual Archive. URI: http://hdl.handle.net/1721.3/73762

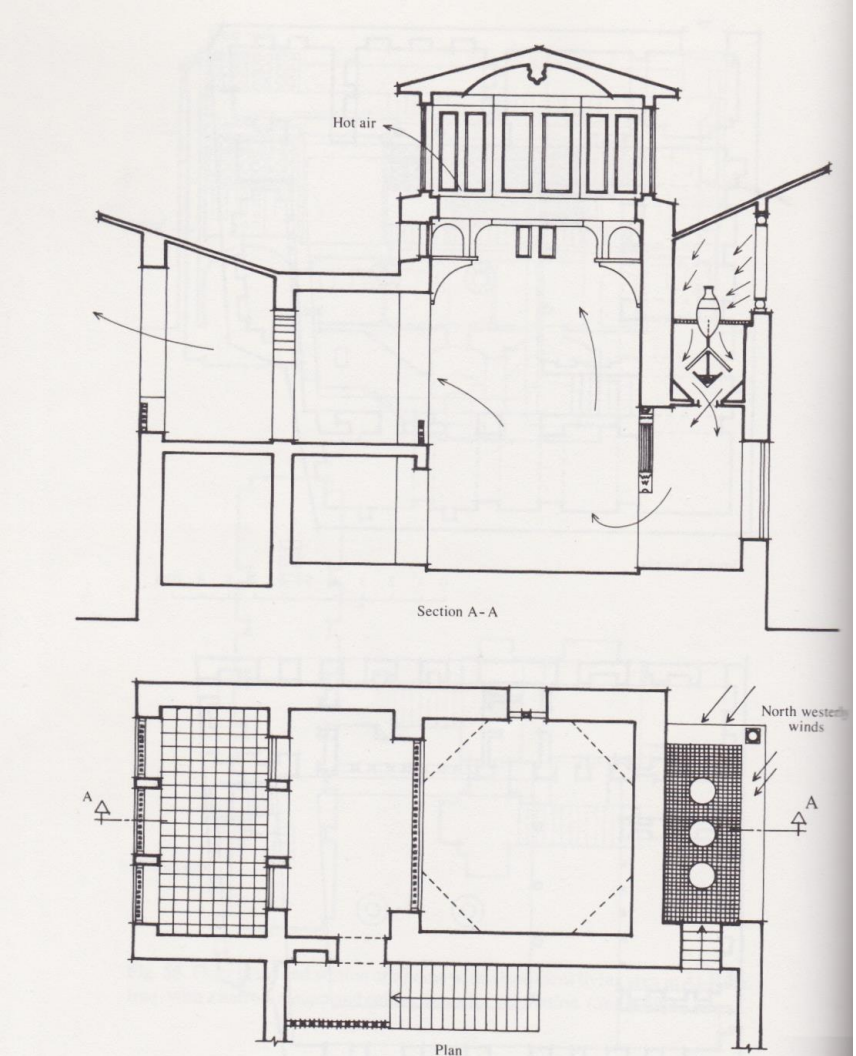


Fig. 56. *Malqaf* with wetted baffles and a wind-escape. Design by Hassan Fathy.
(See p. 59.)

Figure 4.12 *Malqaf* (wind catcher) "with wetted baffles and a wind-escape." From: Hassan Fathy, *Natural Energy and Vernacular Architecture: Principles and Examples with reference to Hot Arid Climates* (Chicago and London: The University of Chicago Press, 1986)

CHAPTER 5

Viewing Windows: Privacy and Transparency

"Modernity has been haunted," Anthony Vidler claimed in *The Architectural Uncanny: Essays in the Modern Unhomely*, "by a myth of transparency: transparency of the self to nature, of the self to the other, of all selves to society."[1] While literal transparency as Vidler noted, "is notoriously difficult to attain," it nonetheless came under attack by the mid-20th century as a threat to domestic occupants.[2] Fathy's project aimed at managing this threat through the mediating surfaces of the window screen; affording, not to himself, but to his domestic subjects the tools for self-managing their interactions with modernization, sustaining this way their very own elitism toward the rest of society. Transparency of the self to nature and society, became increasingly suspect as awareness of the environmental forces and limitations grew. Transparency not only facilitates an uninterrupted connection of the self *to* nature and society, but does so by exposing the self to attempted connections *from* nature and society; from the forces of the environment. This modern transparency that located its subject at the center of the universe, enforced the enlightenment myth of control over nature by imagining visual forces emanating only from the subject outwards, and hence exposing nature and society to the visual control of the enlightened subject.[3] This one-way transparency, materialized through modern windows, open plans and

[1] Anthony Vidler, *The Architectural Uncanny: Essays in the Modern Unhomely* (Cambridge, MA and London: The MIT Press, 1992) pp. 217

[2] Ibid, pp. 220, also see Colin Rowe & Robert Slutzky, "Transparency: Literal and Phenomenal," in *Perspecta* (1963) While Rowe and Slutzky saw glass as the obvious architectural manifestation of literal transparency, Vidler on the other hand considered the environmental impacts on glass, such as dust, as preventing the possibility of full transparency.

[3] On the place of transparency in Modern art and architecture see for instance Sigfried Giedion, *Space, Time and Architecture* (Cambridge: Harvard University Press, 1941) and Gyorgy Kepes, *Language of Vision* (Chicago: Paul Theobald, 1944)

exposed structures, was put into question by the understanding of the multiplicity of forces acting within an environment. Transparency in the changing environment is a two-way operation that ensures interactions between subjects and their environment occur both ways.

While the modern window with its over-sized glass panels became the medium through which modern architecture highlighted its transparency, it eventually became understood as an object of vulnerability. The window not only constructed and framed outward views, but did so by exposing the interior to the exterior environment. "It was under the sign of opacity" therefore, Vidler argued, "that the universalism of modernism, constructed on the myth of a universal subject, came under attack."[4] In place of modern transparency, "opacity, both literal and phenomenal, became the watchword of the postmodern appeal to roots, to tradition, to local and regional specificity, to a renewed search for domestic security."[5] But there were attempts at resisting modern transparency that predated, and possibly contradicted, postmodern discourse. Such attempts appeared alongside modernism's obsession with the problem of exposure. The issue however, did not revolve around transparency as such, and while at least partial opacity was favored, the problem largely arose out of disillusionment with the enlightenment myth of the universal free man. The way Fathy approached the window problem, this chapter argues, aimed at replacing this universal subject with the comfortable one. A subject maintained at rest within the changing conditions of the surrounding environment; a challenge that was only amplified by this passive exposure of transparent surfaces to the outside world.

Fathy countered the threats of transparency by fundamentally rethinking the very notion of constructing views. Instead of engaging with the modernist convention of capturing ideal images

[4] Anthony Vidler, *The Architectural Uncanny: Essays in the Modern Unhomely* (Cambridge, MA and London: The MIT Press, 1992) pp. 218

[5] Ibid. pp. 219

of nature, his window aimed at constructing what could be described as *comforting views*. To guard against the threats of modern transparency; that is to ensure the psychological satisfaction of his domestic subjects, Fathy contributed to the transformation of the modern window from one that operates under a one-way gaze, into a flexible apparatus that facilitate multiple conditions of viewing.

The Modern Window

The window occupied a significant position in the history of modern architecture.[6] Picture windows, horizontal windows and glass walls all stood as manifestations of modern developments in window designs. While such developments largely grew out of the increased application of modern technology in the building industry, they equally represent the occupation of modernism with the question of framing views.[7] In revealing the engagement of Modern Architecture with mass media in the first half of the 20th century, Beatriz Colomina in *Privacy and Publicity: Modern Architecture as Mass Media* declared a split between the conventional functions of the window. Now that machines replaced windows in fulfilling the functions of ventilation and illumination, "the modern function of a window, is to frame a view."[8] Each window type therefore, was

[6] In the lecture "Techniques are the very basis of Poetry," (October 5, 1929) Le Corbusier described "the history of architecture" as the "history of windows throughout the ages." Cited in Anne Friedberg, *The Virtual Window: from Alberti to Microsoft* (Cambridge, MA: The MIT Press, 2006) pp. 104

[7] In *The Virtual Window*, Anne Friedberg argued that "a brief history of fenestration will demonstrate how the window as an architectural opening for light and ventilation ceded its priorities to the modern function of the window: to frame a view." Anne Friedberg, *The Virtual Window: from Alberti to Microsoft* (Cambridge, MA: The MIT Press, 2006) pp. 103

[8] Beatriz Colomina, *Privacy and Publicity: Modern Architecture as Mass Media* (Cambridge, MA and London: MIT Press, 1994) pp. 301

understood to generate, capture and frame a different kind of view, equating the aesthetic experiences of domestic subjects with modes of viewing.

A prominent example in the history of modern architecture of the relation between windows, types of views and domestic experiences—and one that is considered as a crucial moment that helped define 20th century modernism's break from the classical tradition—came in the form of a debate between Auguste Perret and Le Corbusier on the nature of the desired domestic view.[9] For Perret, the picture window (or the vertical window, *la Porte-fenêtre*) provided the ideal: a perspectival view of the exterior landscape. The vertical window, Perret claimed, generates an "impression of complete space."[10] As Colomina stated, Perret favored the vertical window "because it permits a view of the street, the garden, and the sky, giving a sense of perspectival depth."[11] Perret however, considered the horizontal window, *la fenêtre en longueur*, as prohibiting the perspectival appreciation of the landscape; it omits out of the view those which are most significant—the sky and the ground. The landscape of the horizontal window, therefore, remains "as though it were a planar projection."[12]

Le Corbusier approached the problem of the view differently. Building on his observation that the very existence of a window already suggests a separation between the interior and the exterior, Le Corbusier distinguished the act of being in the landscape from the act of seeing it.[13]

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[9] For a full discussion of the debate between Perret and Le Corbusier see Colomina, *Privacy and Publicity*, pp.128-139

[10] Ibid, pp.130

[11] Ibid

[12] Colomina here used Bruno Reichlin's description of the horizontal window that appeared in "The Pros and Cons of the Horizontal Window," *Daidalos* 13 (1984) pp. 64-78

[13] This separation of the interior from the exterior conditions was in fact perceived by many as beneficial, precisely because of its comforting effects of shielding against undesirable weather. Richard Sennett

This understanding already undermines Perret's concept of classical representation.[14] The landscape, viewed through a window, becomes entirely visual: an image projected onto the surface of the glass.[15] If "Perret's window corresponds … to the traditional space of perspective representation in Western Art", then, as Colomina argued, "Le Corbusier's window corresponds … to the space of photography."[16] This differentiation however, represented a larger epistemological break. The perspectival views of Western Art "centered everything on the eye of the beholder and calls this appearance reality." The photographic point of view on the other hand, "is that of the camera, a mechanical eye … (and) the camera—particularly the movie camera—implies that there is no center."[17] The vertical window facilitated a perspectival view of nature by

made this argument in relation to Mies Van der Rohe's work and how the use of glass allows for the appreciation of the outside without the experience of wind and cold weather. This "Modern Sensation," he argued was the outcome of the separation of senses facilitated by glass panels: "a complete visibility without the exposure of the other senses." Richard Sennett, *The Conscience of the Eye: The Design and Social Life of Cities* (New York: Alfred A. Knopf, 1990) pp. 108. This understanding of the window as an object of physical separation between the inside and outside was later pushed further to argue against the claims of its uninterrupted transparency. In his study of cinema spectators, Robert D. Romanyshyn argued that "the condition of the window implies a boundary between the perceiver and the perceived. It establishes as a condition for perception a formal separation between the a subject who sees the world and the world that is seen, and in so doing it sets the stage, as it were, for that retreat or withdrawal of the self from the world which characterizes the dawn of the modern age. Ensconced behind the window the self becomes an observing subject, a spectator, as against a world which becomes a spectacle, an object of vision." Robert D. Romanyshyn, *Technology as Symptom and Dream* (New York: Routledge, 1989) pp. 42

[14] Beatriz Colomina, *Privacy and Publicity: Modern Architecture as Mass Media* (Cambridge, MA and London: MIT Press, 1994) pp. 130

[15] Ibid, pp. 133

[16] Ibid.

[17] Ibid, Friedberg questioned Colomina's argument by stating that, "the "space of photography" and the "space of the movie camera" are not only different from each other but both are also significantly different from the space of the screen. If we unpack the implications of Colomina's analogy, the architectural "visitor" is likened to a camera (taking either still or moving images), but not to the viewer of a photograph or to the spectator of a film." Anne Friedberg, *The Virtual Window: from Alberti to Microsoft* (Cambridge, MA: The MIT Press, 2006) pp. 128. Also, on modern and postmodern vision and spectatorship see Anne Friedberg, *Window Shopping: Cinema and the Postmodern* (Berkeley and Los

positioning its viewing subject at its center. The horizontal window on the contrary, as Colomina argued, operated as a camera lens—and therefore Modern—by displacing its viewing subject towards the periphery. Le Corbusier demonstrated such displacement in his "Ronéo" drawing (Figure 5.1) that illustrated his dispute with Perret through a comparative analysis of vertical and horizontal windows. The positioning of the subject in this drawing was largely determined by each window's operability. To open the vertical window, and to engage with the perspectival view, the subject—sketched in relatively higher detail with both arms extending outward—must occupy its center. To operate the horizontal window, however, the subject—abstractly drawn with one arm extending outward and the body rotated to the side—is located at its periphery.[18]

While the viewing subject was displaced, the viewed object became equally mobile. Imagining a moving boat, Colomina argued, the vertical window captures only one moment, the "ideal moment", the moment when the boat appeared at the center of the frame "directly in line with the gaze into the landscape—as in a classical painting." From a horizontal window, "the boat is continuously shot, and each shot is independently framed." [19] The horizontal window transformed the gaze from the modern house into what Colomina referred to as a categorical view. "In framing the landscape, the house places the landscape into a system of categories … it collects views and, in doing so, classifies them. The house is a system for taking pictures. What determines the nature of the picture is the window."[20]

Angeles, University of California Press, 1993) and Jonathan Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (Cambridge, MA: The MIT Press, 1990)

[18] Beatriz Colomina, *Privacy and Publicity: Modern Architecture as Mass Media* (Cambridge, MA and London: MIT Press, 1994) pp.134

[19] Ibid, pp.139

[20] Ibid, pp.311

If vertical windows followed the classical tradition of representation by framing perspectival views of the landscape, and if horizontal windows broke away from this tradition by framing flattened images instead, then glass walls, the signature windows of modern architecture, entirely undermines this epistemological distinction by erasing the lines that distinguished the frame (the wall), from the framed (the glazing).[21] Mies van der Rohe's Farnsworth House stood as a canonical monument that illustrates modern architecture's fascination with the transparency of glass walls. Situated in the middle of the picturesque landscape of Illinois, the house encloses its domestic interior with entire walls of glass. The views, barely framed between the ceiling and floor lines, were brought into the interior as magnified surround images of the landscape projected onto the surfaces of the house. The frame and the framed collapses into a single surface. This domestic experience nonetheless remains entirely visual. "The glazed surfaces," Sylvia Lavin argued, "serve as landscaping paintings, and while one can look in all directions, the view is of the recesses of an atmospheric perspective, not of the outside world."[22] Unlike horizontal windows, glass walls do

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[21] Glass as a building material and Glass walls as a progressing technology enjoyed a particularly prominent position in the history of modern architecture from Paul Scheerbart and Bruno Taut's glass utopias to Frank Lloyd Wright's ambitions at maximizing the potentials of glass. But perhaps the most influential application of Glass wall technology came from Walter Gropius, whose work is often credited as the originator of curtain walls. David Yeomans questioned the common belief in the field that the 1851 Crystal Palace provided the origins for curtain wall technology. Instead Yeomans argued that the glass facades of modern factories, which Gropius contributed to, provided besides the existing window technology at the time the initial inspiration for Curtain walls. See David Yeomans, "The Origins of the Modern Curtain Wall," in *APT Bulletin: The Journal of Preservation Technology*, vol. 32, no. 1, Curtain Walls (2001) pp. 13-18. Also see Paul Scheerbart, "Glass Architecture," (1914) *In Programs and Manifestoes on 20th Century Architecture*, Ulrich Conrads, ed. (Cambridge, MA: The MIT Press, 1964) Bruno Taut, "The City Crown," in *Journal of Architectural Education*, translated by Ulrike Altenmuller and Matthew Mindrup (2009) pp. 121-134. Originally published as *Die Stadtkrone* (1919) and Walter Gropius, *The New Architecture and the Bauhaus*, translated from German by P. Morton Shand (Cambridge, MA: The MIT Press, 1965)

[22] Sylvia Lavin, "Richard Neutra and the Psychology of the American Spectator," in *Grey Room* 01 (Cambridge, MA and London: The MIT Press, 2000) also see Lavin, *Form Follows Libido: Architecture and Richard Neutra in a Psychoanalytic Culture* (Cambridge, MA and London: The MIT Press, 2004)

not capture camera-like frames of dynamic landscapes. Instead, the landscapes around these isolated houses remain static; the views do not change and the gaze remains the same. The Farnsworth House, isolated by its remoteness, generates effects of constancy; its glass walls project unchanged images of the exterior environment, creating what Sigfried Giedion referred to as Eternal Present.[23]

When it comes to the question of the view, one aspect connects Picture and Horizontal windows to Glass walls. Modern windows, in any form, were consistently understood to facilitate a one-way gaze. The domestic subject inhabiting the center, the periphery or free-flowing in an open plan, was always described as looking outside with no one looking in. The modern view was therefore predicated on what could be described as one-way transparency.[24] The modern subject occupying the center of the universe desired transparent surfaces generating an outward gaze. The historical development from picture windows to horizontal windows and glass walls therefore could be understood as part of the larger scheme to connect modern architecture to the enlightenment project. When combined with the free movements of the open plan, the light-weight appearances of elevated structures and the purified surfaces of the white walls, the unobstructed one-way gaze of the transparent windows promoted the utopia of the free man.[25]

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[23] Sylvia Lavin, "The Temporary Contemporary, "in *Perspecta* 34 (Cambridge, MA and London: The MIT Press, 2003) pp.132, Also see Sigfried Giedion, *The Eternal Present: The Beginnings of Art, A Contribution to Constancy and Change* (New York: Pantheon Books, 1957) and Giedion, *The Eternal Present: The Beginnings of Architecture, A Contribution to Constancy and Change* (New York: Pantheon Books, 1964)

[24] While the transparency of glass allowed for two different modes of visuality as Anne Friedberg argued– the outward view of the picture window and the inward view of the display window–both exhibit directional vision that works only one way, either inside looking out or outside looking in, without the possibility of both modes operating simultaneously. See Friedberg, *The Virtual Window*, pp. 113

[25] Sylvia Lavin, "Richard Neutra and the Psychology of the American Spectator," in *Grey Room* 01 (Cambridge, MA and London: The MIT Press, 2000) pp. 42-63

With the potentials for unobstructed views comes the threat of transgression of privacy. In the mind of the modern architect however, fully glazed houses shield by their transparency the domestic subjects from exterior threats. As Lavin argued,

> *While the transparency of these houses destroys any conventional sense of interior space, the glass walls produce an omnipotent and phenomenological one-way gaze that contains and protects the domesticity within. At Farnsworth House … Mies simply could not conceive of a reciprocal gaze penetrating from the exterior. Rather than expose Edith Farnsworth, Mies meant to protect the house's interior by enclosing it within glass planes draped by representation.*[26]

By regulating vision, glass walls establish new forms of domestic security through the expansive surfaces of representation. From the inside looking out, the eternal images of the landscape eliminate any possibility of external change or disturbance in the view, hence the impossibility of transgression. From the outside looking in, as Lavin argued, "the images of the houses themselves, rather than solid walls, were meant to distract the attention of the passerby and protect the occupant."[27] This understanding reflects the common perception of glass at the time – regardless of its size – as shields against the exterior environments; a material that "featured both transparency and protection, could keep the outside out and at the same time bring it in."[28] Glass walls therefore, were understood to shield through their high imageability, an effect that is paradoxically

[26] Ibid.

[27] Ibid.

[28] Anne Friedberg, *The Virtual Window: from Alberti to Microsoft* (Cambridge, MA: The MIT Press, 2006) pp. 113

heightened by the transparency of glazed surface.[29] This transparency, however, became the very threat that architecture, by the mid-20th century, aimed to guard against.

The Contemporary Window

To fill the gap exposed by modernism's inability to adapt to the forces of environment, Fathy countered the unchanging effects of modern one-way transparency with a form of architecture that embodied the multiplicity of changing conditions. In his direct engagement with Giedion's work on the notions of "Constancy and Change", and "the Eternal Present", Fathy understood contemporaneity as being "wholly relevant to the present. But the present is an instant, always changing, and always with us."[30] In Giedion's search for a contemporary form of expression, he claimed:

> *The relation between man and his environment are subject to continual and restless change. From generation to generation, from year to year, from instant to instant, they are in danger of losing their equilibrium. There is no static equilibrium between man and his environment, between inner and outer reality … Our period demands a type of man who is able to restore the presently lost equilibrium between inner and outer reality. This equilibrium is never static but is involved in continuous change.*[31]

[29] I am referring here to the term imageability as defined by Kevin Lynch: "that quality in a physical object which gives it a high probability of evoking a strong image in any given observer." Kevin Lynch, *The Image of the City* (Cambridge, MA: The MIT Press, 1960)

[30] Hassan Fathy, "Contemporaneity in the City" (1961) in *Architecture for a Changing World*, ed. James Steele (London: Academy editions, 1992) pp. 57

[31] Sigfried Giedion, "Constancy, Change and Architecture," *First Gropius Lecture* (Harvard University Press: Cambridge, MA. 1961) pp.5-6

Fathy's project aimed at retrieving this lost equilibrium; to restore comfort. His preferred window, the *Mashrabeya,* (Figure 5.2) was a contemporary object not because it reflected Giedion's ideas on "new regionalism," but because it maximized the possibilities of coincidental alignment between the real and the ideal by providing multiple visual conditions.[32] In fact, Fathy's contemporary objects surpassed Giedion's characterization of regionalist objects. If Giedion searched for the "unchanging elements" in regions to stabilize an ever-changing environment, Fathy highlighted how these "stabilizing" elements, inherently embodied the potentials for accommodating change.[33] The contemporary window, the mashrabeya, is a comforting object not because it maintains a traditional constant in a changing world, but because it develops a constant dialogue with the changing environment.

The Mashrabeya

For Fathy, conventional window openings were problematic. As mentioned in the previous chapter, Fathy claimed, "window openings normally serve three functions: to let in direct and indirect sunlight, to let in air, and to provide a view."[34] In hot climates, "it is rarely possible or

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[32] "In the ever-changing social configuration," Fathy argued, "contemporaneity occurs when the actual configuration coincides with the optimum configuration for the time being … a contemporary city is the one in which the reality coincides with the ideal." Hassan Fathy, "Contemporaneity in the City," pp.57

[33] See Sigfried Giedion, *Space, Time and Architecture: The Growth of a New Tradition* (1941) Fifth Edition (Cambridge, MA & London: Harvard University Press, 1967) pp. xxxvii. Also see Hassan Fathy, "Constancy, Transposition and Change in the Arab City," in *Madina to Metropolis,* ed. Carl Brown (Princeton: Darwin Press, 1973)

[34] Hassan Fathy, *Natural Energy and Vernacular Architecture: Principles and Examples with reference to Hot Arid Climates* (Chicago and London: The University of Chicago Press, 1986) pp. 45

desirable to combine these three functions in a single architectural solution, (and) several solutions were developed which concentrate on each functions separately."[35] This separation of functions however—the separation between the processes of ventilation, illumination and viewing—was already a constitutive procedure in the formulation of the modern window, and to a larger extent reflected developments in climate regulation technology.[36] In other words, Fathy's observation, while in part a misreading of the developments in modern window design, was also an attempt to highlight the inability of modern windows to accommodate the contemporary demands of environmental design.

Modern windows were obsolete, and their obsolescence was described through subtly highlighting their passivity towards the environment. Referred to as "conventional", modern windows "let in" sunlight and air, and "provide" views. In comparison, the mashrabeya, the wooden lattice window used in the domestic architecture of medieval Cairo and other parts of the region, was described in an entirely different tone. The mashrabeya had five functions: "(1) controlling the passage of light, (2) controlling the air flow, (3) reducing the temperature of the air current, (4) increasing the humidity of the air current, and (5) ensuring privacy."[37] Fathy's dismantling of the modern window therefore, fulfilled two roles. On the one hand, the mashrabeya was conceived of as a supplementary part within the entire system of environmental regulation, and for this reason, modern. Electrical light bulbs, gas and air conditioning were substituted by

[35] Ibid, pp. 45

[36] Beatriz Colomina, *Privacy and Publicity: Modern Architecture as Mass Media* (Cambridge, MA and London: MIT Press, 1994) pp. 326

[37] Hassan Fathy, *Natural Energy and Vernacular Architecture: Principles and Examples with reference to Hot Arid Climates* (Chicago and London: The University of Chicago Press, 1986) pp.47

courtyards, wind catchers and water fountains. On the other hand, the mashrabeya became a specialized window that featured amplified conventional functions and some new ones.[38] To accommodate climatic conditions, social conventions and cultural preferences—that is to perform environmentally—the mashrabeya does not passively *facilitate* but rather actively *mediates*.[39] This mode of interaction was immediately apparent in Fathy's choice of words. The mashrabeya does not "let in" or "provide", but rather "controls", "reduces", "increases" and "ensures". From the start, the mashrabeya was envisioned as a tool for producing comfortable interiors not by merely reacting to its surrounding environment, but by actively generating its own.

Transpositions

The mashrabeya was such an element that maintained much of its original design but altered its function. The term "mashrabeya" has its roots in the Arabic term "to drink", and literally referred to the "drinking place" in the house.[40] Originally located in a cantilevered space, the mashrabeya would have had water jars—usually made out of clay—placed on the edge of its interior-facing side, and "cooled by the evaporation effect as air moved through the openings."[41]

[38] "The Mushrabiya, in fact, does everything a glass wall does and more." In Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973) pp.50

[39] The Mashrabeya in general could also be understood as a screen rather than a proper window, and this ambiguity results from the mashrabeya's potential to be used as an interior or exterior object, with or without glass. Nonetheless, when considered as a screen, and in that case the act of mediation would not be unique to this traditional object since the function of any screen is to mediate, one might argue that the keyword in this statement is "actively", which separates the mashrabeya from conventional screens that simply adjust the interior environment rather than purposefully creating it.

[40] Hassan Fathy, *Natural Energy and Vernacular Architecture: Principles and Examples with reference to Hot Arid Climates* (Chicago and London: The University of Chicago Press, 1986) pp.46

[41] Ibid.

This wooden lattice window, often consisted of two parts. The lower part "is made of fine balusters in a close mesh … the mashrabiyya proper." While the upper part is made out of a larger mesh "to compensate for the dimming effect of the screen."[42] Fathy understood the mashrabeya as an essential element in the production of beauty in the domestic environment. The mashrabeya "softens the light very beautifully" he claimed, thereby avoiding the unwanted glare produced by screens like the brise-soleil.[43] It did so by altering the way subjects visually encounter their surroundings. "The characteristic shape of the lattice", Fathy argued, "with its lines interrupted by the protruding sections of the balusters produces a silhouette which carries the eye from one baluster to the next across the interstices, vertically and horizontally."[44] But perhaps the function that is associated with the mashrabeya the most had to do with its social potentials. "It ensures privacy from the outside for the inhabitants while at the same time allowing them to view the outside through the screen."[45] In other words, in allowing the inhabitants of interior space to "see without being seen," the mashrabeya fulfills a foundational modernist desire that stretched from as early as Jeremy Bantham's 19th century panopticon to the 20th century obsession with open plans and glass walls.

But the mashrabeya is not modern. This medieval window refers back to history, betrays the dependency on modern technology and is in fact not transparent. But the primary reason the mashrabeya, as utilized by Fathy, cannot be considered modern lies in the way he described its

[42] Ibid.

[43] Hassan Fathy, "Contemporaneity in the City" (1961) in *Architecture for a Changing World*, ed. James Steele (London: Academy editions, 1992) pp.56

[44] Hassan Fathy, *Natural Energy and Vernacular Architecture: Principles and Examples with reference to Hot Arid Climates* (Chicago and London: The University of Chicago Press, 1986)

[45] Ibid, pp. 49

design, operability and effects as fundamentally in opposition to modernity's one-way gaze. The mashrabeya is a window that generates multiple conditions of viewing.

Multiple Conditions of Viewing: Near and Far Views

To satisfy the desire of seeing without being seen, the mashrabeya offers multiple possibilities for constructing views, each belongs to an entirely distinct mode of viewing. From the *far* view, when the subject, positioned at a considerable distance from the mashrabeya, looks out through the wooden mesh, the window forms a background image: a *mise-en-scène* (Figure 5.3). Its design, Fathy argued, "harmoniously distributes the outside view over the plane of the opening, superimposing it on the decorative pattern of the mashrabeya so that it resembles a darkened glass made of lace."[46] The outside view, "seen through a mashrabeya grill seems to be brought to its plane."[47] This effect of superimposition, Fathy argued, "makes both, view and pattern, blend into a one decorative lace-like piece of embroidery."[48] This view, as Fathy suggested, would be most effective when the mashrabeya occupies the whole space of the wall. Unlike modernism's glass walls however, the mashrabeya does not provide a portrait of nature, but only a *feel* for its existence.

The mashrabeya is neither entirely transparent, nor entirely opaque; it is translucent. The subject of translucency, as Vidler argued, "is suspended in a difficult moment between knowledge

[46] Ibid, pp.47

[47] Hassan Fathy, "The Qa'a of the Cairene Arab House: Its Development and some new Usage for its Design Concepts," in *International Colloquium on the History of Cairo* (Cairo: 1970) *Hassan Fathy Archives*, Aga Khan Trust for Culture (Geneva, Switzerland) pp. 141

[48] Ibid, pp.143

and blockage."[49] This ambiguous space between knowledge and blockage; between solid and void, between the wooden lattice and the interstices, is precisely where the mashrabeya presents its tamed images of the harsh desert environment. These images are entirely accidental; the effects they produce, unlike modernism's eternal presents, are ever-changing. These images are determined by multiple conditions that include the orientation of the screen relative to sunlight, the actual arrangement of the lattice, as well as the point of view of the observer.[50] In other words, it is through these accidental capabilities generated by the mashrabeya's translucency that the window almost guarantees the production of a "view", even when there is none.

Moving closer to the window, the subject engages in an entirely different mode of viewing. The *near* view requires the observer to position one eye on the interior surface of the mashrabeya, looking through one of the spaces of the wooden lattice. The near view is a view of surveillance. Unlike the modern window therefore, the mashrabeya neither draws the viewer towards its center, nor towards its periphery, but towards itself. Proximity determines the view; and in alternating their position relative to the mashrabeya, subjects, unlike when looking through modern windows, will not disrupt the ideal mode of viewing, but rather alternate between different views. To generate a view, subjects establish a relation, not with nature, but with the window itself.

In that sense, Fathy's mashrabeya is very similar to Adolf Loos' "theater box", especially when utilized as an interior window overlooking the central living space. In Loos' houses, "the most intimate room," Colomina argued, "is like a theater box, placed just over the entrance to the

[49] Anthony Vidler, *The Architectural Uncanny: Essays in the Modern Unhomely* (Cambridge, MA and London: The MIT Press, 1992) pp. 221. Vidler was referring here to Rem Koolhaas's glass cube design for the French National Library competition

[50] See Fathy, *Natural Energy and Vernacular Architecture*, pp.46-49

social spaces in this house, so that any intruder could easily be seen."[51] Theatricality became Loos' technique for achieving "a sense of security" in his interior spaces.

> *It is no longer the house that is a theater box; there is a theater box inside the house, overlooking the internal social spaces. The inhabitants of Loos's houses are both actors in and spectators of the family scene — involved in, yet detached from, their own space.*[52]

Colomina's understanding of Loos' theatre box is not very different from Fathy's description of how the mashrabeya could be used in the interior of the house. In his illustration of the Qa'a principle in the medieval houses of Cairo, Fathy described the "seating arrangement" in the central living space as performing the role of an "amphitheater."[53] Overlooking the central living space, he claimed, "were galleries screened with mashrabiyyas for the use of the ladies of the family to watch the entertainments that went on."[54] Comfort, therefore, as Colomina argued in relation to Loos' theater box, "is produced by two seemingly opposing conditions, intimacy and control."[55] While the interior mashrabeya fulfills Colomina's description of a theater box inside the house, the exterior facing mashrabeya reveals a different story.

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[51] Beatriz Colomina, *Privacy and Publicity: Modern Architecture as Mass Media* (Cambridge, MA and London: MIT Press, 1994) pp.244

[52] Ibid.

[53] Hassan Fathy, "The Qa'a of the Cairene Arab House: Its Development and some new Usage for its Design Concepts," in *International Colloquium on the History of Cairo* (Cairo: 1970) *Hassan Fathy Archives*, Aga Khan Trust for Culture (Geneva, Switzerland) pp.140

[54] Ibid.

[55] Beatriz Colomina, *Privacy and Publicity: Modern Architecture as Mass Media* (Cambridge, MA and London: MIT Press, 1994) pp.244

Facing outside, the mashrabeya does not look out at nature, but rather looks onto society. The design of the mashrabeya, as Fathy described, is shaped by the very nature of that society. In urban contexts for instance, to assure privacy, "a mashrabeya covering an opening that overlooks the street has small interstices except at the top far above the eye level."[56] In other words, the mashrabeya shields thanks to its relative opaqueness. To counter the threats of transparency, that is to interrupt the possibilities of unobstructed views, the mashrabeya disrupts the operation of the one-way gaze, producing subjects that are not vulnerable to transgression, but rather in constant *fear* of its occurrence. While the mashrabeya shields by enclosing, it never eliminates threat. In fact, the very translucency of the mashrabeya guarantees the continuous production of threat. If the far view blurs and maintains a level of uncertainty, the near view requires obsessive movements towards the surface of the window, generating in this very movement the illusion of continuous threat.

The mashrabeya, therefore, does not look onto an existing society, but rather produces in the mind of the observer, even before reaching the lattice surface, a predetermined image of an intrusive society. Like Loos' "theater box", the surveillance mechanism of the mashrabeya assumes, from the start, the existence of an intruder. In other words, by generating the very threat it shields against, the "view" facilitated by the window is ultimately of its own production. The mashrabeya, therefore, does not comfort by shielding, but by *inciting vigilance*. The sense of security occurs, not by the mere existence of the mashrabeya, but only when the subject physically moves towards it: a moment between knowledge and blockage.

[56] Hassan Fathy, *Natural Energy and Vernacular Architecture: Principles and Examples with reference to Hot Arid Climates* (Chicago and London: The University of Chicago Press, 1986) pp. 49

Multiple Conditions of Viewing: Concentration

When reading Kenneth E. Boulding's *The Image: Knowledge in Life and Society*, Fathy added a note that connected Boulding's analysis on the uncertainty and vagueness of images of the world in contemporary societies to the design of the mashrabeya. As Fathy noted, "also, like an arabesque design, the image changes as we shift our point of view or concentration."[57] The viewing conditions of the mashrabeya were not only activated by the subject's physical movements, but also changed with their concentration. Fathy described this process through likening the human eye to the mechanical eye: the eye of the camera. By representing two photographs of the same mashrabeya (Figure 5.4) in *Natural Energy and Vernacular Architecture*, Fathy highlighted the potentials of the window at simultaneously providing external views with a feeling of security.[58] "With the focus on the lattice, the mashrabeya appears as a lighted wall. When focusing beyond the lattice, the external view is quite clear and only slightly obstructed."[59] The view beyond the lattice is the view described earlier as the far view. The "lighted wall", however, brings an entirely different dimension to the mashrabeya that had very little to do, if any, with the problem of privacy. The mashrabeya in this case, becomes an object of *delight*.

[57] Fathy was referring to the following text by Boulding: "One should perhaps add a fourth possible impact of the massages on the image. The image has a certain dimension, or quality, of certainty or uncertainty, probability or improbability, or clarity or vagueness. Our image of the world is not uniformly certain, uniformly probable, or uniformly clear. Massages therefore, may have the effect not only of adding to or reorganizing the image. They may also have the effect of clarifying it, that is, of making something which previously was regarded as less certain, more certain, or something which was previously seen in a vague way, clearer." Kenneth E. Boulding, *The Image: Knowledge in Life and Society* (Ann Arbor, MI: The University of Michigan Press, 1956) pp. 10. In Personal Library, *Hassan Fathy Architectural Archives*, Rare Books and Special Collections, The American University in Cairo (Cairo, Egypt)

[58] Hassan Fathy, *Natural Energy and Vernacular Architecture: Principles and Examples with reference to Hot Arid Climates* (Chicago and London: The University of Chicago Press, 1986) pp. 49

[59] Ibid.

By eliminating transparent surfaces, the mashrabeya compensates for the lack of exterior views by inverting the visual experience of beauty towards the interior of the house. Domestic subjects are not anymore distant from the view, but rather living within it. In that sense, Fathy's houses were not very different from say the ones by Richard Neutra, whose engagement with the surrounding environment came in the form of "dismantling conventional barriers between inside and out."[60] Neutra, who like Fathy, became deeply involved with the problem of comfort, saw beauty as key in facilitating a healthy interaction between subjects and their environment. "If the community was to regain mental comfort," Neutra claimed, "beauty would have to be based, as it was in some of the most significant periods of the past, upon the broad acceptance of standards of its own mental and technical age, fully harmonized."[61] Neutra's corner windows, Lavin argued, "amorphously leak through the structure of the house – topological billowings of a domestic membrane that create highly indeterminate and viscous environments."[62] Neutra's use of glass however, acted "like a special effects machine that produces an ambient condition."[63] If Neutra brought the environment into the house by eliminating barriers and generating a comfortable extroverted subject, then Fathy aspired for the same effect, albeit through introversion. "The desert," he claimed, "is burning, glaring and productive of sandstorms, (and) the Arab does not

[60] Sylvia Lavin, *Form Follows Libido: Architecture and Richard Neutra in a Psychoanalytic Culture* (Cambridge, MA and London: The MIT Press, 2004) pp. 58

[61] Richard Neutra, *Survival Through Design* (New York: Oxford University Press, 1954) pp. 61

[62] Sylvia Lavin, *Form Follows Libido: Architecture and Richard Neutra in a Psychoanalytic Culture*. (Cambridge, MA and London: The MIT Press, 2004) pp. 84

[63] Ibid, pp. 43

find any comfort in opening his house to nature."[64] Nature, nonetheless, or "the view" is constructed inside the house; by design.

The majority of Fathy's houses followed in their design this medieval Qa'a organizing principle discussed in the previous chapters; a central living space, often double height with built-in seating on the side and covered by a combination of domes and vaults. The architectural quality of this space, Fathy declared, "besides being cheap … is also beautiful. It cannot help being beautiful. For the structure dictates the shape and the material imposes the scale, every line respects the distribution of stresses and the building takes on a satisfying and natural shape."[65] The Qa'a for Fathy is an organic form of architecture. This organicism manifested in the harmony between the form of the interior space and it structural and material characteristics, meant that the Qa'a functioned as an interior simulation of nature. The earliest display of such effects appeared in the courtyard type. "The courtyard," Fathy claimed, "has become the owner's private piece of sky offering him comfort and security. Furthermore, he pulls the sky down into intimate contact with the living rooms by reflecting it in a fountain in the middle of the Sahn."[66] The Qa'a is a development on the courtyard type where "nature is introduced into the house by the symbol."[67] Whether through the curvature of the dome, the geometric design of the squinches, the marble

[64] Hassan Fathy, "The Qa'a of the Cairene Arab House: Its Development and some new Usage for its Design Concepts," in *International Colloquium on the History of Cairo* (Cairo: 1970) *Hassan Fathy Archives,* Aga Khan Trust for Culture (Geneva, Switzerland) pp. 135

[65] Hassan Fathy, *Architecture for the Poor* (Chicago and London: The University of Chicago Press, 1973) pp. 11

[66] Hassan Fathy, "The Qa'a of the Cairene Arab House: Its Development and some new Usage for its Design Concepts," in *International Colloquium on the History of Cairo* (Cairo: 1970) *Hassan Fathy Archives,* Aga Khan Trust for Culture (Geneva, Switzerland) pp. 135

[67] Ibid, pp. 138

mosaic on the ground, or the garden designs of Persian carpets, "space is domesticated and urbanized by the creation of an internal outside."[68] Fathy's organic Qa'a space therefore, aimed at re-introducing the third Vitruvian principle of "delight" as an essential component of interior environments.[69]

The Qa'a principle is a theory of beauty. The new engineering techniques employed by modern architects, Fathy claimed, "did not provide easy answers to the problems of aesthetics." Instead, architects looked at modern painters and "tried to apply the same visual ideas, especially those of the cubist to architecture. But all they managed to do was to create new clichés."[70] Modernism's undifferentiated universal space for Fathy, only represented movement rhetorically and is countered by the Qa'a's multiplicity of visual effects. In describing the architectural quality of the Qa'a, Fathy stated:

> *The aesthetic effect of space in a room so articulated is very pleasing, giving a sense of beauty by the combinations of form and the interplay of the curved lines and surfaces of dome, vault, squinches or pendentives, so that the eye follows in a harmonious movement in all direction in space, animating an otherwise dull room.*[71]

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[68] Ibid.

[69] See Vitruvius, *On Architecture*. Lavin made this argument in relation to the contemporary architecture of the 1950s and 60s in "Temporary Contemporary" and *Form Follows Libido*.

[70] Hassan Fathy, "Contemporaneity in the City" (1961) in *Architecture for a Changing World*, ed. James Steele (London: Academy editions, 1992) pp. 55

[71] Hassan Fathy, "The Qa'a of the Cairene Arab House: Its Development and some new Usage for its Design Concepts," in *International Colloquium on the History of Cairo* (Cairo: 1970) *Hassan Fathy Archives*, Aga Khan Trust for Culture (Geneva, Switzerland) pp. 147

The Qa'a in Fathy's mind, is superior to modernism's universal space precisely due to its animating effects. These effects generate constant delight only because they are constantly changing. The eye's movement in all directions suggests a continuous change of view. It is in the harmonious relation between form, structure and material that constant delight is guaranteed. The view is not static, as seen through a vertical window. But it is also neither mobile, as seen through a horizontal window, nor eternal as on a glass wall. It is the eye that moves; and in this movement, views are as significant as the connections between them. In the interior views of the Qa'a, there is no window; the subject inhabits the view. Like Neutra's corner window, Fathy's Qa'a "does not frame a view; it puts viewing into action."[72] The architect is offered unlimited possibilities, Fathy claimed, "for a justified interplay of curved lines running in all directions with harmonious passage from one to the other."[73] The architecture of the Qa'a is organic and "natural," but it is architecture, not nature, that is on display.

The mashrabeya contributes to this mode of viewing through illumination. It differentiates and intensifies the effects of the interior. Throughout the day, the window is in constant interaction with the changing conditions of its surrounding environment. Illumination, like the external view, is entirely accidental. The "diffused" light of the mashrabeya illuminates by *intensity*. Light is always indirect, and its intensity is proportional to the forces applied by the surrounding environment. But the diffusion of light is neither accidental, nor a natural product of screening (Figure 5.5). "This effect is produced by the rounded shape of the balusters or small bars of which

[72] Sylvia Lavin, *Form Follows Libido: Architecture and Richard Neutra in a Psychoanalytic Culture*. (Cambridge, MA and London: The MIT Press, 2004) pp. 110

[73] Hassan Fathy, *Architecture for the Poor*. Chicago and London: The University of Chicago Press, 1973. Pp. 12

it is made. The round form of the bars graduates the light and shade they take, subduing the contrast between the edges and bright light in the interstices when seen against the light."[74] Fathy's mashrabeya, one might say, generates what Lavin identified as Contemporary effects. "An effect maybe understood as a condition that is detachable from the logic of causality," Lavin argued, "the greater the distance between the cause and the effect, or the greater the diminution of appreciation of their link, the greater the sense of effectiveness."[75] The mashrabeya inherently exhibits such distance between the cause (the roundness of the balusters) and the effect (the diffused light). Fathy demonstrated such distance by repeatedly highlighting the false application of the mashrabeya design:

> *It is interesting to mention that Oscar Niemeyer, the modern architect of Brasilia, adopted for his Country houses the same arrangement of mashrabiyya ... with close mesh at the bottom and large mesh on top. Though aesthetically successful, Niemeyer's new version of mashrabiyya being made of flat lattice-work, will not fulfil the function of subduing the glare, like its prototype in which the balusters are rounded.*[76]

Niemeyer's mashrabeya is modern; flattened and abstract (Figure 5.6). Fathy's mashrabeya is contemporary; rounded and comfortable. The connections between cause and effect however were only established through Fathy's writings and architectural drawings. In many of his houses, Fathy

[74] Hassan Fathy, "The Qa'a of the Cairene Arab House: Its Development and some new Usage for its Design Concepts," in *International Colloquium on the History of Cairo* (Cairo: 1970) *Hassan Fathy Archives*, Aga Khan Trust for Culture (Geneva, Switzerlan) pp. 141

[75] Sylvia Lavin, "The Temporary Contemporary," in *Perspecta* 34 (Cambridge, MA and London: The MIT Press, 2003) pp. 135

[76] Hassan Fathy, "The Qa'a of the Cairene Arab House: Its Development and some new Usage for its Design Concepts," in *International Colloquium on the History of Cairo* (Cairo: 1970) *Hassan Fathy Archives*, Aga Khan Trust for Culture (Geneva, Switzerland) pp. 143

designed and produced detailed drawings for the mashrabeya, revealing through these drawings the causes of such special effects (Figure 5.7). The mashrabeya animates by diffusion, a special effect by design. The comforting architect does not frame or flatten, but instead designs and manipulates the surfaces that come into contact with nature. The mediated view is not conditioned by the picturesque quality of the landscape, but by the design of the window.

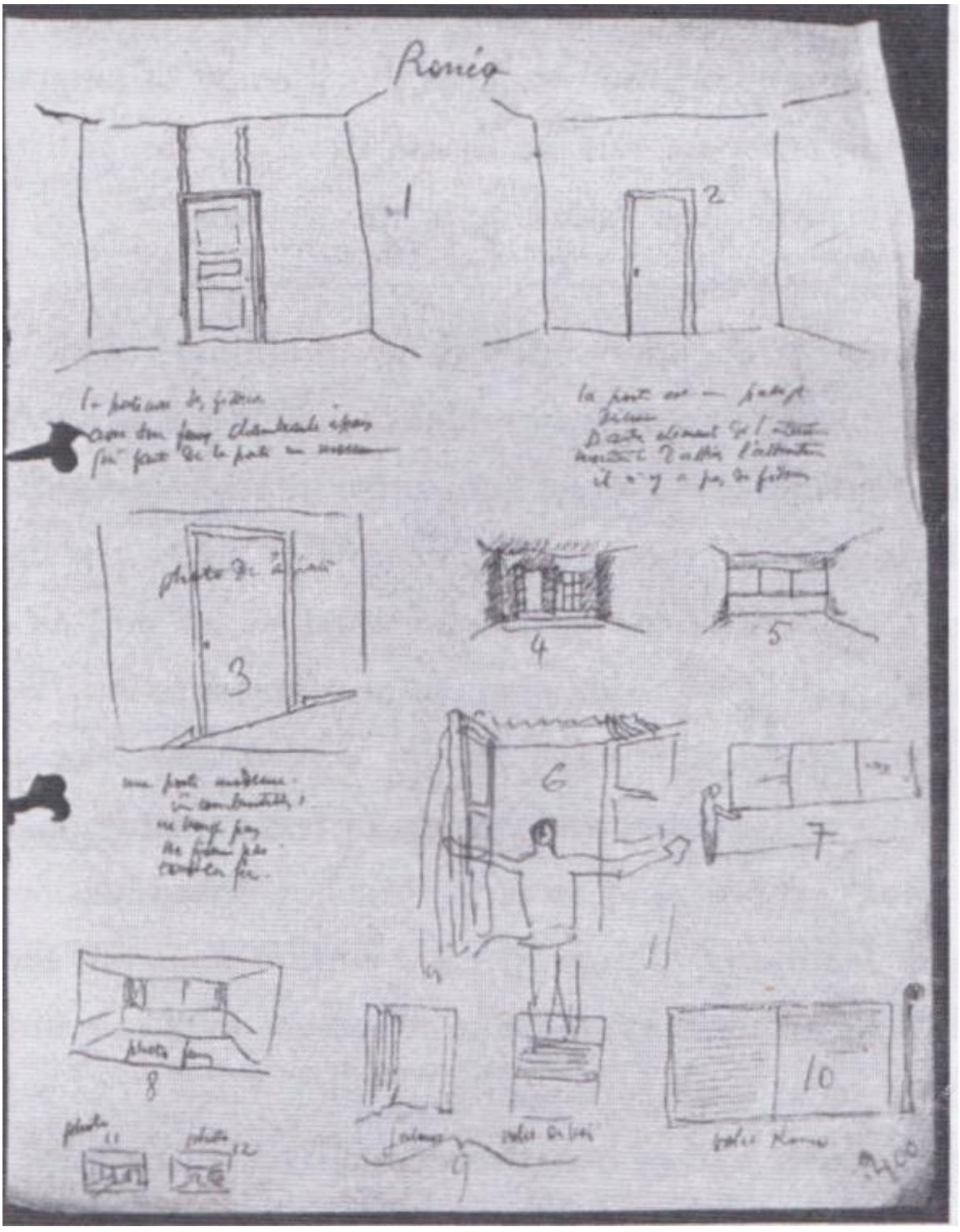


Figure 5.1 “Le Corbusier, “Ronéo” page of sketches.” From: Beatriz Colomina, *Privacy and Publicity: Modern Architecture as Mass Media* (Cambridge, MA and London: MIT Press, 1994)

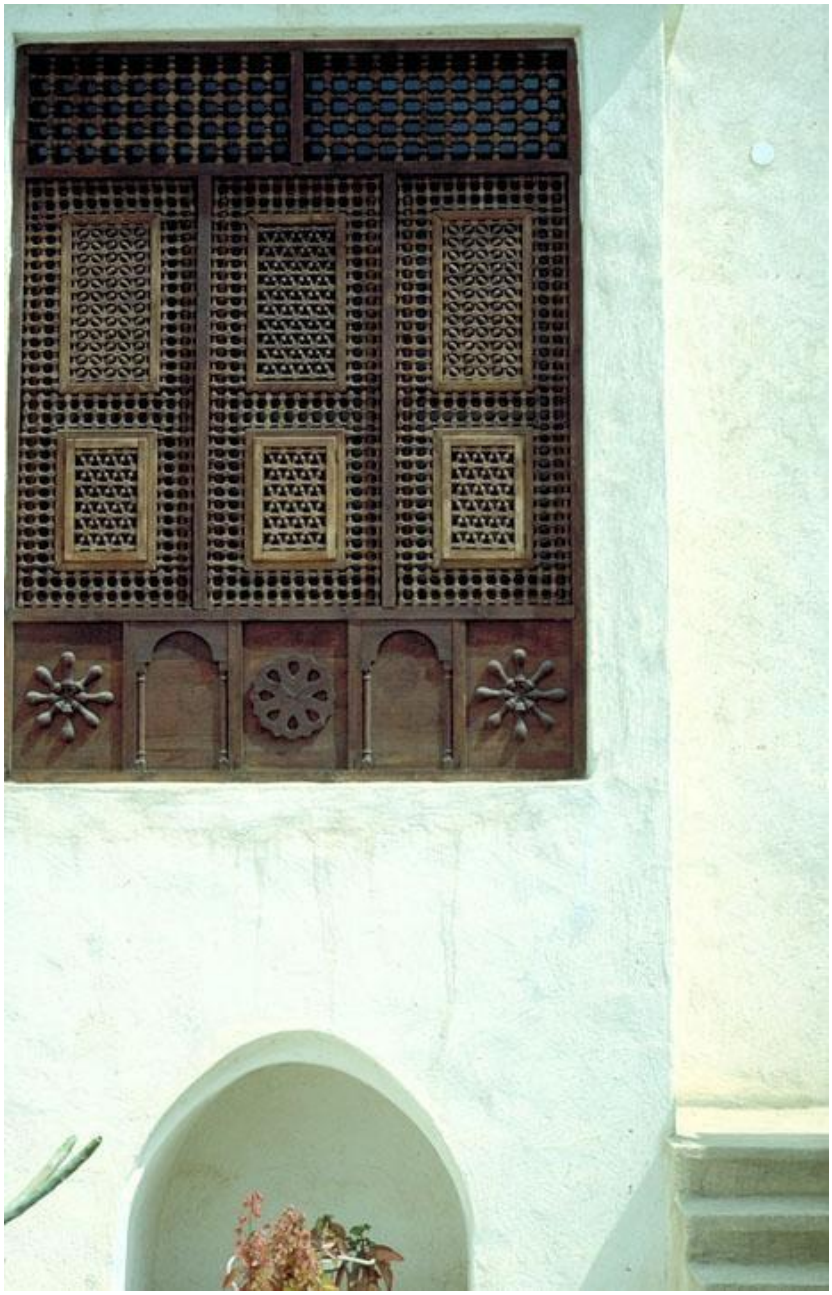


Figure 5.2 Mashrabeya, Akil Sami House. Photograph by: Chant Avedissian. From: *Hassan Fathy Archive* (Geneva, Switzerland: Aga Khan Trust for Culture)

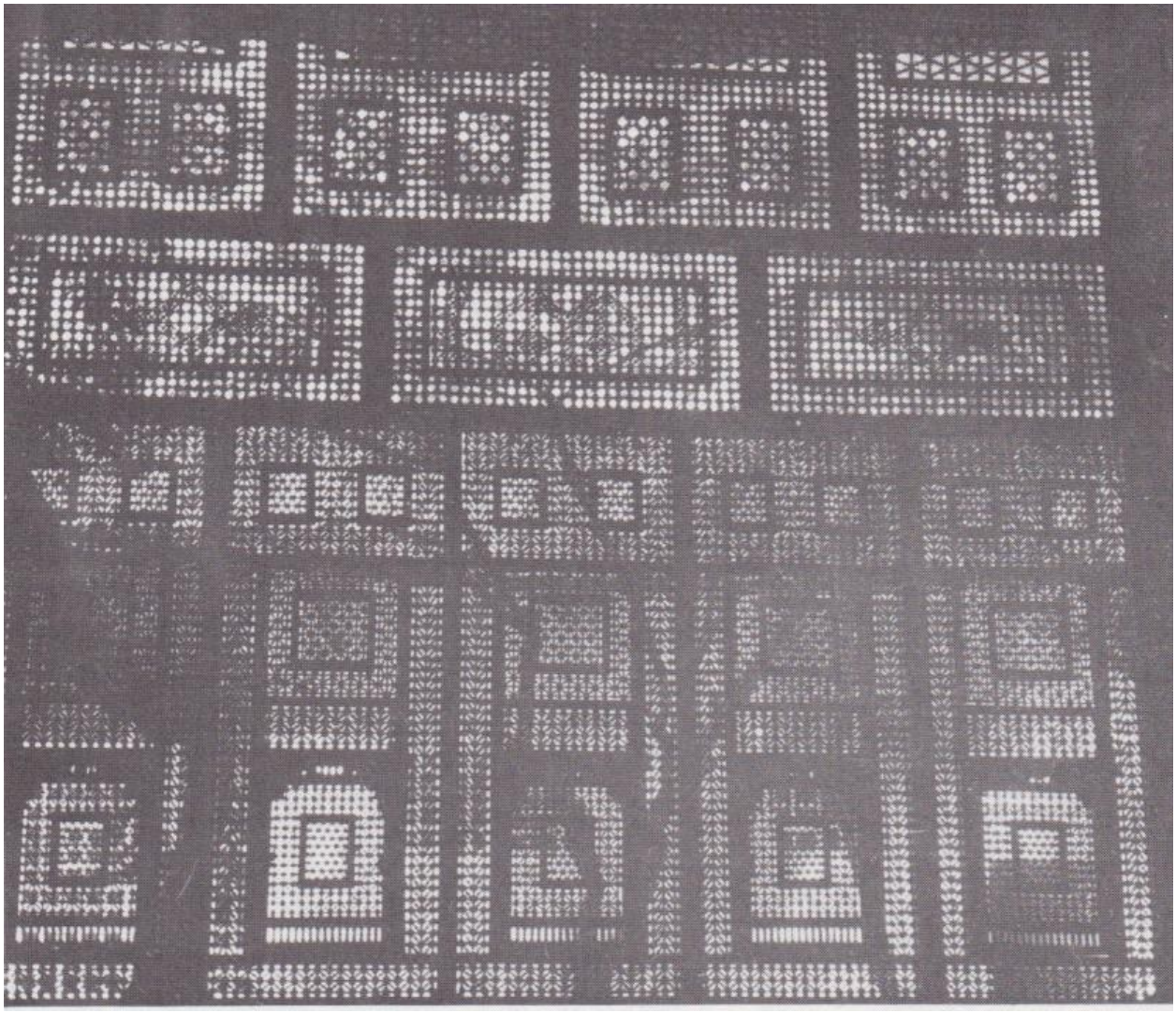


Figure 5.3 Mashrabeya in Al-Suhaymī house, Cairo. 1796, Originally built in 1648. From: Hassan Fathy, *Natural Energy and Vernacular Architecture: Principles and Examples with reference to Hot Arid Climates* (Chicago and London: The University of Chicago Press, 1986)

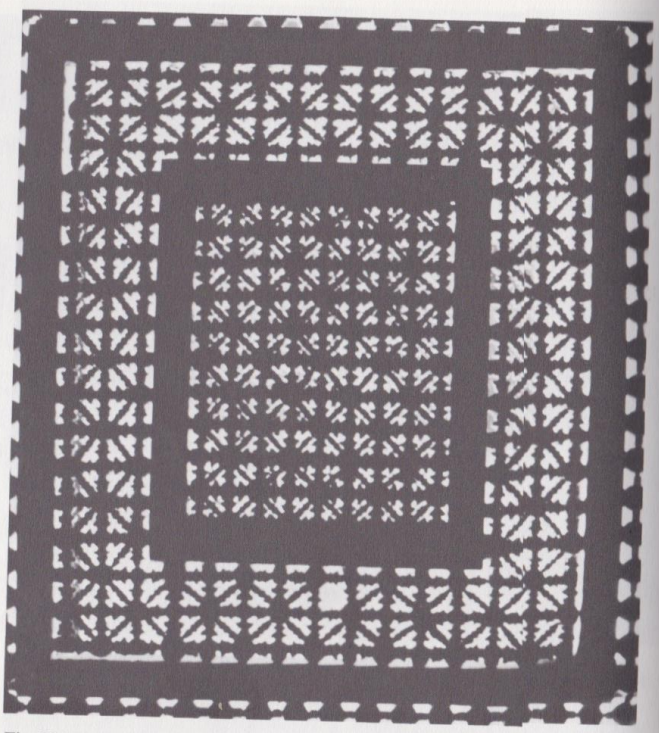


Fig. 29. *Mashrabīya* of the As-Suḥaymī house, Cairo, photographed from inside with the camera focused on the lattice. (See p. 49.)

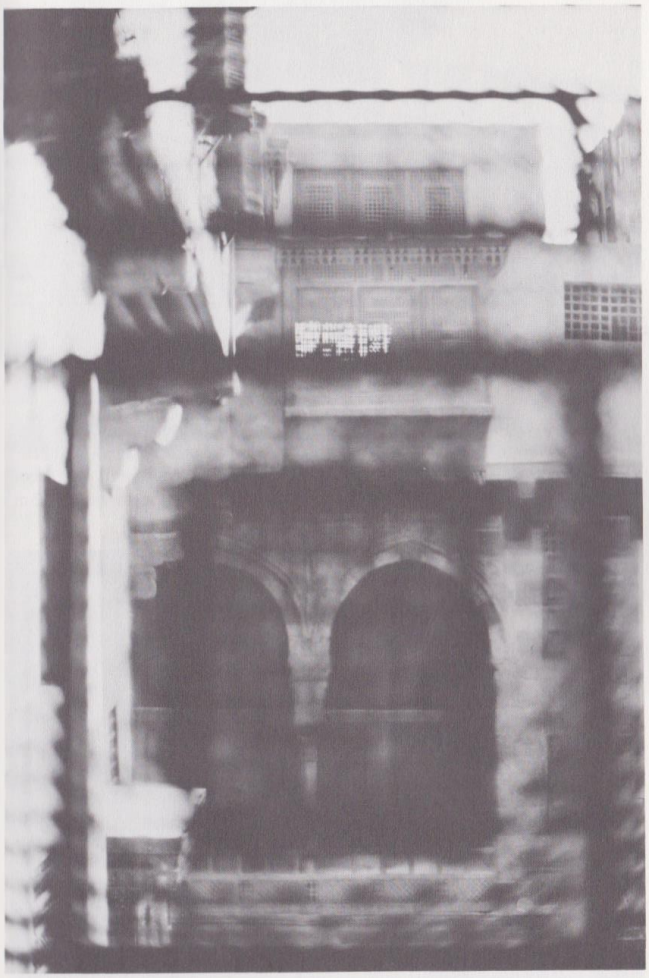


Fig. 30. View through the *mashrabīya* shown in fig. 29, with the camera in the same position but focused on the building across the courtyard. (See p. 49.)

Figure 5.4 Mashrabeya in Al-Suhaymī house, Cairo. 1796, Originally built in 1648. From: Hassan Fathy, *Natural Energy and Vernacular Architecture: Principles and Examples with reference to Hot Arid Climates* (Chicago and London: The University of Chicago Press, 1986)

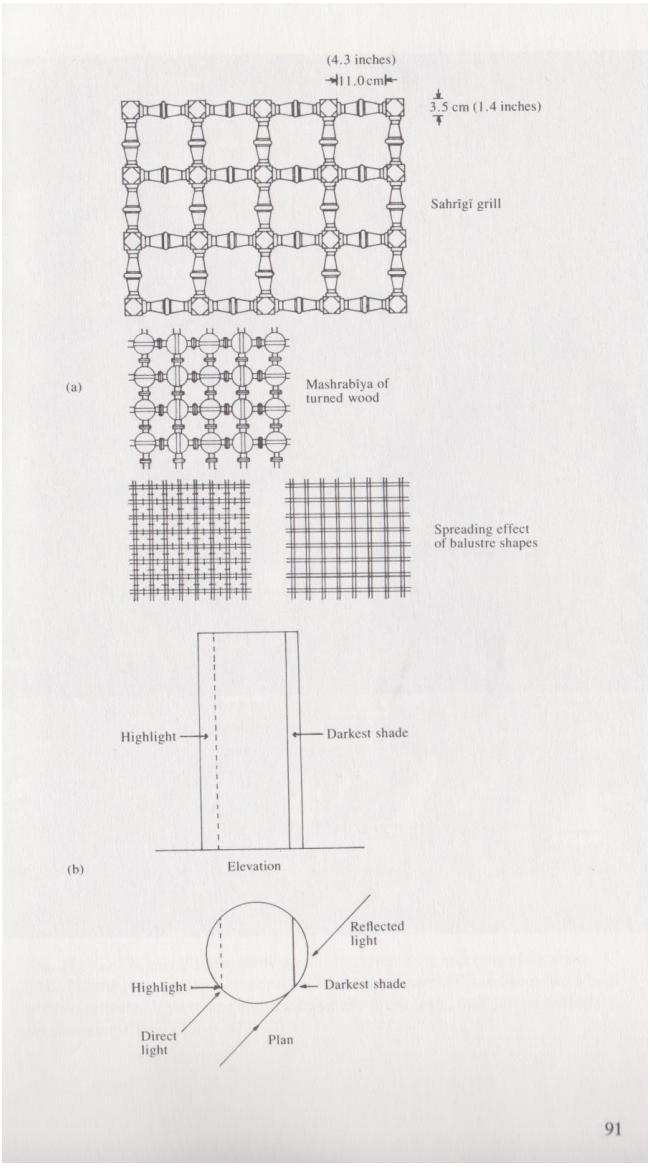
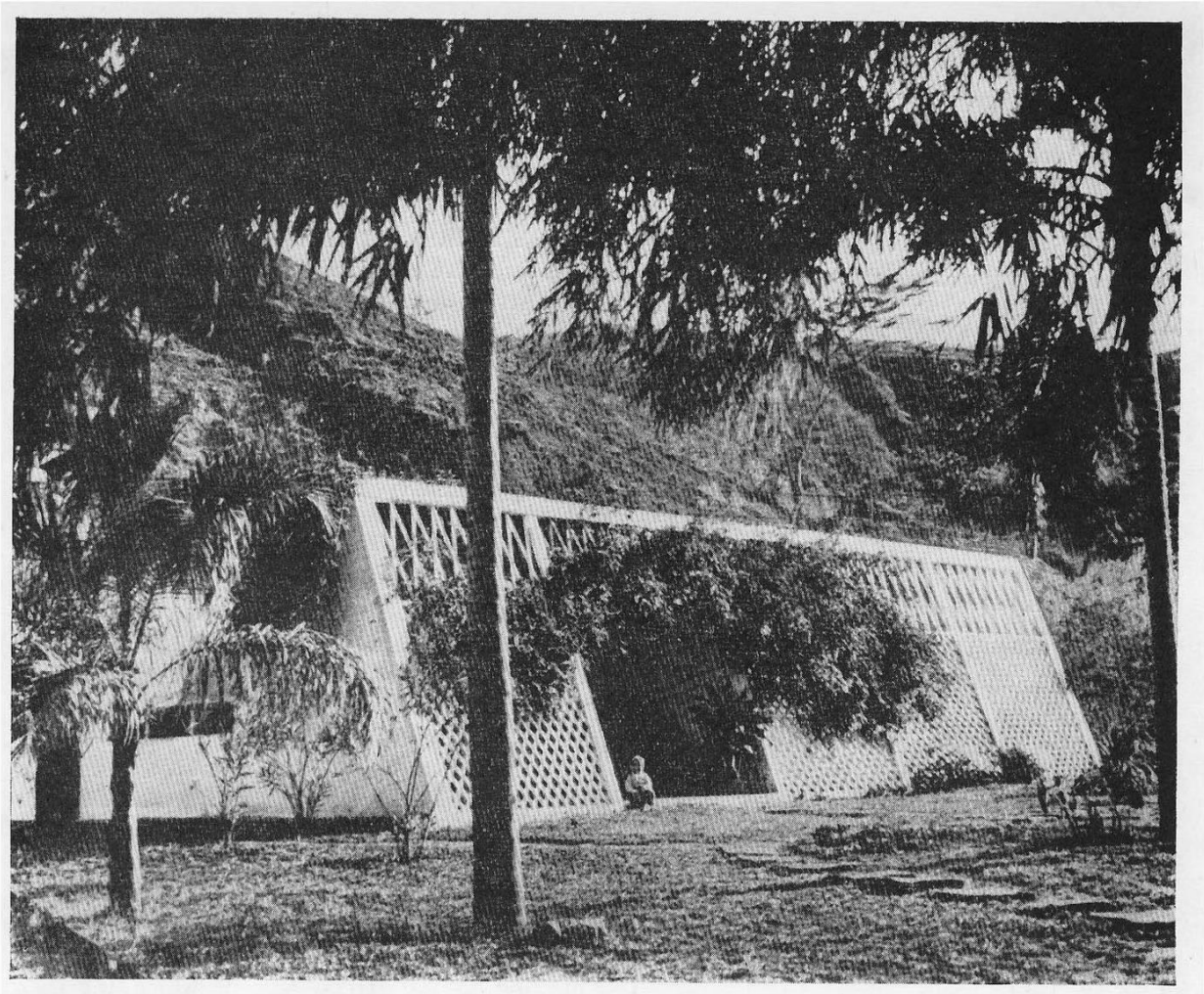


Figure 5.5 Analysis of the mashrabeya. From: Hassan Fathy, *Natural Energy and Vernacular Architecture: Principles and Examples with reference to Hot Arid Climates* (Chicago and London: The University of Chicago Press, 1986)



11. Lattice-screen; country house of arch. Oscar Niemayer, Brazil

Figure 5.6 Country House, Oscar Niemeyer. From: Hassan Fathy, "The Qa'a of the Cairene Arab House: Its Development and some new Usage for its Design Concepts," in *International Colloquium on the History of Cairo* (Cairo: 1970)

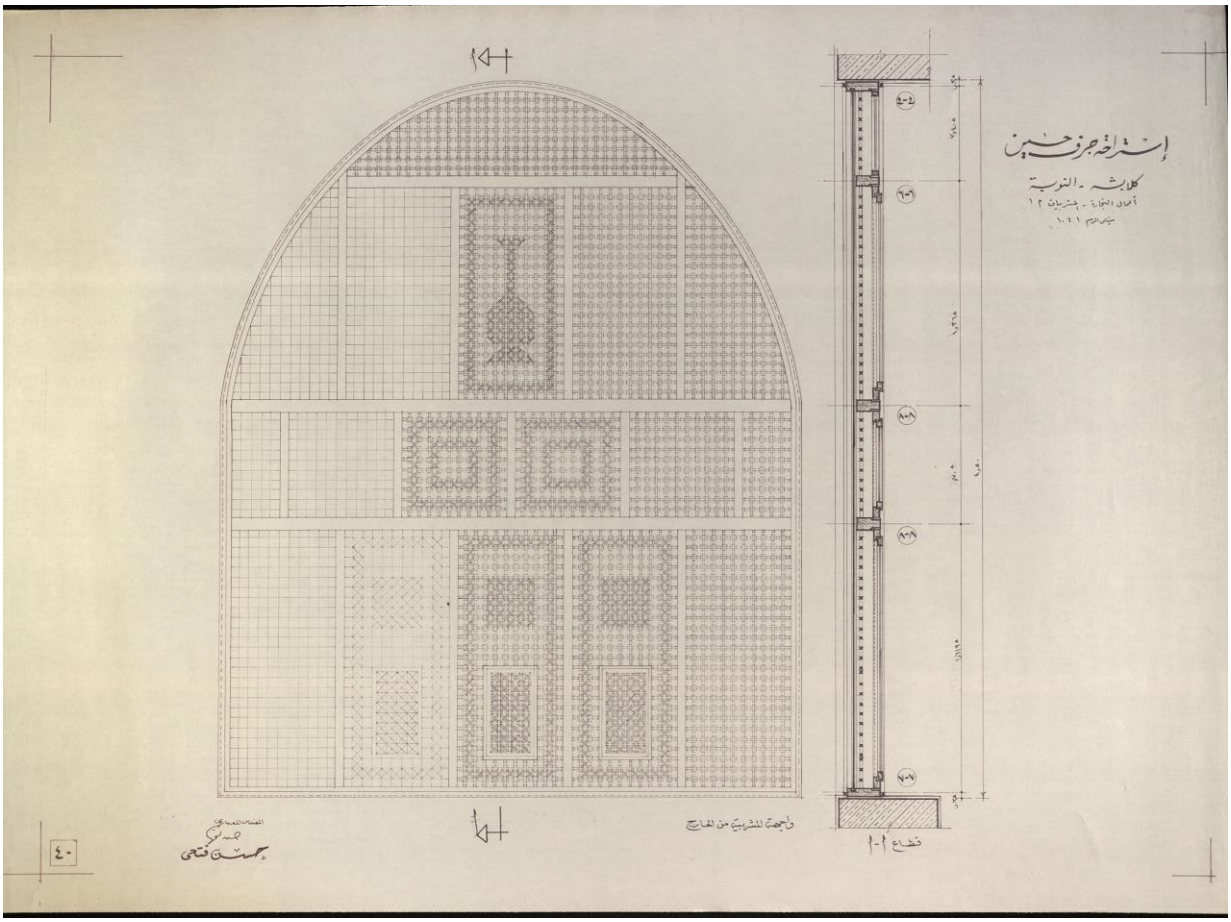


Figure 5.7 Mashrabeya at Garf Hussein Rest-house. “Woodwork details. Detail of exterior of the mashrabeya (window grille). Style M-1. ca. 1981. From: Aga Khan Documentation Center at MIT, Courtesy of Darl Rastorfer. Image ID: IAA116031

CONCLUSION

Fathy's position in the history of Modern Architecture today has been cemented by the efforts in the last 10 years to restore and preserve his work, especially the village of New Gourna, as part of the heritage of Egypt. The 2009 UNESCO initiative titled "Safeguarding project of Hassan Fathy's New Gourna Village," (suspended since the summer of 2011) cited serious concerns over the physical deterioration of the buildings at New Gourna. The project's value as a significant experiment toward humanistic and sustainable architecture was acknowledged by "both the World Heritage Committee and the academic world of experts on Hassan Fathy's architectural work," with the hopes of reviving interest in the architect's work as a monument of 20th century architecture in Egypt. The 2011 UNESCO initiative stated its goals as:

> *... to valorize the pioneering ideas and philosophy of Hassan Fathy's work and to reinforce its relevance to contemporary sustainability concerns. Fathy's tenets derived from humanistic values about the connections between people and places and the use of traditional knowledge and materials especially the exceptional advantages of earth as full-fledged construction material ... thus, the safeguarding of New Gourna is about more than just preserving it original design and fabric but also about promotion, communication and education.*[1]

The initiative was followed by multiple reactions and waves of publications that ranged from revised historiographical monographs like Leila El-Wakil's edited book *Hassan Fathy: An Architectural Life*, to works that questioned Fathy's value and position in the history of modern

[1] "Safeguarding Project of Hassan Fathy's New Gourna Village: A UNESCO initiative," (January, 2011) http://whc.unesco.org/uploads/events/documents/event-720-7.pdf, pp. 7

architecture in Egypt, like Mohamed ElShahed's essay "Hassan Fathy: Architecture for the Rich."[2] Elshahed's work was not necessarily dismissive of the architect's value, but rather aimed to shed light on other architects in Egypt that had equally influential engagement with modernization in general and architectural modernism in particular.

This dissertation attempted to disturb this legacy by paying closer attention to Fathy's managerial project that directed his architecture toward the mediation of modernization's conflicting temporalities of change. It tried to show how in the representation of rural subjects during the mid-century decolonization of Egypt, Fathy ultimately disassociated his project from the realities of the subaltern and sought to maintain instead his own agency within the modernizing process. Through the lens of comfort, this dissertation tried to reveal how the media of architectural representation subjected the complexities of rural environments to the means of architectural production. In formal transpositions, the village became an object of architectural consumption. Moreover, this dissertation attempted to locate in the industrialization of the mudbrick a managerial technique that stabilized modernization's forces of change. It showed how in Fathy's conception of space, modernization came to be mediated through the attention to self-expression. Furthermore, it tried to reveal how in approaching architecture as a climate control machine, the disciplinary boundaries of architecture, and in turn, the architect's own agency, was thought to be reconstituted and preserved. And it aimed at highlighting how, through the mashrabeya screen, Fathy's project presented the subjects of modernization with an opportunity to assert their elite status in society by capitalizing on the screen's potentials of fabricating through its multiple viewing modalities the self-management of societal interactions.

[2] See Mohamed ElShahed, "Hassan Fathy: Architecture for the Rich," in www.cairobserver.com (January 23rd, 2012)

Disassociating Fathy's work from the conventional historical problems that were inscribed onto his work, and re-grounding the work in questions of creativity, security, financial empowerment and self-expression, serves to reposition the work within the history of modern architecture as a contribution, not to modernization or its resistance, but to its mediation: the development of comfortable modernization.

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