PROM. NR. 2928

THE DEVELOPMENT OF URBAN AND RURAL HOUSING
IN EGYPT

THESIS PRESENTED TO THE SWISS FEDERAL INSTITUTE OF TECHNOLOGY, ZURICH
FOR THE DEGREE OF DOCTOR OF TECHNICAL SCIENCE
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The first part of the study which follows presents a survey of the traditional forms of Egyptian dwellings and their development. As these constructional forms have evolved organically from the needs of the people of Egypt, they may offer valuable pointers towards future design. In recent years there has been a movement towards large-scale housing projects in Egypt. Unfortunately these schemes have failed to allow for the climatic conditions of the region, or to appreciate local traditions. A new start is called for, expressing the culture of the region instead of merely imitating. This work is intended as a modest contribution towards this new approach which will require time, patience and much hard work before we achieve truth in form.

The second part takes as its starting point the fact that Egypt is a predominantly agricultural country, with about 75% of the population living in villages where their standard of living leaves room for improvement. This stark contrast between town and village results in migration from the country-side, leading in its turn to overcrowding of the towns. We are therefore compelled to seek ways and means of improving rural conditions, for two fundamental reasons: firstly, there is no sense in clearing the city slums before migration from the land has been checked by improved rural conditions; secondly, any such improvement must take into account the economic conditions of the villagers, the traditional and therefore locally available materials and constructional forms.

In writing this survey, the author has encountered considerable difficulty due to the fact that the data and references were scanty and scattered. Research work had to be conducted in several countries besides Egypt, and the author travelled to India to study the Chandigarh project, to some countries of the Middle East, and to the United States of America.

He is therefore grateful to many organizations and individuals, too numerous to be all acknowledged. Nevertheless, he feels it his duty to mention some whose help and information has been particularly valuable: The staff of the International Labour Organization; the "Housing and Town and Country Planning Section" of the United Nations Department of Social Affairs; the International Housing Staff Office, Washington, D.C.; the Egyptian Department of Popular Housing; the Libraries of the Zurich Architectural Department, Zurich; Harvard and Princeton Universities and Massachusetts Institute of Technology, Boston; and also Mr. A. Ahmed and Mr. P. Whincup for helping correcting the text, and Mrs. D. Tuetey for typing the manuscript.

And, above all, the author owes his very special thanks and gratitude to Prof. William Dunkel of the Federal Institute of Technology, Zurich, for his guidance and help throughout this work, and to Professor Ernst Egli for his valuable advice.
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PART I  THE DEVELOPMENT OF DWELLING QUARTERS
"We do not want a uniformity of architecture which might tend to confuse a muddled traveller into attempting to enter a house identical to his own, not just in the wrong street, not even in the wrong city, but actually in the wrong country or the wrong hemisphere."

Henry Russell Hitchcock.

(a) Topography

If we substitute the sea for the desert, Egypt is nothing less than an island, and what a strange island it is! It is five hundred miles long and only twelve miles wide, the shape being determined by the course of the great river which created it.

The river not only nourished the people who were to dwell along its banks for a recorded period of two hundred generations, but also conditioned their way of thought, their conception of life and of the universe. The land is one of brutal contrast; a narrow green valley (Fig. 3) containing the world's longest river bears a gigantic bulk of solemn buildings and is surrounded by cliffs and sand which have not changed since time immemorial. Internally, however, it is divided into contrasting regions, the long narrow trough of Upper Egypt to the south, and the broad, spreading Delta of Lower Egypt to the north.

Upper Egypt is in some places only four to twenty miles wide, being within immediate reach of the Nile and always in immediate contact with the desert cliffs which enclose it. The concept of this one axis has influenced the formation of the towns, (Fig. 1) which the Egyptians
have built on the river banks; (Fig. 2) is shown by the situation plan of Amarna, which is based upon the one north - south axis running parallel to the Nile.

Lower Egypt loses this axis in its broad stretches, running outwards flat in every direction beyond the horizon. Lower Egypt faces outwards to the Mediterranean Sea, towards Europe and Asia. Its contacts are more cosmopolitan.

(b) Geography

The valley separates two very distinct types of country. The Libyan desert, to the west, consists of high, flat plateaux, which drain into closed-in depressions. The Arabian desert to the east is a plateaux of low mountain ranges adjacent to the river.
The natural products of the soil with limited timber as well as the kind of clay and the limestone, had largely determined the character of the architecture of the country.

Until recently, the Egyptians built with the natural materials available to them. Soft calcareous stone (Limestone) is obtained from the Mokattens' hilly region, and Helwan in the north Fig. 4, the sandstone (Limestone) in central districts, while in Upper Egypt granite or syenite, hard stone near Aswan (Fig. 5).
Bricks were mostly used, especially clay bricks. The soil of Egypt is periodically washed by the flood which brings black, homogeneous clay which turns to stony hardness when dry. These clay bricks have long past been used and are still being used in the construction of houses, especially in the villages; burnt or sand bricks were used later in urban architecture.

The nature of the soil does not permit of deep foundations, as it consists of a thin bed of accumulated humus and debris, which, except in large towns, never reaches an appreciable thickness. Below this comes a very dense humus, permeated by slender veins of sand; lower down, at the level of infiltration, is a bed of mud more or less soft, according to the season.

The inhabitants of the present day are content to remove only the top-soil and lay their foundation on the primaeval soil, or if that lies too deep, they stop at a meter or so below the surface.

(c) Climate

Egypt's climate during the greater part of the year is remarkably salubrious. In the southern part of Egypt the temperature is usually 5°C higher than in the north. But although the Egyptian summer is somewhat hot, it is seldom oppressive, being accompanied by a refreshing north breeze, while the air itself is extremely dry. Frost is unknown and only light morning mists appear in the Delta in winter.

There is, however, one source of great discomfort arising from the dryness, namely, the excessive quantity of airborne dust. There are two hot southerly winds, one of which is called El-Khamassin, occurring in April, the other being a more oppressive hot wind called the
Samoom, occurring in summer. The Samoom is however much shorter in duration, seldom lasting more than from twenty minutes to an hour. Since rain is rare except near the Mediterranean coast, the flat roofs were mainly used for sleeping out on in summer, and not as a rain catcher.

The sky and weather have a fascinating beauty, particularly at sunset (Fig. 6) and at night, combining a welcome relief from the daytime glare with a refreshing sensation.

Such a climate with its brilliant sunshine, is also conducive to simplicity in design, for as sufficient light reached the interior through doors and roof slits, there was no need of windows, and thus unbroken massive walls not only protected the interior from the fierce heat of the sun, but also represented an uninterrupted surface.

The Egyptians are an outdoor people, mainly owing to the mildness of Egypt's climate. The houses are more of a shady shelter in the summer, while during the mild winter, it is very pleasant out of doors in the sun, thus even in winter outdoor life is enjoyable, while in summer it is much more pleasant to sleep on the roof or in the open.

IN: Winter
December, January, February
Summer
June, July, August

Cool period
3 months

Hot period
3 months

Very hot (at night mild)

Temperate period

OUT: Mild
March, April, May
September, October, November.

The mild climate of Egypt thus allows outdoor activities in all seasons (Fig. 7). This vital factor should be taken into consideration, bearing in mind that confinement within four walls would be a gross injustice to the inhabitants.
(d) Flora

The Egyptians were and still are in general flower lovers. One of their traditional celebrations in the spring is a well-known feast called 'Sham-El-Nessin' ("smelling the breeze of spring") . It dates back to the Pharaonic period. Egyptian plants are beautiful in their simplicity (Fig. 8). Every form of natural life has its distinctive charm. We should not expect to find the same natural life, the same pineneedles, or close forests as are to be found in Western or Central Europe.

I tried to show in this study that the original native plants have had direct and indirect influence on architecture and are characteristic of this part of the world.

The tree which figures most is the palm tree? It is found all over Egypt all the way from the north to the south but with a little variation of stem size. Every part of this benign tree from root to tip is useful. In many oriental countries the stem is the only source of wood for building, while the bark provides mats and ropes. From the branches, roofs, beds, seats, cages and baskets are made. It is moreover a fruit-bearing tree and is thus a source of food.
The well-known Sycamore which is a leafy tree, is functional in our climate, offering refuge under its broad shade.

There are also the Tamarisks, various varieties of Acacia with yellowish flowers which have a fascinating perfume popular with the Egyptian.

In the court-yards of Pharaonic and Islamic houses there was almost invariably a fruit tree such as a citrous tree, a palm, or olive tree, or a Gem-maze-fruit tree, etc. (see Fig. 9a/b).
Pergolas and trellis-works were often used for vines as well as for the welcome shade they provided. Creeper plants were also trained over the entrances along pergolas, and to shade passage-ways (Fig. 10a/b). The fragrant jasmine was also a favourite. On sandy soils and fringes, cacti such as the prickly pear (of food value) flourished together with the fig tree.

Ismail Pasha (1870) was very much attracted by the French gardens, and therefore invited the chief gardener of Paris, Monsieur Brilet, to design new gardens like the ones of Paris. He imported new plants, trees and lawns, which can be seen in public gardens and along the streets in Cairo and Alexandria. But in my opinion these plants and green areas need maintenance and care and consume a great amount of water, without many material benefits. In plotting the green areas our hot climate should be born in mind, and lawns should be kept small. On the other hand, the planting of shady trees should be encouraged as much as possible. Owners and planters of private gardens should be made more aware of the benefits which they would bestow to the town as a
whole by planting more trees which may at the time provide additional source of income.

The growth and care of trees to any extent in the country should be fully appreciated. During my visit to a planned industrial town near Alexandria I was struck by the complete absence of trees. In reply to my enquiries, I was told by the authorities that trees had indeed been planted, only to be destroyed while they were still saplings by children. Respect for trees as important and useful forms of life should be inculcated early in the lives of children, through school nature studies and so on.

I believe that with some inspiration, observation and education we could develop native plants which are easily available and easy to maintain, and utilize them most profitably.

In hot climates shade is a valued and pleasureable virtue. Trees and places shaded by trees are important elements in architectural planning and housing, not only in Egypt but also all over the Middle East.
Chapter II

THE ANCIENT EGYPTIAN DWELLINGS

Introduction

This study is not intended to revive an old style, whether Pharaonic or Arabesque, but perhaps a review of the past may inspire new ideas on understanding of the Ancient Egyptian concept of town building and housing, and may provide some useful knowledge for our future designs.

In the history of town building, the progress of time is not necessarily a decisive separating factor in the flow of ideas and progress of imagination as town forms of to-day can be traced back to the distant past.

Cities, found in varying numbers throughout the world, are not recent phenomena. Ancient Near Eastern and Egyptian civilizations created this form of social organization some five millennia ago. 1)

In laying stress on history, I am not unrealistically underestimating modern techniques or being prejudiced against today's concepts of town building. What I would like to stress is that we should not imitate, prejudiced by past or present, but we should be more conscious of regional characteristics, noting that the differences of climate, topography, tradition, culture, methods of construction, and even the lack of perfection in new techniques with shortage of financing have much to do with our capacity to build and design. Imitation and copying without consideration of the above determining factors has led us and is perhaps still leading our Middle East architects to mediocrity and lack of imagination and truth in our so-called new concepts of planning in the Middle East.

We should not disregard the history of our town planning or look upon it as an antiquity. In history there may be a great deal of truth and the appreciation of many factors, which should be considered in planning for our regions.

Professor Egli has said: "Town building is and always was the imperfect expression of a timeless idea, and its history is rather a series of realizations than a development." 2)

I believe that we cannot start to solve our problems without knowing the origins of our cities and villages, their growth and the different factors at work there.

Although we find still surviving in our present architecture, the different forms and methods of construction dating from the Pharaonic period as expressed in our rural architecture, and

1) The city urbanism and urbanization in major world regions Rose Lee.
2) Climate and Town District - Egli
from the Islamic period as shown by our urban architecture, nowadays, European influence with its new techniques, methods of construction and planning is rapidly dominating both. Nevertheless, we should mention that Egypt came under the influence of Greek, Roman and Byzantine architecture.

Greek colonies that had been founded before Alexander's time had little influence on ancient Egyptian culture was visibly affected by contact with the Greeks over some four hundred years up to the founding of Alexandria."

Alexandria became the most notable Hellenic city - and it remained popular and famous through the Roman Empire (Fig. 11).

Both the Greeks and Romans built their dwellings copying the style of their countries, but these forms disappeared and were replaced by several other subsequent phases of rebuilding. It was said that "Egypt was to prove extraordinarily resistant to Hellenic conceptions of art, even under the Ptolemies." *

With the spread of Christianity a great change took place and with the division of the Roman Empire, Egypt fell to the lot of Constantinople.

Two questions remain: How much were Coptic dwellings influenced by the Byzantines, and to what extent did they retain the ancient Egyptian forms? Both subjects deserve further research.

(a) The Form of Ancient Egyptian Towns

The ancient Egyptians were fully conscious of the orientation of streets and dwellings when planning their towns. The planning was no haphazard play of form but had a deep meaning and significance.

For sheer architectural and structural magnificence, skill in artistic handicraft, and a fine sense of geometric methods in planning, no early civilization have left such impressive results as Egypt 1).


1) Town building in History - Hiorns.
Sir Flindere Patrie claims that over 5000 years B.C. the artistic power of Egypt was highly developed and progressively maintained for a long period.

In attempting to describe the old forms and concepts we should try to find out the characteristics of those towns and their influence on town planning in general, as well as to recognise the traditional methods which have survived until the present day.

The major characteristic of Egyptian towns is that they were built by kings. Stable conditions in the land permitted the royal city to develop early. When a King ascended the throne of Egypt, he erected a new pyramid which was to become his future tomb, and some kings also founded a new city for their courts and administration. "The royal cities of Egypt are an expression of Absolutism. It is not surprising that when Absolutism appeared again in Europe the royal city type was reborn." 1)

It is sometimes thought that the art of planning was developed from organic to straightforward patterns, but with a little observation we can find both forms in the ancient Egyptian towns. An example which shows the difference is in the straight patterns of Kahun and the organic one of Tel-Amarna.

Professor Hilbersheimer says: "We know nothing about the settlement Crete developed for its harbour workers and for its craftsmen. They may have been similar to a known Egyptian workmen's settlement at Kahun built to provide houses for the workers." Kahun was one of the first examples of labour towns in the world. (Fig. 12 shows a plan of three-quarters of the

![Plan of Kahun](image)

Fig. (12) Plan of Kahun

1) The Nature of the Cities, Hilbersheimer.
town of HAT-HOTEP (Kahun) near Fayum, 12th Dynasty (2100-1700 B.C.) which was founded for the accommodation of officials and workmen employed in connection with the pyramid of User-tesen II (at Allahun). This is a typical town entirely built by a king. Such towns were rigid and regular in planning with obvious classification and priorities for different social classes.

The north wind is refreshing, especially in the summer time, while the "Khamasim" which is a hot desert wind, comes from the west. From the plan we see that workmen's quarters are principally in the west and are separated from the eastern part by a thick wall. The east part is reserved (for men) of rank. The orientation of residential streets is east-west.

Sir Flinder Patrie says: "Each street was of a uniform type of house. There were no gardens, but each house, however small, had its open court, just as in peasant houses now."

In this example we find the horizontal repetition of standardized units and the first attempts to build houses in rows, as well as the first designs of a town as a whole with its market place, granaries and warehouses. This kind of town was pratically and functionally built to fulfil a clear immediate plan in a short time. "Though Kahun was applied to relatively ephemeral buildings of limited scope, it affords clear evidence of Egyptian Capacity to plan cities." (See Flinder Patrie).

Professor Saarinen says that the history of town building shows that the character of town formation depended mainly on two factors, namely, the tempo at which the town grew and the changing conditions of life 1).

The second example, that of Tel-El-Amarna was born (1375 - 1358 B.C.) because of the new Cult of Aton. Thus, there was a changing condition of life. Amarna was born in a revolutionary society. It was a town against every kind of restraint, the bonds of rigid organization, social prejudice, against the disenfranchisement of women. The town was deliberately irregular, the houses of the rich and of the court attendants neighbouring those of the workers and of the poor 2). (Fig. 14 shows details of the town quarters.) Each house had a court oriented so as to receive the cool north breeze. Moreover, every group of houses had a communal court. The town quarter was organic, and represented a Society of mixed classes, quite different to Kahun where compartmentization of classes existed. The congestion of the older towns is absent, and there is not that tendency for building to grow vertically or narrow streets which must have been the characteristic of such cities as Memphis and Thebes 3).

In comparing Amarna and Kahun, we note that both towns were built by a king and after being inhabited for a short period were then abandoned. But from their planning we observe that they are completely different: Kahun is rigid with straightforward streets, while Amarna, though organic, preserved its original characteristic features. The back-bone of the town was the crossing a Nort-South road (Fig. 15).

1) The City by Saarinen
2) Egli: Climate and Town District
3) See "The Art and Architecture in Ancient Egypt, S.Smith."
Fig. (14) A detail of town quarter in Amarna

Fig. (15) The main street north-south
The Workmen's Settlement

Kahun and the Model village of Amarna are the first examples of organized working towns in history (Fig. 12, 13).

Egyptian workmen in those times seem to have secured respect and humane treatment. The ordinary workman had at least three rooms, besides the open court. Others had four, five or six rooms, with probably some shed on top.

The village settlement of Tel-el-Amarna displays an astonishing functional effectiveness in its compact planning. Mr. Woolly who directed part of the excavations described it as "town-planning in its perfect form, with uniformity as a guiding principle."

It was for its period an advanced and human form of industrial village, planned for discipline, control and to safeguard health and convenience with streets which ran north and south.

The general characteristics of the ancient Egyptian towns can be summarized by the following points:

1. The towns were, in general, over-populated and compact, like Memphis and Thebes, etc.
2. The sites of all the old Egyptian towns were inhabited throughout history. A great many of our villages to-day are erected over the old town sites.
3. The principle of orientation was the same in all towns with proper orientation of streets and dwellings with the court-yards open to the north to receive the cool breeze.
4. The town was surrounded by a fortified wall for protection against invasion.
5. Each town had a shaded open space used as a market. Probably the bazaar street was also shaded.

The royal cities of Egypt have entirely disappeared; only the tombs of the dead Kings have survived.

1) "Some Sources of Humane History" by Sir W.M. Flinder Patrie
2) Hiorne
3) Herbert Rike
4) Egli
The question which concerns the traditional methods surviving until the present, is perhaps the most important one, but there are however relatively few relevant references available. Professor Maspero states: "Archeologists have so concentrated their attention on temples and tombs that not one has devoted himself to a careful examination of the existing remains of private dwellings."

No city of Egypt is representative of its period of maturity such as one might expect Thebes to be. Thebes left its noble temple groups, as did Sumerian, Assyrian, and other civilizations. But unfortunately the houses of the ordinary people commonly disappeared in the lapse of time.  

I would like also to add that the ancient Egyptians were much concerned with death and life beyond death. Structures and objects intended for use after death lay out in the desert sand and have survived to the present day, whereas materials dealing with life in this world lay chiefly on the fertile, alluvial soil, where they were subjected to moisture, chemical destruction and human wear and tear, and have not survived.

Unfortunately for the archeologist, the north part of the Delta consists of moist soil, so that the part of Egypt which was in close contact with Asia and the Mediterranean tells us little.  

Since Pharaonic architecture bears such a close resemblance to our present-day rural architecture in its methods of construction and building materials, I would like to enlarge on this subject in some detail.

(b) The earliest Egyptian houses

The form is that of a rectangular space of about 3 metres in width by 5 metres in length, enclosed by a wickerwork of palm branches coated on both sides with a layer of mud (Fig. 16). As this coating cracks on drying, the gaps are filled in, and more coats of mud are daubed on until the walls have a thickness of from 20 cm to 30 cm (8" - 12").

The roof was then covered by palm branches and straw, the top being covered with a thin layer of beaten earth. The height varies from 180 to 240 cm (6 - 8 ft.)

Windows are rare, but sometimes a hole was left in the middle of the roof to let smoke out.

The function of the roof was limited only to protection against the severe heat, the beating sun and dusty winds. This type still exists in our days in the villages, and the wickerwork of palm branches has not disappeared (Fig. 17).

The development from the one-room plan to several rooms only took place after the construction was changed from the wickerwork hut type to a solid brick wall construction.

1) Town Building in History
2) The Culture of Ancient Egypt.
Brick making: The ordinary Egyptian brick is a mere oblong block of mud mixed with chopped straw and a little sand and dried in the sun. (Fig. 18 shows the procedure of brickmaking.) On the building site the ground is broken up and earth is piled up in a heap and mixed with water. The workers knead the clay with their feet and then press it into mouldes and lay the bricks in rows to dry in the sun. A careful brickmaker will leave the brick thus for half a day, or even for a whole day in the sun, after which they are piled in stacks in such a way that the air can circulate fully among them. They remain so for a week or more before use. The outer
faces of the bricks disintegrated under the action of the weather, but those in the inner part of the wall remain intact and are still good. Burnt bricks were not often used before the Roman period. 1)

Even though the ancient Egyptians had potteries they did not use the burnt brick in building their dwellings, because the mud bricks were better as an insulating material against heat and because the clay was easy to find and easy to work with.

Foundations: The nature of the soil does not allow of deep foundations. The ancient Egyptians knew this and the foundations of their ancient houses were not more than 1.20 (4 ft.) metres deep and in many cases not more than 60 cm (2 ft.) deep.

They very often did not trouble themselves to cut trenches at all; they merely levelled the space intended to be covered, and having probably watered it to settle the soil, they at once laid the bricks upon the surface. When the house was completed, the scraps of mortar, the broken bricks, all the accumulated debris of the work made a bed of 30 cm in depth and the base of the wall thus buried served instead of foundation.

When a new house rose on the ruins of an older one decayed by time or which had accidentally collapsed, the builders often did not even take the trouble to raze the old walls to the ground. Levelling the surface of the ruins, they built upon them at a level of a few feet higher than before, that is, each town stands upon one or several artificial mounds, the tops of which occasionally rise to a height of from 20 to 30 metres above the surrounding country (70 to 100 ft.).

The ground floor was frequently built with dressed stones, while the upper parts were of brick. Stone is used in the foundation nowadays for protection against humidity.

(c) Description of different types of dwellings

The poorer classes lived in mere huts which were built of bricks, and were no better than the present "Fellahin" houses. The houses in poorer quarters have seldom more than 360 - 480 cm (12 - 16 ft.) of frontage. They consist of a ground floor, with sometimes one or two living rooms above. (Fig. 19 - 20) shows the plan of a worker's house. The alley (a) leads to an ante-room (b). (c) is the main living-room which was colonnaded. Behind is a small room, which was probably used as a bedroom. Nearby is the kitchen (e), from which a

1) Maspero
steep staircase leads on to the roof. The north unit had a somewhat different plan where a food-store (f) replaced the bedroom. It appears that the central hall was somewhat higher than the surrounding rooms and was lighted through windows opening on to the lower roofs around.

Fig. (19)
A plan of a worker's house

Fig. (20)
A view in a worker's quarter

2. The middle-class were better housed. Their houses were brick-built and rather small, yet contained some half dozen rooms communicating by means of doorways, which were usually arched over. (Fig. 21) shows the plan of a house in MEDINET HABU, for middle class folk.

Fig. (21)
A plan of a house Medinet Habu.

Fig. (22)
A façade, high walls, doorway projecting slightly.

1) See Veltheim - Kleine Weltgeschichte des städtischen Wohnhauses.
They had vaulted roofs in some cases, as shown in Fig. (23 - 24,) and flat roofs in others. A few of the houses were two or three storeys high, and many were separated from the street by narrow courts, beyond which the rooms were ranged on either side of a long passage. The façade consisted of high walls, whitewashed or painted. The door was the only opening with perhaps a few small windows pierced at irregular intervals. The doorway was often made of stones projecting slightly beyond the surface of the wall (Fig. 22).
The best rooms in houses of wealthier citizens were sometimes lighted through a square opening in the centre of the ceiling. This can be seen in homes of the Islamic Period (Kaah).

The family crowded together into one or two rooms during the winter, and slept out on the roof under the shelter of mosquito nets in summer. On the roof the women gossiped and cooked. The ground floor included both store-rooms and stables which appear to have been very functional, separating the animals from the humans.

The upper rooms were reached by an outside staircase which was divided at short intervals by small square landings.

The rooms were lighted only from the door-way; when it was decided to open windows into the street they were mere air-holes near the ceiling, pierced without regularity or symmetry, covered by wooden shuters, as can be seen from (Fig. 25). The floors were bricked over or paved, or consisted more frequently merely of a layer of stamped earth. The rooms were not left undecorated, with the mud-plaster of the walls, generally in its native grey, but also white-washed and painted red or yellow in some cases.

The roof was flat and made, probably, as in the present day, of closely laid rows of palm branches covered with a coating of mud thick enough to withstand the effects of rain. Generally there was a small wash-house on the roof.

3. The rich houses covered a large area of ground. They mostly stood in the midst of a garden or an enclosed court planted with trees. A bare wall surrounded the house, and the pleasure of seeing was sacrificed for the advantage of not being seen. Inside the enclosure it was like a small town, divided into quarters by irregular walls. The dwelling-house stood at the farther end with the granaries, stables, and open spaces distributed in different parts of the grounds.

1) Maspero
The gardens were divided by low stone walls into symmetrical compartments. Small ponds to the right and left were stocked with ducks and geese. Green passages were planted with different kinds of trees and date-palms.

The best examples showing the villa in its higher stages of development are those of Kahun and Amarna.

The villa of Kahun (Fig. 26) shows a typical plan of a house built for a man of rank. It was built without consideration of the position of the street, the orientation of the courtyard to the north breeze being the main object.

Fig. (26)
A plan of a house in Kahun

The main entrance is from (a), thence proceeding to the entrance lobby (b). This leads through the uncovered passage (c), through a second lobby (d) to the main colonnaded courtyard (e). The central section was occupied by the master's quarters, which consisted of a wide hall (f), a main hall (g) serving as living and meal quarters with (h) the sleeping quarters adjoining. Others rooms (i) and (k) are grouped with the bathroom at the end of the colonnaded courtyard. North of these are what appear to be quarters for female slaves (o) with their own court (n).

Through a passage from the master's house was the kitchen courtyard (p), around which the kitchen and bakery staff lived and worked. (q).

Entered directly from the main entrance (a) are the stables (r). In the north and east parts of the main court (e) are the granary and food stores (s), while the staff families lived around courts (t).
All courts (e, n, p and t) are to the north of a loggia, thus providing a welcome shady spot (see Fig. 28) important in Egypt. The exception was the women's court (m), which was colonnaded all around (see Fig. 27).

The building material used was clay brick.

Fig. (27) Colonnaded courtyard "m"

Fig. (28) The gallery protects the walls of the house from direct sunlight

Fig. (29) A plan of a house in Amarna

The house of Amarna, lived in by a high official, is an example of a villa of the New Kingdom (Fig. 29). The main entrance path led from the street through a front garden to the court (a), adjoining which were the stables (b). From here, through a doorway, was a second court, leading up a flight of stairs to the ante-room (c) adjoining the entrance-hall (d) of the master's house. The length of this hall, divided by wooden beams for support, had doors leading to the interior hall (e) which serves as a living-room and dining-room, where the master and lady of the house had
their meals, seated on chairs on a raised dais. Adjoining are some other rooms, then the living room, (t) the bathroom with toilet (g) and the bedroom (h). A staircase to the east of the family living-room (e) led to the roof terrace which apparently had a north-facing loggia over the entrance-hall (d). To the west of the villa, lay a narrow court with the food-stores (i). This was reached by an adjacent passage from the Entrance-hall. (k) is a granary while (m) are the servants' quarters, with the bakery between them. Finally, to the north, are the gardens (n) and (p) ¹. (Fig. 30)

Fig. 31 shows the Model of the villa in Amarna, illustrating the remarkably high state of development achieved. The house faces on to a courtyard, in which can be seen a pergola, flanked by ponds on which waterfowl swim. Palms and other fruit trees are dotted about. At the back are a chicken run, a grain store and the servants' quarter. The centre of the house is a hall which rises above the remainder of the house, admitting a convenient amount of light.

¹) See L. Veltheim
In the centre hall, the windows placed near the ceiling, above the roof of the other rooms, would admit air and the necessary light. In a country where this can be so dazzlingly bright.
Conclusion

From the foregoing study we may note that the Egyptian climate and resources impose certain limitations and demands on dwellings. We can also see that the ancient Egyptians were very much aware of these and had indeed made great steps forward in realizing sensible and elegant solutions to these problems. Thus, since wood is scarce in the country, it was not used as a primary building material. Instead, the cheap and easily available mud brick was devised and used; it combined good heat insulation with flexibility of use and reasonable strength. The brick was used also; for instance, in the construction of vaulted roofs.

From the extreme intensity of solar radiation arises another problem of primary importance: the proper orientation of a house. Bad lay-out and direction will produce a house which, in summer, is like an oven. Cool ponds, colonnades to shade the outside walls and semi-open spaces were among the devices used by the ancient Egyptians to make their homes pleasant in summer.

Anyone who has experienced the Egyptian summer climate knows well how in the afternoon, when the day's heat is past, walls and ceilings emanate the stored heat, keeping up the oppressiveness. Courtyards, with shady plants and ponds, open towards the cool evening breeze coming from the north, which is characteristic of Egypt, bring a pleasantly relaxing change from the day's glare. These courts were in front of the house, in contrast to the interior courts of the Greco-Romans, for the obvious reason of preventing the sun's rays from reaching the central part of the house, which was kept as a cool sanctuary.

The fully developed ground plan of an Egyptian dwelling will therefore show the following characteristics:

1. It is divided into three successive sections, each of which serves its particular and limited purpose.

2. The front section contains the rooms which separate the private life of the dwellers from the public life of the town or village community. These rooms are at the same time a means of communication with the outer world. All entrances lead to rooms of this section which consists of a reception hall and annex rooms.

3. The middle part of the house is accessible only from the front section. It contains the rooms in which the common life of the dwellers takes place. This section has developed from a simple room into a group of rooms consisting of central hall, side halls, staircase and annex rooms.

4. The third section, which is accessible only from the second one, contains the private rooms of the house. The original single room has evolved in the course of time into a group of rooms including sleeping rooms, dressing rooms, bathrooms and lavatory, a rectangular sitting room with annex rooms and finally a pantry.
Fig. (32a/b) A typical Greek house

Fig. (33)

The Greek-Roman house being planned round an open and generally colonnaded courtyard, received its light and air from the outside independently of windows in the exterior walls.
Thus we see, I think, quite clearly, that the ancient Egyptians had the concept that the house is primarily there to be lived in and they gradually progressed in their successive realizations of the requirements of life in the country until we come to the remarkable approach to perfection, exemplified in the sophisticated villa of Amarna. (See sketch of Amarna house)

The Egyptians towns were generally closed; they were composed of courts of different sizes and developed from a basic unit: the dwelling
DEVELOPMENT AND GROWTH OF THE AMARNA HOUSE

Simple 1-room type

House partitioned into 3 spaces. Erection a front screen

Further development of the 3-part house with antechamber + subsidiary rooms

Middle Stage in the Development of the Amarna House from the simple type

Sketch of Amarna house

Normal Type of Amarna House
INTRODUCTION

The Islamic house differs basically in conception from its European counterpart. The latter is subdivided into fixed parts, each of which is allocated to a particular activity, resulting in bedrooms, dining rooms, sitting rooms and so on. The arrangement is pre-determined, and conforms to the wishes of the owner as expressed in the design plan. This arrangement of functional divisions is alien to the Arabs and Turks, who were originally nomadic peoples, and is besides, not ideally suited to the climate. The Arabian (Islamic) house was divided into two parts; the "Salamlik" where men visitors were received, and the "Haramlik" which was the real seat of family life in the home. The use of living-space within the house was primarily governed by the different functions it fulfilled in summer, and in winter. Thus people lived in different parts of the house according to the time of year and time of day. There was thus a migration from the cool cellars, inhabited at high noon, to the cool roofs in the evening.

As the result, rooms were put to differing uses, a living room being used to sleep in and often to eat in. Food was brought in on large, flat brass trays which were placed on low stools while people sat around them on floor mats. After the meal, the dishes were simply removed, leaving the room available for other uses.

No rooms were specifically furnished as bedrooms. The mattress was rolled up in the daytime and placed to one side or in a closet called the "Khazneh". This mainly applied in winter, for in summer people mostly slept on the roof-tops.

With the advent of European influence and furniture, the laying apart of rooms for fixed functions appeared. In many modern Egyptian homes however, there is an upheaval twice yearly as bedrooms are shifted about to seek or escape the sun. Also in summer, dining room tables, (in contrast to their European counterparts;) are often shifted to make way for mattresses laid on the floor, on which people have siestas at noon in the cooler ground floor. Considerable inconvenience and much labour of moving is caused by this double use of rooms with unwieldy modern furniture.

In the study of Muslim Architecture, we note the many influences to which it has been subjected according to the conditions prevailing in the areas where it flourished. Thus there are the Egyptian-Syrian, Persian, Indian, Ottoman and Moorish schools. The best examples of the Egyptian-Syrian schools are to be found in Cairo, which was saved among other few cities, from the destructive Mongol invasions of the thirteenth century. It preserved and continued the development
of Muslim architecture for centuries until it was influenced by the rising western civilization in the nineteenth century.

Cairo is the most complete example of an arabian city in existence. It still throws light on the long period during which Islamic architecture developed from extreme simplicity to the highest peak of perfection.

The history of architecture in Cairo falls into two main parts, the first of which dates from the Arab invasion and was mainly under the influence of eastern cultures. The second was the influence of the western civilization developing from the Napoleonic invasion of Egypt -1798 to the present day.

Egypt was conquered and separated from the Byzantine Empire by Amr in 639-640 A.D. After storming the Roman fort at Babylon, on the southern limits of the present city of Cairo, he founded El Fustat around his mosque (now called Cairo), situated on the bank of the Nile.
Amr mosque is still functioning. Thirty years later the Ummayyad Dynasty of Damascus ruled Egypt until they were overthrown by the Abbasids of Baghdad. The Abbasid governor of Egypt founded the military settlement of El-Askar, on the outskirts of Fustat, later Ibn Touloun, who nominally paid allegiance to Abbasid caliphs, became independent ruler of Egypt in 868 A.D. Fustat and El-Askar were too small for his troops and followers so he founded El-Katai to the north-east of Fustat, where he built his wellknown mosque which stands to the present day as one of the wonders of Cairo (Fig. 34/35). This may be called the original nucleus of present Cairo. Ibn Touloun himself was brought up in Samarra in Iraq, and was therefore influenced by the Persian school, as can be seen from house styles in Fustat.

(a) The influence of the Persian School (The Houses of Fustat)

The houses of Fustat which were excavated by Ali Bey Bahjat in 1912, were the first Arabian houses to be found, Creswell states: "As for the type of houses used in Muslim Egypt before the plans of Fustat were found, we have no information whatever." 1) The town of Fustat turned out to have been a complex of narrow, tortuous, irregular streets, none of which were more than 6 m wide, while many did not exceed 1.5 m. The streets do not appear to have been paved, for no trace of paving stones of any sort was found.

Creswell also states that "The Architectural origin of this type of house, which is a combination of traverse triple-arched with three parallel rooms behind it could have been brought from Iraq, probably in Tulunid time." 2)

A further study of the triple arched house (Fig. 36) was analysed by Dr. Reuther and called by him "The Tarma house system." 3)

1) Creswell
2) For further study, see Creswell
3) Dr. Reuther "Das Wohnhaus in Baghdad"
There are two types of plans, one being divided into two parts, Salamlik and Haramlik while the other had one court only. (Fig. 37) shows a plan of the house consisting of two distinct parts, each with its own court (A and B) which in this case lacks basins. The entrance from the street appears to have been at E, opposite which was a door leading to the corridor O and the court A. A door (S) gave access to the other part of the house, presumably the basins, arranged around court B. On the south-west side of each court is a T-shaped liwan group (a, b, c, d and a', b', c', d' and e) that of B being more elaborate, for not only is the central room in communication with the lateral ones, but a transverse corridor has been added at the back so that one can circulate right around b'. The lateral rooms (c and d) of the T-shaped liwan of court A are each provided with three niches (tagchah) for jars, etc.

The three remaining sides of each court also exhibit a triple division into panels or openings, the central one being wider than the others, but whereas in court A there are doors and shallow panels only, in court B there is a recess in the centre of each side about 1.5 m wide and from 1.5 m to 2 m deep. ¹)

The second type is not divided into two independent parts for there is one court only (Fig. 38). The court is 7 m square, but the façade of this court is all designed with triple bays.

¹) For further study, see Creswell
A T-shaped "liwan" group (a, b, c, d), is opposite a room about 3 x 2.5 m., the (arched) opening of which is flanked by shallow panels. It is occupied by a basin (L) which is communicated by a channel (N) with the basin in the court. Behind K is a recess and a pipe (A2) which ends up vertically in a wall behind it. The interpretation of the whole arrangement is easy: the recess was intended to take a sloping marble slab (Shadhirwan) with a rigid surface (perhaps a series of devrons) down which the water from the tap, served by A2, would run in a thin film and cool the air by a slight evaporation, passing into K and then by means of the channel under the floor (M) into j. Such an arrangement is called a Salsabil.

General characteristics of the houses of Fustat

1. The plan in general is free in its outlines. The planner succeeded in composing a symmetrical and rectangular interior. The main axis was in general NE-SW, a good orientation for the sun and for the refreshing prevailing breeze from the north.

2. The access to the house was not in general directly from the street but perhaps from a cul-de-sac.

3. A passage with a right-angle turn generally leads from the entrance to one of the side bays, so that it is impossible to see into the court from the outside. This is usually also found in the Pharaonic house and later in Mameluke houses.

4. The court was rectangular and of varying dimensions (Fig. 40). Usually in the middle of the court there was a square basin on an octagonal base with tubes fixed to each corner, appa-

1) Creswell
Currently serving as jets. At the sides of the basin were flower-beds, vegetables and perhaps a tree.

5. Sometimes we find two courts, one in the Salamlik for men visitors, the other being in Haramlik for the private life of the family.

6. On one side of the court is a triple-arch of which the central arch is wider than the older lateral ones. The three arches form a portico, behind which is a room deeper than it is wide, corresponding to the central arch, flanked by two smaller rooms to the right and left also opening into the portico.

7. The main rooms were on the north side, while the rest were in general subsidiary rooms and recesses.

8. The lack of greenery and the dryness of the air inspired the inhabitants to bring plants, water and coolness into their homes. They used a natural method to cool the air: EL-SALSABIL (Fig. 42/43).

9. Shops were often adjacent to the units in the general streets (Fig. 41).

Fig. (40) Different sizes of courts, Fustat

Fig. (41) A typical dwelling quarter in Fustat
Fig. (42) Diagramatic Representation of the "SALSABIL"
The Fatimid caliph, El Moiz (953-975), moved his capital from Mahdia to Egypt and ordered his general, Gohar El-Sacally (the Sicilian) to invade Egypt. When this invasion succeeded, he founded a royal city for his master in 969 AD about 4 km (2 1/2 miles) to the north-east of Fustat. The new suburb was for the accommodation of El Moiz, his court, administration and army.

The concepts of planning in Cairo are similar to those existing in the Roman and Greek towns of the fifth century BC which can also be further traced back to Pharaonic ideas. 1) Gohar, who was a great conqueror, was influenced in the course of his invasions by the Roman towns in North Africa. He also had opportunities to see the Egyptian Pharaonic and Syrian Byzantine towns. In fact, the city designed by Gohar was very similar to the well-known Roman town called Timgad, in North Africa. Gohar's Cairo had a main street (called Gasabet Alkahiera) running north-south and eventually leading to roads going to Upper and Lower Egypt. This street crossed an open square in the middle part of the city, where the palace of the Caliph (El Moiz) was situated. 2) To the north and south of this square, the street was intersected by lateral roads at right angles to it (Fig. 44). During the Fatimid period, the function of these roads was to separate the different quarters, which were in the form of a closed area, entered through one or two entrances from the road. Inside was a series of small alleys and cul-de-sacs terminating in small court-yards. The actual house-doors opened on to the road outside. Thus, each quarter had its own characteristics and was normally entered only by its own inhabitants. There is no doubt that some modern concepts of planning aim at a similar arrangement (Fig. 45, 46).

Cairo was surrounded by a wall with gates and was originally quite small, containing only the caliph's palace, the houses of his various ministers and chiefs and the military barracks. It soon developed and expanded, however, with luxurious palaces, bazaars, mosques and schools, while the number of quarters increased to fourteen. During the two hundred years of the Fatimids, Cairo developed into a complete city of great magnificence. The major part of the city was the exclusive property of the caliph and his troops. Nouri Khouserou, the Persian historian states that the caliph owned twenty thousand houses and a similar number of shops. The houses were built of stone and were separated by fine gardens. The population was for the most part forbidden to build within the city and the majority lived in Fustat. According to El-Makrisi, Fustat had buildings of from five to seven storeys high, housing between one hundred and two hundred people. Fuad Farrag in his book on Cairo estimates that Fustat and Cairo together had about one million inhabitants.

1) and 2) Farrag
Fig. (44) General plan in the Fatimid Period
The Fatimids to which El Moiz belonged built El Azhar, the oldest Islamic university in existence. Cairo thus became the centre of Islamic culture. The Fatimids were not much influenced by the Persian school of architecture, but were more in contact with the Maghreb and were under the influence of the Syrian Byzantine architecture (which also strongly affected the following period of the Ayyubids). Building with stone besides bricks began in this period, and Egypt had almost reached the peak of perfection in its architecture. Cairo flourished and grew to occupy the

Fig. (45) A secluded quarter old Cairo

Fig. (46) Residential Quarter, Cairo
Fig. (47a) The House of Hassan El Kashef
natural centre of importance in Egypt as it does today. It commands the approach to upper Egypt and stands on a direct and natural thoroughfare between the Mediterranean and Red Seas.

Saladin of the Ayyubids (1171-1250 AD) added greatly to Cairo. To protect the city from attack, he surrounded it by stronger walls, enclosing the rocky spur of Mount Mokattam with the Citadel which he built on it.

From this time, the Citadel became the seat of government for all the rulers of Egypt until the reign of Ismail, who moved to his newly built Abdin Palace in 1874. From a royal city serving as residence for the caliph, his court and troops, Cairo was transformed by Saladin into an open city for the populace, with houses and public buildings, truly a capital city.

The decay of Fustat caused by pestilence and famine culminating in its burning in 1168 AD, gave a new importance to Cairo. The area between both towns was built over, joining them and producing one large metropolis. At his time, there appeared the combination in one building of the "Madrasah" school and the Mosque.

The Ayyubids were supplanted by the Baharite Mamelukes from 1250 to 1382 AD. In this period Saracenic architecture appears to have gradually attained its highest degree of perfection.
The beautiful Mosque of Sultan Hassan belongs to this period. Monsieur Martin states: "Cette période voit l'apogée de l'art musulman en Egypte. L'architecture est, à ce moment, d'une grande élégance, la richesse des matériaux est extrême et la construction se distingue par une science remarquable de la coupe des pierres." 1) The second Mameluke dynasty was from 1382 - 1517 AD. During this period Islamic art evolved from its stage of development and imitation to a mature or with its own characteristics and personal style. The dwelling-houses also reached a high stage of advancement.

Fig. (48) The house of Mohammed Amin es Souhemi

1) L'Art Musulman
The Ottomans did not contribute at first much to the Islamic architecture.

Paunty says "Quelles furent les réactions de la conquête ottomane sur l'architecture civile égyptienne? Assez peu sensible au début de l'occupation . . . ." He adds "au contraire, la maison et le palais restent encore fidèles aux principes de construction des Mamelouks".1)

Some of the good examples of that period are:-

1) The house of El Cretely 1632 in the square of the mosque Ibn Touloun.
2) The house of Gama-el-Din al Thahaby (1637) in the district of el Darb el Ahmar.
3) The house of El-Senary 1794.
4) The house of Hassan El Kashef (Fig. 47).
5) The house of Mohamed Amin es-Souhemi 1648 (Fig. 48).

(c) The Town and its fundamental structures

After this short sketch, throwing some light on the development of Islamic architecture and showing the different influences of neighbouring regions, I should like to describe the old city with the peculiarly oriental fascination of its streets teeming with life, and the Bazaar quarters. With historic buildings set among houses and shops, it was an amazing tangle of arcades, vaults, projections, domes, and minarets. To a visitor passing through the street, Cairo would appear to be a very close and crowded city, but that this is not the case is evident from a view of the town from the top of a lofty house or from the minaret of a mosque.

The streets were unpaved (See Fig. 49) and most of them were narrow and irregular. As usual in these narrow alleys the lower part is in shadow.

Fig. (49) Spraying streets for cooling

1) See Edward Pauty, "Les Palais et les Maisons d'époque Musulmane au Caire."
Fig. (50) A Wekalah

Fig. (51) Plan of a Wekalah

Fig. (52a) Khans
The wider streets generally had a row of shops along each side. Above the shops are apartments which do not communicate with them, and which are seldom occupied by the persons who rent the shops. This differs from the conception of towns in Europe in the middle ages, where the craftsman lived above his shop.

Each trade has its separate "Sook" or quarters, and there are numerous "wekalehs" or Kahns", for the reception of merchandise, these being large courts opening from the bazaars, surrounded with buildings and defended by strong gates which are kept closed at night (Fig. 50, 51, 52).

The Bazaar in an oriental city is dynamic, being the main gathering place of the population, the centre of traffic and the point of propagation of news and rumours. Bazaars generally consisted of one main avenue running through the centre of the city with numerous and intricate side streets and courts partly covered (Fig. 53, 54, 55).
The only sizable open space was in and about the Mosque. The mosque served not only as a place of worship but in many respects fulfilled the functions of recently conceived community centres. A school, a library and a centre of learned discussion were in many cases in a common building together with a Shafakhana (hospital) and Yemekhana (restaurant).

Fig. (54) A covered market-Bazaar

Fig. (55) A modernized Bazaar street

There are two types of dwelling units. The first is the "Darb" consisting of a long street, closed at either end by a wooden gate at night. These gates were attended by a keeper who admitted persons having grounds for admission. The other is the "Hara" or quarter consisting mostly of several lanes of "Atfahs" with one main entrance gate, also closed at night (Fig. 56).
The quarter was a closely-knit unit. It contained different family groups who were closely bound by common customs and traditions. Neighbourly duties and obligations are religious in origin and formed strong reciprocal links within the quarter.

Defence of the quarter also served to unite the inhabitants, with the result that the "sons of a quarter" were almost members of one family. This brotherhood and mutual co-operation is nowadays disintegrating through individualistic life and planning.

I do not wish to enlarge further on this problem here, but perhaps the following passage from Mr. Bartlett (1840) shows the differences between contemporary European and Egyptian houses:

"The apartment we sit in is decorated with mysterious arabesque lattices instead of glass windows, ample luxurious divans heaped with cushions replace our stiff chairs and sofas. Every sight and every sound reminds us that we are in the midst of a different race and different manners associated with our earliest and most romantic impressions."

(d) The different parts of a house and their functions (Fig. 57)

The street façade

The outside appearance of the house was in general very simple and without decoration. Henry Martin said: "Les façades des maisons et même des palais sont, en général, fort simples." 1) Architectural decoration is usually to be found above the portal of the house (Fig. 58).

The foundation walls are built of stone up to the height of the first floor and the superstructure is of brick.

The first floor wall was often a plain wall, the only opening being the portal; sometimes very small grilled windows open above the line of vision. The windows of the upper storeys generally project 50 cms or more and are mostly of wooden lattice-work, sufficiently open to admit air and light. The light entering is soft and attenuated enabling the inhabitants to obtain a view into the street outside, while they are themselves entirely concealed, secure from the sight of passers-by and even of opposite neighbours (Fig. 59).

1) L'Art Musulman
a) We have the entrance with the dekkat and pass into the court where the "Mandara" "Fremdenzimmer" is. It is more deep than wide and open to the North, without any walls directly exposed to the sun. This spot is very agreeable and cool in summer, with soft light and no glare. It looks into the court where there is greenery, flowers and sometimes water. The rear part contains the stables, the bakery and the kitchen connected by a shaft to a scullery in the upper part. Note the free stairs leading to the loggia (Makkad). The Mandara "Kaah" is lofty with recesses generally used as seats.

b) The "Makkad" is a semi-open place, similar to the Italian loggia, with two arches. It is two stories high. Near it there is usually the masters room which was also sometimes used as a library. At the back there are the "Nebenräume". Here we find another staircase leading from this floor to the one above.

c) The top floor contains the sleeping quarters. In the middle there is the Fasha (or Core) which remains very cool and was often used for sleeping and siestas. The windows which open into the hall were for the women to look down from when there was some gathering or feasting. In the main hall there is the "Kaah".

Fig. (57) Plan of Mamelouk house in Cairo
Fig. (58) A study of different façades in Egypt
Fig. (59) The light enters softly through the Mashrabiya
The "Mashrubiya" window is the dominating figure and is well described by H. Martin. "L'élément caractéristique de la maison musulmane est le moucharaby : c'est une sorte de balcon, fermé par un grillage en bois tourné, fait d'une infinité de petites pièces qui atteignent parfois le nombre de douze cents par metre carré (Fig. 60). Les moucharabys ont souvent la forme de bow-windows."

The Mashrubiya almost entirely excludes the sun, thus producing an agreeable coolness in the summer months. The windows were generally of unpainted wood, but some few were painted red or green. Sometimes a window has a small projection on each side, on which are placed porous earthen water-jars to be cooled by evaporation in the wind. Hence these windows were called "Meshrebeeyeh" which signifies "a place for drinking."

Afterwards these bow-windows were used as a sitting place (Fig. 63) and were constructed with glass sashes. Lane states: "The better houses", also have frames of glass on the inside, which in winter are wholly closed; for penetrating cold is felt in Egypt when the temperature falls below 60°F (15°C). Windows with European sashes of glass, each with a sash of close trellis work outside the lower half, have become common in new houses, in many parts of Cairo. They are mostly in houses built in Turkish style, more or less approaching European fashions. They are not well adapted to hot climates, though comfortable in winter.
Fig. (61) The street façade
Fig. (62a)
El-Darb El Akhmar 1850

Fig. (62b)
El-Darb El Akhmar 1940
The prolific construction of lattice-work Mashrubiya was prohibited by law and not because they were out of date and use. This has been stated by Lane: "The projecting windows often nearly meet each other; on account of their facilitating and spreading of fires, their construction has of late years been prohibited." This is confirmed by Talbot Kelly: "... but eventually developed into roomy balconies of fine trellis-work which are such a feature of Cairo street architecture ...... Unfortunately this work lends itself so readily to the making of screens and ornamental features, and owing to the danger of spreading fire, the Government will no longer allow it to be reinserted." 1) (Fig. 65) shows the successive storeys of lattice windows, rising one above the other until, in some gloomy quarters, they actually meet over the street.

Fig. (63) Interior of a Mashrabiya used for sitting in.

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1) See Talbot Kelly
Fig. (65)
The lattice windows actually meet causing fires to spread.

Fig. (64)
Light and shade in quarter - Cairo
Mameluke houses were generally two or three storeys high, and almost every house that was sufficiently large contained an open-courtyard called "El-Hosh". The principle apartments of the house looked on to the court (Fig. 66/67), with exterior walls that were
plastered and white-washed. This expanse of wall surface provides a strong contrast with the large open and pointed arches of the open loggia or "El-Makkad". As pointed out by Reuther, "Der Hof ist eben ein Wohnraum, an dessen Architektur hohe ästhetische Anforderungen gestellt werden, wie an die Strassenfront". "... dass der Schwerpunkt der architektonischen Ausbildung in der Hoffront und nicht in der Aussenfassade liegt."

The treatment of the court was always aesthetic. With its beautiful plants and flowers and open to the blue sky, it invited pleasant repose on the comfortable seats arranged around it, while the playing of the cool rippling fountains freshened the air and induced a cheerful and refreshing atmosphere of relaxation. The Islamic house was built from the inside outwards, prime importance being given the court façade.

Fig. (67) The court façade of a Cairo house

The Court (open) (Fig.68)

The court was entered by a passage, constructed with one or two turnings so as to prevent passers-by in the street from seeing in. In this passage, just inside the doorway, there was a long stone seat, called "Mastabah", built against the back or side wall for the door-keeper and other servants. On entering the court, one would have surely been struck by the charm of the place. The green tendrils of plants hung down from earthenware jars while the brink of a well usually occupied a corner of the courtyard.

During the summer the court was sprinkled with water, which rendered the surrounding apartments agreeably cool, especially those on the ground floor. There were several entrances from the court. One of them led to the "Haramlik", another to the Mandara "Salamlik", where men visitors were received. The Mandara is an apartment usually on the first floor.
The Mandara (closed)

Ebers described it in these words: "Bald erscheint ein junger Eunuch, der uns auffordert, ihm in die Mandara, das eigentliche Wohn- und Empfangszimmer des Herrn, zu folgen. Sie liegt im ersten Stock (oft freilich auch zu ebener Erde). Der Raum, in dem wir uns befinden, ist reich ausgestattet und entspricht völlig seinem Zweck. Er ist kühl, geräumig, und die fensterlose Nische in seinem Hintergrund wie gemacht zu unbelauschtum Gesprächen. Die Mitte des Fußbodens ist vertieft, mit schönem Marmormosaik ausgelegt und feucht von dem Wasserstaube, den ein zierlich gearbeiteter Springbrunnen, Kühlung spendend, ausstreut."  

Sometimes the Mandarah had wooden lattice-windows looking on the court to receive the cool north breeze, shaded from the glare. The Mandarah was divided into two parts (Fig. 69): the durkoah being the lower part paved with marble, and about 12.5 cm lower than the rest. Lane described it: "paved with white and black marble, and little pieces of fine red tile, inlaid in complicated and tasteful patterns. The fountain (Fskeeyeh) plays into a small, shallow pool lined with coloured marbles, like the surrounding pavements."

1) Ebers
Fig. (69) The Mandarah

Fig. (70) Sidille, a platform of stone

Fig. (71) Serreer, palmsticks covered with cushions
The second part is called the Leewan, which is an estrade, raised from the floor of the room. Everyone had to slip off their shoes on the durkoah before stepping on to the Leewan. It was generally paved with common stone, being covered with a mat in summer, with a carpet over the mat in winter. A mattress and cushions were placed against each of the three walls, composing what is called a "Deewan". The mattress was generally placed on the ground, but was sometimes on a "Sereer" which was a form of palm-sticks covered by cushions (Fig. 70), or on a "Sidille", a platform of stone (Fig. 71).
Some rooms contained one or two recesses, generally used as sitting places in cool weather, and were therefore without windows. 1)

Makked (semi-open)

On the first floor is an arcaded loggia, which Ebers thus described: "... und werden nun, da es Sommer ist, einige Stufen hinauf in eine nach Norden hin geöffnete Halle geführt, deren Decke von Säulen getragen wird." The Makked was an elevated part open to the court and oriented to the north (Fig. 72).

Takhtabosh (semi-open)

Another semi-open place was the Takhtabosh, on the ground floor, being a square recess generally with a pillar to support the wall above. Its floor is paved; there is a long wooden seat (dekkah) placed along one or two of its walls (Fig. 73).

1) Lane
The Kaah (closed)

The Kaah was a visitor's room also in the upper apartments, or those of the harem. It has two leewans, one on each side of the entrance. One of these was generally larger than the other, being the more distinguished part.

The part of the ceiling over the durkaah that divides the two leewans consisted of a raised cupola, the sides of which were made of wooden trellis work and allowed a view from the harem into the Kaah. The Kaah was the largest room and, having the highest ceiling, was a noble part in a large house (Fig. 74a/74b).
The upper rooms

The upper rooms in the houses of the wealthy had windows of coloured glass besides those of lattice-work. These were composed of small pieces of glass of various colours, set in rims of fine plaster, and enclosed in a wooden frame. Sometimes the walls were beautifully ornamented with Arabic inscriptions or tapestries. No chambres were furnished as bedrooms. In the day-time, the bed was rolled up and placed in an adjoining closet. A mat, or carpet was then spread open upon the raised part of the stone floor (Fig. 75). There is no fireplace: the room is warmed, when necessary, by burning charcoal in the chafing-dish or brazier. 1)

1) Lane
Something of interest and importance is the "Malkaf" (trap for air). This consists of a sloping shed on the roof open to one side and communicating through a large opening with the room below it. Constructed mainly of timber boards, it served as a wind-catcher or trap, and was directed with the opening to receive the prevailing north breeze and convey cooler air to the "feshah" below (Fig. 76).

The "feshah had no walls communicating with the outside and only received cool air through the "Malkaf" when this was opened in the cooler part of the day. It was used by the family to sleep in during the hot season.
Conclusion

In the Mameluke period, people were particular about comfort in the house. The furniture they used, including cushions and divans, was softly comfortable, while their house planning enabled them to enjoy the privacy they desired.

Tradition and privacy in the Islamic house

Islamic houses were well suited to the age, and the builders in those days had mastered the use of materials available. The houses were built in the dual tradition of the East, based on the use of wood or stone. Some of them have projecting beams which act as supports for overhanging portions, balconies, eaves or cornices; their beams are almost always covered or decorated.

A basic requirement was what I have called "double circulation" in the house, or the division into "Salamlek" and "Haramlek". Owing to religious and social customs, male friends of the dwellers were received in the Salamlek, leaving the Haramlek as a private family sanctuary. Here the man could see his family, away from the glare, dust and noise of the street.

Ebers stated: "Harem bedeutet ursprünglich etwas "Verbotenes" und das Haus ist für den Orientalen im wahren Sinne des Wortes ein Heiligthum. Wenn wir Europäer hören, der Hausherr welle im Harem, so denken wir uns darunter gewöhnlich etwas ganz Verkehrtes, denn dieser Bescheid bedeutet weiter nichts als dass sich der Gesuchte in den Schooss seiner Familie zurückgezogen habe. Wer einmal längere Zeit im Orient gelebt hat, der lernt dieses Gefühl für die Heiligkeit des Hauses und die Notwendigkeit desselben begreifen; man muss eben einen Ort haben, wohin der Lärm vom Markte des Lebens nicht dringen kann ...."

The custom of men friends not mixing freely with women folk has persisted in the villages as well as in the city, and even amongst the elite who have been influenced by western culture in many other ways. Although custom and tradition have remained, houses have changed. Mostly copied from foreign publications, modern Egyptian houses ignore Egyptian ways of life. Thus, in a typical modern Egyptian family, before a male visitor is admitted, there is a scamper of the family out of the living room, which may be an integral part of the home. Thus the family may be confined to the bedroom, unable even to cross the house until the visitor leaves. Clearly this shows a lack of understanding of the problems. To many Egyptians today their homes are unsuitable physically, and unsatisfactory socially and spiritually.

Climate

In Egypt's climate, correct orientation is important. Main rooms opened into a patio or court facing northwards to the cool breeze. Cool air circulation was well developed, good examples
being the "Malkaf" and the "Salsabile". Various parts of the house were suitable for different times of the day and year. Semi-open spaces for coolness and breeze, and closed rooms with no external walls for shelter from the noon-day sun. This shading is also shown by grouping of houses exposing less wall area to the sun, and by the closed courts of mosques and bazaars and by arcades and shaded streets.

Correct illumination without gloom or glare is pleasantly provided by the Mashrabya windows, which incidentally fulfilled the hygienic function of allowing flies to escape after attracting them to the light.

Unit

All buildings and shaded or semi-shaded bazaars form a single unit, the several parts of which have a vital link with one another. The architecture of the houses and public buildings is a simple, natural reflection of this unit character. The bazaars, set among houses, mosques, khans, hammams and madrasahs 1), might be compared to the arteries and veins of a living body. Time and use have made them throb with a life that gives some inner meaning to every corner, every view. Here the streets are not the streets in the modern sense. Nowadays, in the new districts, the street is public property; at the same time, it is necessary to all the houses on either side. But here the street is hewn, as it were, from the substance of the architecture itself. Making one's way through the Suk 2) is like joining a natural process of ebb and flow, drifting with a current, walking through the very buildings.

The town was closed, as compared with the open towns of wide, planned boulevards and open streets. This grouping of housing gives a feeling of local unity, socially and physically.

Division of space (Raumgestaltung)

There was no utilization of uniform ceiling heights, varying heights being a ubiquitous and interesting feature. Self-imposed limitation to uniform ceiling heights is difficult to understand when the importance of the psychological effect of varying ceiling heights is considered.

I made an interesting observation on a visit to one of these houses. I climbed to the third floor, through a succession of rooms of varying sizes and up small flights of stairs, none higher than a half storey. I had no impression of the height to which I had climbed, there being no main staircase making a through section cut of the building.

1) Closed markets, public baths, schools
2) Market
Types of houses

After our general survey, we should briefly review the types of buildings we have discussed and the groups they fall into. The Fellah’s house has hardly changed, having remained static for the best part of 5000 years. It consists of one to two rooms, with an oven and a courtyard which contained the animal sty. Always built of the same clay brick, the roof is arched within and flat on top, or it was built of palm branches coated with clay. This type of house is to be later described in detail.

The "rabaa" or tenant house was an urban house for the middle class.

When shops occupy the lower part of the building in a street, as is generally the case in great thoroughfares of the metropolis (and in some of the side streets) and superstructure is usually divided into distinct lodgings, and is termed a "rabaa". These lodgings are separated from each other, as well as from the shops below, and are let to families who cannot afford the rent of a whole house.

Each lodging in a "rabaa" comprises one or two sitting rooms and bedrooms, and generally a kitchen and latrine. It seldom has a separate entrance from the street.

Fig. (77) The Rabaa
The apartments in a "rabaa" opened into a corridor which generally led to a courtyard. The units differ in size, some of them being of the duplex type with an inner staircase (Fig. 77).

The third type is the villa housing perhaps three generations of a family. It was oppulently built incorporating the same basic concepts of the court with fountain greenery, or a garden when the house was situated out of town.

From all I have mentioned above, it is clear that our predecessors, whether they were the architects or the inhabitants, were looking out for comfort: homeliness, leisure and the most useful and desirable services in their buildings, which were harmoniously designed to fit graciously into their culture and customs. They have achieved a great deal in planning their houses for what they desired.

I do not advocate copying their designs, but with similar objects in view and with the evolution of culture and tradition, we can successfully absorb in modern designs a great deal of our fathers' legacy.
Chapter IV

THE DWELLING IN MODERN EGYPT

\[ \text{Fig. (78) Modern Egypt} \]

(a) The first part of the nineteenth century

We come now to the period of the 19th century, beginning with Mohammed Ali (1805-1845). This may be called the awakening of modern Egypt, coming after Egypt's direct contact with the West after a long period of isolation. Besides the disturbed political relations and wars, the growing impact of technology on the country, there was a noticeable change in society and customs. All these did not fail to have a marked effect on architecture. The direct contact with the West actually started with the Napoleonic Expedition, undertaken in 1798-1801. This expedition was distinguished by the number of scientific and cultural officers attached to it. These learned men conducted general and archeological surveys of the country. Although the period of actual military occupation was brief, it initiated a cultural influence of the French which remained predominant all through the 19th century.

"Frankreich musste dem politischen Besitze Agyptens entsagen. Sein Einfluss aber ist dort mächtig geblieben." ¹)

Mohammed Ali, an officer of Turko-Albanian origin, was for a long period the arbitrary ruler of Egypt's destiny. He was characterized by energy, ruthlessness and greedy ambitions for an empire. Very much influenced by European successes, he founded European type schools for engineering, medicine and a military academy, and he sent some four hundred missions to

¹) Ebers
study in Europe. His policies dealt a serious blow to the old Moslen system of education, reducing its influence by introducing European ideas and languages into the curricula of his new schools. The beginnings of the industries were initiated by the Pasha. The scope of these factories, rather directed by his military ambition, was to some extent limited. The main works he initiated were factories for army clothing, weapons, and a naval yard.

Thus it should be noted that the industrialization was geared to Mohammed Ali's grandiose imperialistic plans.

Cairo at the time of Mohammed Ali

Becoming the capital of a new empire, Cairo soon became crowded with factories and schools and public buildings and palaces to meet the needs of the new Turko-Egyptian state and aristocracy. The boundaries were pushed out to the North and South. Many fashionable houses and villas bordered the Khalig, or the canal, this being a watery spinal column running through the centre of Cairo. Much agricultural land became sites for buildings and many pools were filled in for sanitary health purposes. Mohammed Ali commissioned a French engineer to remove the hills around Cairo, a work that lasted eight years, with the earth being used to fill in the numerous pools, round and inside the city (Fig. 79).

Fig. (79) Cairo from the Citadel, surrounded by hills

1) Charles Issawi
Fig. (80a/b) Shubra Palace
The Pasha undertook the building of many palaces for himself and for his sons and relatives. Building was away from traditional areas, out into the suburbs. One of the first palaces to be built by Mohammed Ali was his palace at Shubra. This had large gardens and was joined to Cairo by a country road.

Fig. (81) The influence of Constantinople
(b) The second part of the nineteenth century.
Ismail and the European influence:

"Mon pays n'est plus en Afrique, nous faisons partie de l'Europe actuellement."

Fig. (82) Ismail and the European influence

"The rapid growth of big cities, the increase of their number as well as the violent expansion of their population, is the outstanding phenomenon of nineteenth century urbanism."  

Ismail Pasha (1863-1879) was a great admirer of European culture and of Paris in particular. As is well known, Paris had great influence on Europe in different fields, and was a guiding spirit even in the Orient. The intellectual élite, who returned from Mohammed Ali's missions to Europe were also great admirers of western civilization: it was, in fact, the spirit of the age (Fig. 83, 84, 85).

The transformation of Cairo took place during the feverish years which ushered in the railway age. The capital was connected early by rail with Alexandria in 1856 and with Suez in 1858.

1) Space, Time and Architecture, S. Giedion.
Foreign funds were borrowed and new contractors undertook such enterprises as the supply of water and gas mains. Nile bridges were built, leading to the expansion of Cairo on both banks. Foreign technician employees came with the foreign funds and filled the leading posts. Concerning architecture, for example, we find in the "guide annuaire d'Egypte 1872-1873, Ministere de l'Instruction Publique, cours d'architecture - Franz Bey, Architecte du Khedive," and Ebers says that M. Brilet, the chief gardener of Paris, assistant to Haussmann, was also employed in Egypt.

The rapid preparation of new buildings such as the opera, theaters, palaces and of boulevards and parks to mark the ceremonial opening of the Suez Canal shows Ismail's wishes to make Egypt a part of Europe.

"I mounted my donkey and galloped one day to the Pasha's kiosk and gardens at Shubra, beneath a fine avenue of trees completely overshadowing the road which runs pleasantly close to the Nile. The gardens are extensive, and well kept, consisting of long green avenues paved with pebbles, and bordered with rows of exotics, which exhale the most delicious odours; here and there are fountains prettily ornamented, and overhung with trees, refreshing enough after coming from Cairo. 1"

1) W.H. Bartlett: "Nile Boat".
The buildings in Oriental tradition, with Mashrubiyas, etc., gave way to buildings that were copies of Byzantine and Roccoco ones in Istanbul, and were known as "Roumyah" or European. F. Farag writes in his book that the numbers of these buildings increased in the period after Ismail, with the paving of paths with coloured pebbles in beautiful patterns as at Versailles.

The Planning of Cairo (Haussmann Pattern).

When Haussmann proposed his plans for the re-planning of Paris to Napoleon III, the idea of re-planning old cities spread throughout the world and naturally also to Egypt. Ismail was influenced by these and put them into practice in the area surrounding old Cairo. As the expanded, so did the streets connecting them with Cairo, breaking up the old closed town with new European-type boulevards.

Ebers states: "Bei der Anlage von anderen breiten Strassen nahm man sich die Haussmann'schen Demolierungen zum Muster. Ganze Stadtviertel wurden, um Platz für neue und in modern europäischem Sinne schöner zu gewinnen, dem Boden gleich gemacht."

One result of this was a separation of Cairo into two distinct parts; the older Arab part and new European-type town. Migration to the modern town led to decay and degeneration of the
Fig. (87) Plan of Cairo, 1872
old part of the city. This process can be seen clearly in the larger cities of Cairo and Alexandria (Fig. 86 and 87).

"Les transformations et les agrandissements que cette ville subit de nos jours et qui l'étienden quelque sorte jusqu'aux rives du Nil, vont la scinder comme Alexandrie, en deux villes complètement dissemblables; l'une la ville des Califes, vaste labyrinthe de rues tortueuses, de ruelles étroites, sombres, d'impasses sans nombre, nous obligeait sans cesse à revenir sur nos pas; là tout est surprise, mosquées de toutes formes et de toutes couleurs, simples, grandioses, riches de sculptures et d'arabesques, fontaines publiques monumentales adonnées aux mosquées, élégantes mouchrabiehs rendues encore plus mystérieuses par le demi-jour que laissent filtrer les railles des étages surplombant les uns sur les autres jusqu'à se toucher parfois, parties ouvrages et de dessins variés, nombreux bazars où se trouvent entassés les produits de l'Egypte, du Soudan, du Yemen de l'Arabie, de la Turquie, des Indes et même de l'Europe.

L'autre ville, la ville d'ismail, avec ses jardins féeriques, ses théâtres, ses avenues, ses rues larges, droites entourées de magnifiques constructions, rappelle les grandes capitales d'Europe; c'est le mariage de l'Europe avec l'Afrique; c'est l'union de l'Orient avec l'Ocident; c'est le symbole de la tolérance religieuse, c'est la pacte de la liberté commerciale et de la communion des peuples." 1)

All the best hotels are here and, except for the passing cameltrain and ubiquitous donkey-boy, which lend it a touch of local colour, this part of Cairo has little interest other than is to be found in well-dressed Paris or London." 2)

Talbot Kelly described the new quarter, now the heart of Cairo, saying: "The European quarters, though in many ways handsome, are too much like some fashionable Continental town to be altogether picturesque, though some of the older Italian streets are not without interest. All are beautified by avenues of "lebbk" trees, and an occasional rond point, with its small ornamental garden and splashing fountain.

Street and Boulevards

This period, with its revolutionary new means of transport added a new importance to traffic considerations. This led to a widening of streets and the opening of new wide roads to the new suburbs. Among the many new streets, which cut through the closely packed quarters, were those named Mohammed Ali and Clot Bey in 1875, permitting troops to move along a direct way

2) Egypt, painted and described by R. Talbot Kelly, 1902.
from the station to the citadel passing through the opera and Ezbekia squares, in the heart of the city.

The Mohammed Ali street, cutting through densely populated areas for two kilometers, had arcades on each side to offer protection against the sun and prevent the shops from diminishing the dignity of the street.

Modern necessity must inevitably clash with mediaeval quaintness, and today the historic streets of the early Moslems resound to the clanging bells of electric cars. The picturesque Bab-esh-Sharieh, one of the eastern

Fig. (88 and 89) The street dominates, with arcades on each side
gates of Cairo, has been demolished to allow of road improvements, and many streets, such as
the Muski, have, during the last few years, lost much of their Eastern character. 1)
The streets became a dominant feature, seemingly endless, with the uniformity of the façades
on each side (Fig. 88, 89).

Squares (Fig. 90)

As a result of the construction of new boulevards and streets, new squares appeared. Ebers
describes one of these new squares located in the heart of the city as follows: "Die durchgrei-
fendeste Umgestaltung hat der uns bekannte Esbekye-Platz erfahren. Stattliche, zum Teil
grossartige Gebäude in europäischem Stil und unter ihnen die Theater, die grössten Hotels,
die Börse, so wie mehrere Konsulate und Privathäuser mit reich ausgestatteten Läden, und
der in seiner Mitte angelegte öffentliche Garten."

I believe that these squares were copied from the original ones of Paris, Giedion described
the Paris squares, as follows: "From the point of view of town planning, the squares of Paris
differed from those of London in one important respect: the London squares were isolated
from traffic, where as those of Paris were no more than an enlargement of the streets. 2)

1) Talbot Kelly
2) Giedion: Space, Time and Architecture.
This concept of squares was new to Cairo, since the old Islamic type of square was also isolated from traffic; moreover, the planting of lawns, shrubs, and trees was not known. The square was designed primarily to be lived in, with busy traffic excluded.

Parks

In keeping with the taste of the period, the parks were laid out on an extensive scale as leisure grounds for promenaders. Ismail Pasha commissioned Barilet, the assistant of Haussmann to arrange the layout of the parks in Egypt.

These parks were identical with the original ones in Paris, derived from the romantic English landscape gardens which imitated nature. They were designed to be the lungs of the city for pleasure and strollers on their days off work. Ebers describes the Ezbekiah Park which is located at the heart of Cairo as follows: "Der in der Mitte angelegte öffentliche Garten gehört zu den schönsten auf Erden. Schneller erwachsen als er ist sicherlich keiner, denn wer jetzt in stiller Morgenstunde sich unter seinen weithin schattenden Bäumen einsam ergeht und sich an der Pracht der an den wohl gepflegten Wegen grünenden und blühenden Sträucher, die allen Zonen entstammen, erfreut, wer nachmittags sich hier unter die Menschen mischt, die den von einem ägyptischen Orchester vorgetragenen Kompositionen unserer europäischen Meister lauscht und dabei nicht vergisst, die Vegetation, die ihn umgibt, zu beobachten, in die künstlichen Grotten zu schauen und das grosse Bassin inmitten des Gartens zu umwandeln, dem wird es schwer fallen, uns zu glauben, dass dieser völlig fertige Park erst im Jahr 1870 von dem jung verstorbenen Barilet, dem früheren Chefgärtner des Stadt-Parks angelegt werden sei."

Around the Ezbakia Park were new arcaded streets, said to be very fashionable, and resembling the Rue Rivoli in Paris. Three decades later in the development of parks in America, and Europe, the promenaders park gave way to the playground system. But unfortunately the same development did not occur in Cairo and parks there later degenerated. Recently the Ezbekia park was split into two parks by the continuation of 26 July Street (Fig. 91-92).

Basic unit of the street (The Dwelling)

The imitation of Paris was general, in street, squares and parks. Houses, too, did not escape either being derived from Haussmann's unit in Paris. The description of Giedion of these basic units would identically fit the houses built in Cairo at the time (Fig. 93, 94, 95, 96, 97).

"A tenement house of normal type had shops on the ground floor, a mezzanin floor, and two attic floors. The three main floors have the same plan. They are apartments intended for upper middle-class tenants. The three-windowed bedroom for monsieur and madame takes up the space
The park was divided by 26 July street. After streets and public improvements were fitted into the layout the patterns of the cities and some suburban become fixed, making replanning difficult, if not impossible.
Fig. (93)
A house in Paris, Haussmann period

Fig. (94)
A copy in Egypt of the same style

Fig. (95)
An Egyptian imitation of the French style
at the corner. To its left is the living room, to the right the dining room. Further along to the right are the other bedrooms. There is a nursery which receives no light. The kitchen and the servant’s room look on to a narrow lightwell.

These narrow wells are an evil characteristic of continental dwelling houses of this period, and of the years after it as well (Fig. 97).

The attic floors are the most densely over-crowded parts of the building. Here bed is placed next to bed, in the most confined space possible, for the accommodation of servants, night lodgers, and the lower classes generally. 1)

The development of this unit took place in the new quarters of cities. We are still suffering from the narrow light-wells, which are a perfect place for attracting rubbish and dirt. The attic on the mezzanine floor is still the living quarters for the servants. From this period on, every room has its own function (dining-room, drawing-room, bedroom), a system which had not existed in the Islamic house.

A new introduction was the repetition of the same plan over several storeys differing from the Islamic tenant house, the Rabaa, which contained units differing in size ranging from one room to perhaps ten rooms with sometimes a duplex type of unit on two levels.

An interesting point to be mentioned is that the association of the manufacturing areas with the dwelling quarters which was usual in Mediaeval towns in Europe, did not exist in the dwelling of Mediaeval Islamic towns where there was a separation between the dwelling and place of work.

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Fig. (97a/b) A comparison between a plan in Paris and another in Egypt
Conclusion

The middle of the nineteenth century brought with it a revolution in planning and heralded the impact of Western ideas on Egyptian life. The appearance of boulevards, streets, patterns slavishly copied from Europe without consideration for the local character is only one instance of this blind imitation. The elite adopted Western clothes. This bourgeoisie with its liking for European ways, in reality only took over the superficial manifestations of European culture without appreciating the motivating forces which brought these changes about.

Fig. (98) The old quarter in a dilapidated state

In Europe a dynamic, busy, industrial revolution set the pace of life with its pressures and needs, while Egypt had no such problems. The industries created by Mohammed Ali were mainly created for his military needs and largely disappeared with him. The changes introduced by Ismail represented his desire to convert a whole nation, with its traditions and culture, into a Westernised country. He spared no efforts to achieve this, with the result that in ten years he had borrowed about £68 million from Europe. His changes were made at the expense of a crippling taxation on the people.
Fig. (99) The old quarters after the opening of streets and squares.

It may be said that while Europe grew modern, Egyptian city life had modernity thrust upon it. Ismail's planning had its greatest effect in changing the dominant pattern of closed residential quarters, shielded from traffic, noise, etc., into a layout where the street is the dominating feature.

Following the period of Ismail and the advent of cars in 1903, this "culte de l'axe" is permeated throughout by a grid pattern of streets which are the dominating features with everything else planned accordingly.

Although gardens and green areas were planned and laid out, their purely ornamental nature and lack of function caused them to degenerate, so that the city gradually took on the appearance of a vast acreage of asphalt and stone.
Fig. (100) A typical new block in Egypt. - Property owners have been permitted to build up their sites to the last square centimetre, to the prejudice of open space and gardens.
The old quarters soon lost their importance, and the wealthy who had large houses in them deserted them to live in the growing, new fashionable streets. The old quarters thus took on a slum appearance with the passage of time, and are now in a pathetic state. This slum-like appearance is one of the causes of reluctance to appreciate the traditional concept of these quarters.

Among the characteristics of periods of rapid social transition are confusion and lack of taste. These are clearly discernible in the instance of Heliopolis, a suburb of Cairo, where building began after the turn of the century. There, within less than half a square mile can be seen houses in the following styles: Arab, Moorish, Hindu, Venetian, Greek, French Renaissance, Roman, "bungalow", ultra-modern, not to mention the numerous non-descripts. The view from a Heliopolis building was well described by a European visitor, who when confronted by the sight, said "My God!" "What a salad!"
The confusion of styles and lack of harmony may be ascribed to fundamental cultural problems. Charles Issawi writes:

"It seems that no great economic advance can be made by Egypt, unless accompanied by a considerable amount of Westernisation; but it must not be allowed to destroy or obliterate, for cultural, social and political reasons, the original native cultures. The difficulties of Westernisation should not, however, be underrated. There is, for instance, the fact that the long historical evolution of Europe with all the incompatibilities and contradictions between its successive moods and phases has to be compressed and assimilated within a few years. Thus, in order to draw abreast of Western thought, Islamic Society is today compelled to grasp the essentials of Greco-Roman civilization - which it never truly assimilated in its own Middle Ages; of medieval Christian scholasticism, of the Renaissance, of seventeenth-century rationalism, of the Enlightenment of the nineteenth century scientific and historical approach, and of the legion of movements and tendencies of the present day."

He further goes on to outline a possible way for future development, saying:

"This long list of difficulties may, however, end on a more cheerful note. Of all Oriental civilizations, the Islamic one seems to be the one best fitted to cope with both economic development and cultural Westernization."

My conclusion is that the key to successful development lies more in the direction of modernization, with only sufficient Westernization as is necessary to achieve it. Until the nation believes in an ideology which stems from itself, we will continue to witness the present manifestations of a confused mixture of "Half-cultures", as reflected in the "porpourri" of contemporary Egyptian architecture.
Chapter V

LARGE SCALE HOUSING PROJECTS

Introduction

The need for industrialization began to make itself felt in Egypt during the First World War, owing to the shortage of imported manufactured goods. The Second World War greatly stimulated Egyptian industry, and a great transformation began.

The tremendous change taking place in the economic and social structure of the country is having direct repercussions on the composition of the population, with the creation of modern forms of economic life tending daily to bring about the decline of the old patriarchal forms of family life. Each couple has now begun to create its own family as an independent economic unit.

The people are migrating from their birth places and turning towards the large economic centers, under the influence of the demands created by the modern forms of economic life which are developing from day to day.

Unfortunately the economic centers are not only unprepared to receive them, however, but inadequate for such large numbers of new inhabitants. The problem in many cases is not simply insufficient houses, for even where sufficient housing is available it often does not meet the requirements and demands of the population.

a) The "Workers' Cities" Movement

The first attempt at a large-scale housing project was the "Workers' City", of which the first example was the Mahala project of the Misr Company, followed afterwards by 23 other undertakings which provided houses for their workers.

The Governments activities in this field commenced in 1947 with the building of a neighbourhood for Government workers at Embala, a suburb of Cairo.

Mahalla el Koubra

One of the large-scale housing projects was developed in the Delta at Mahalla by the Misr. Textile Company for their industrial workers, who are given attractive quarters at a modified rental, adjusted by the Company to the earning power of the tenant. There four types of dwelling unit ranging from 2 to 5 rooms, with bath, kitchen etc. extra. The neighbourhood includes
Fig. (102) Lay-out of a workman's town near Alexandria

Fig. (103) A row of workman's dwellings

a restaurant, hospital, mosque clubhouse, cinema, stadium and swimming pool. The city is being enlarged to 6000 units.

The cost per unit ranged from ££ 450 to ££ 650. The Mahalla region is a rural area, and most of the workers employed by the company originally came from the nearby villages.

Other textile firms, such as the Kafr'-El-Dawar near Alexandria, followed the example of the Mahalla workers' city (see Figs. 102, 103, 104, 105).

Fig. (104) The square is divided by cross-roads
Fig. (105) Residential units in the workers' town

Fig. (106) The Embaba project
Fig. (107) A block of two-roomed flats.
The ground floor has the court and the first has the roof - Embaba

The State "workers' city" was one of the first large-scale housing projects developed in the Middle East. It was erected for the accommodation of Government workers. The planning of the neighbourhood started in 1947, and by 1952 1100 units had been completed.

The "workers' city" was planned to occupy a site of 330 feddans on the west bank of the Nile and accommodate 6000 families.

The layout is rectilinear, with wide streets and open spaces for schools, social center, administrative buildings, playground, library and a mosque (see Fig. 106).

The houses are all two-storey, some in continuous rows and some as separate two-family units. Three different types are used, with 2, 3 or 4 rooms plus bathroom and kitchen (see Figs. 107, 108, 109).

A three-roomed unit consists of a living room and two bedrooms, a bathroom and a small kitchen. The bath is small, consisting only of a shower which discharges straight on to the floor. The floor is of concrete and slopes to a drain hole in one corner. The toilet is a hole in the floor connected to the sewer, after the common usage of the country.

The exterior walls are either red brick, concrete or limestone ashlar masonry. Floors and roofs are of reinforced concrete.
The cost of each family apartment averaged about £E 200 per room. Thus a three-roomed dwelling cost £E 600. The total cost of the project was estimated at £E 4.5 millions.

A tramway circulates inside the neighbourhood, connecting the "workers' city" with the capital, Cairo.

b) The Development of Popular Housing

A new movement in housing activities started recently, to provide dwellings for people with limited incomes, either through ownership with nominal payments or for a small rent within the occupant's financial means.

A programme known as the Government Popular Housing Programme was established by a law of 1951, drafted by the Popular Housing Department of the Ministry of Social Affairs. The programme aimed at the construction of 10,000 dwellings, at the rate of 2,000 each year for 5 years.

In August 1953 the Ministry of Social Affairs announced that applications would be received for the purchase of four and five-roomed dwellings.

In December 1953 the Government decided to create a company, of whose capital the Government was to hold a share, to undertake all matters relating to the construction of homes. The company was officially designated the "Development and Popular Housing Company Limited".

In 1954 the first step was the construction of 4,300 units, all in Cairo suburbs. This was part of a programme taken over from the Ministry of Social Affairs.
Three types of dwelling were designed (see Fig. 109) costing £E 600 and £E 640, for units of 60, 80 and 90 square meters respectively.

Other development projects were introduced by the Popular Housing Co. Ltd. (see Figs. 110, 111, 112, 113, 114).

In this brief review of large-scale housing projects in Egypt, I have shown some examples of model housing built some years ago, as well as new construction now going on. The purpose of this short survey is to show the tendency and the concepts of the new movement in Egypt. The initiative is no doubt there and is appreciable, but we hope that in the future a movement of its own will be achieved, expressing the particular region. We should be more aware of regional influences, and not rely on a narrow set of technical standards, sometimes adopted from other countries with different climatic conditions, economic development and cultural background, and consequently with quite different needs.

The difficulties of realising regional expression in domestic architecture are well known, and may be summarised as follows:

Everyone is familiar with the effects of industrialisation, and there can be no doubt that the introduction of the new technology has brought about certain cultural changes. It is regretted that industrialisation is sometimes regarded by radical thinkers as the panacea which is able to solve all the problems of the human environment. It may solve these problems, but only to a certain extent until other factors begin to appear on the scene.
Fig. (110)
Layout and plans for popular housing project in Alexandria
The factors which tend to limit regional expression are:

The ease of travel and communication.

The influence of the architectural press (imitation).

The imitation and worship of that which is popular.

The abstract qualities inherent in the new concept of space and art.

We have two groups of opinion, at one extreme those who maintain that the technology of the West can provide a complete specific answer, and that their practices should be followed. The other group believes that the people who have long resided in a region must have discovered by trial and error what forms and practices are necessary.

The technical approach towards buildings is not the only one, and ignoring artistic considerations for the moment, there are also the religious and cultural customs of the people to be considered, evolving partly from the climate and partly from history and religion.

When it is necessary to design with very little help in the way of money or mechanical aids, with a limited choice of materials, and with the additional problem of the shortage of skilled labour, great care is called for in deciding on ways and means.

We must therefore depend on natural methods and understand the architecture of the region, rather than rely on mechanical aids and standard units. We must exploit Nature very intelligently, otherwise the cost will be too high.
Fig. (112) Layout and plan of residential block in a new workman's town in Asswan
The failure to understand our environment and control it is regrettable in the present age. It is possible to see buildings which appear to have been deliberately opened up towards the western sun, which is almost unbearable during July and August; roofs made dark so that they absorb as much heat as possible; overhangs on the north side of the house instead of the south; imitations of the louvred slabs (brise-soleils) of South American architecture, although the climate and social conditions of that region bears only the most superficial resemblance to those of Egypt.

Unfortunately many people, including contemporary as well as traditional architects, regard such architectural devices as jalousies, porticos, patios, etc. as stylistic features rather than essential weapons for environmental control. It is a fact that builders in earlier days discovered by trial and error over a long period of time, what we verify today by scientific measuring devices. They furthermore referred directly to human and psychological reactions.

Fig. (113a) A view of a block in the El Azhar project
Scientific investigation should thus have a sufficiently broad basis to include historical studies of building practices. Our research should include the gathering of information concerning earlier building practices which bear upon current problems of air movement, humidity, temperature, sun control, the use of plants and outdoor living places. The material must be treated in a scientific way rather than as romanticized folklore, and it should be supported by drawings, diagrams, photographs and other means.

However the forms should be analysed as the first principle for further research; this is of great importance.

In the following paragraphs I will introduce an example which have much in common with our own region: the project in West Baghdad. This example is not presented to be imitated in Egypt, but as an inspiration, demonstrating how architects living in similar environments have approached their problems.
Fig. (114a/b) Layout and a view of police officers' flats in Abbassia
Housing in Baghdad

In its efforts to improve the living standards of the population, the Government of Iraq has decided to take action in order to provide better housing in urban and rural areas. One of the biggest projects of the national programme was to be carried out in the Baghdad area.

Baghdad has an acute housing problem on account of the tremendous increase of its population and industrial areas. Hundreds of thousands of people have moved into the Baghdad area from the provinces in recent years. The city was not ready to assimilate this population, and there was an acute shortage of housing. In view of this situation the Government of Iraq, acting through the Baghdad Municipality, drafted and began to carry out a general programme for replanning the whole area.

One of the schemes, at the time of writing the largest for the whole of Iraq, is the "Western Baghdad Development" project. The following general aims were adopted in these schemes: (Fig. 115)

1. An effort was to be made to create a model area.
2. Within this district, people of several social categories from the poorest to the middle classes will settle in a pattern of co-habitation of various classes within the same large area.
3. Since this project was the first of its kind, it was considered that it should be of an experimental nature,

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1) See reports:
1. Housing in Baghdad ) Government of Iraq, Development Board,  
2. The Housing Programme of Iraq ) Ministry of Development, Technical  
3. Experimental Housing Projects ) Section, Doxiadis Associates Consulting Engineers
enabling various solutions to be tried out and presented to the people and the technical experts.

4. In this way the area would be valuable as a great demonstration project, allowing technicians and the public to appreciate and evaluate the results which can be achieved through governmental action in the building of cities.

The total population of the area will be 6,800 families, numbering approximately 40,000 persons.

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The Structure of the Community

The most interesting feature of this project was the social structure and its organisation. The whole area is a large community which could be classified in the system as a community Class V. It consists of various sectors of the Western Baghdad Development Class IV. These are made up in turn of communities Class III, Class II and Class I, which are small neighbourhoods, i.e. small groups of houses along both sides of a small street (Fig. 116).

Fig. (116) Classes of different communities

The Community Class I

This unit is based on the traditional community unit which is called "El Hara". The Class I community consists of 10 - 25 families and constitutes the basic community, embracing families living very close to each other on both sides of the street. People who live in such close proximity know each other, see each other every day and have a great many common interests. They belong to the same social class, may possibly work in the same place and have the same hopes and aspirations. A small square is provided where women can gather to exchange the day's news and infants can play away from the dangers of vehicular traffic. This small square is the connecting element and focus of this small community (Fig. 117 a, b, c).

Family houses and Class I communities are the basic elements in the structure of the larger sector and communities.
The Community Class II

This consists of several Class I communities connected by a system of streets and lanes. The focal point of this community is the playground for children above the age of 5, where they can move about by themselves without having to be constantly supervised by their mothers. A community of this kind may consist of up to 100 houses. The playground occupies a relatively central site and is free from the danger of motor vehicles.

This community may accommodate people of more than one income group, but with only small differences of course (Fig. 118, 119).
The Community Class III

Several Class II communities form a Class III community, which contains houses for 250 - 300 families with the life of the community centering round the primary school, which is the social connecting link. They are all laid out so as to allow children to walk to and from school with as much freedom as possible from vehicular traffic.

However, motor traffic enters these communities in degrees which vary with the income of the inhabitants. If this is high cars may reach every single house, but if it is very low only a few vehicular roads enter the community in order to disturb its normal life as little as possible (Fig. 120).
The Community Class IV

The Class IV community is the sector unit which consists of 900 - 1,600 houses and is the first self-contained residential unit. It forms the basic neighbourhood unit used in town planning (Fig. 121).

Three, four or five Class III communities, covering a large area, form a Class IV community. These Class IV communities are the basic sectors of the Western Baghdad Development, and the population of each one does not exceed 10,000.

The chief characteristic of these communities is the marketplace and the minor civic centre with additional administrative, educational, recreational, public health and cultural facilities. The presence of all these services creates the first completely self-contained community which includes all basic functions within its limits. Dense and rather fast traffic moves on the outside of the community, while the inside is kept free of such traffic, as should be the case in a residential community.

Two or more income groups have been included in each of these communities. They live side by side, sharing the same amenities and services which form social life within a neighbourhood.
The Western Baghdad Development as a Major Community (Class V)

The 17 sectors of the Western Baghdad Development, including the six model communities of the Development Board, form a Class V community with approximately 150,000 inhabitants, for which a major marketing, cultural, recreational and administrative center is being designed at the heart of the Development Board's site.

Houses

Local traditions and habits were taken into consideration by the designer, together with correct orientation, particularly with regard to the hot summer months. Houses were sited so as to catch the prevailing winds. Roads were laid out so as to have good orientation and ventilation.

The houses were designed with three basic parts, in accordance with the dictates of the hot climate:

1. A totally enclosed space which includes the rooms of the house.
2. Semi-enclosed or covered spaces such as porches, verandahs etc., where shade can be provided throughout the year.
3. Open spaces, such as courtyards and gardens.

These three parts are necessary to ensure satisfactory living conditions for all seasons of the year. This partition of houses into three parts can be seen in the traditional houses in Baghdad (see Reuther, Fig. 36).

One of the good points of this scheme was that the designers took local traditions into consideration as well as climatic influences.

Most types of houses were provided with a courtyard for plants. It is very important to understand the effect which gardens and plants have in hot regions. Planted areas will keep the house cool and ensure a continuous change of air in the courtyard and house.
Roof terraces with either interior or exterior access were provided to permit sleeping high above ground level during the hot months. They are protected by a parapet which does not permit the inhabitants to be seen, while allowing the free passage of air and breezes at the same time (Fig. 123).

Fig. (122) A narrow street giving shade

Different Types of Houses

As the project is designed for different social classes with incomes ranging from the average middle-class to the lowest, various types of houses were designed to suit the incomes of the people concerned. Houses were thus conceived on the principle that they should cost approximately twice the yearly income of the family to be accommodated in them, and in this way they were matched to the purchasing power of each group. Types of dwelling for income groups A, B, C, D, E, F and G are included.
Fig. (123a/b)
Type of house in Baghdad project
Road System

The planner paid due attention to the different types of roads and their functions. The pedestrian was given at least as much consideration as the motor vehicle, and the sector were designed so that the inhabitants can live and move within the sector limits free from the dangers of traffic. No high-speed traffic roads were permitted inside the community. Freedom of movement was ensured for children going to school or to the playgrounds, and for adults going to the local parks or visiting the public buildings and shops.

Fig. (124)
Regional plan of a rural area in Iraq

Fig. (125)
Plan of a typical village
1. Mosque
2. Khan and shops
3. Administration
4. Coffee shop
5. School
6. Mayor's and teachers' houses
The Sectors

All necessary facilities were provided for each sector, including schools, playgrounds, green areas, sports, recreational and cultural centres, market places, shops, bazaars, coffee-houses, health centres, mosques and administrative centres.

Rural Policy

A policy for the rural areas was also examined, but on a different basis. The illustration will show the design concept was handled (Fig. 124, 125, 126, 127, 128).

Fig. (126) Plan of a rural house

Fig. (127) Courtyard view

Fig. (128) General view
Conclusion

Great importance should be given to housing project layouts as much as to the basic dwelling unit, for the grouping of housing gives the feeling of local unity, both socially and physically.

It is noticed in our region that housing layouts are sometimes unrealistic, the reason is that they are planned on garden-city lines, or on grid-iron lines. The problem should be analysed from the beginning, to give a more comprehensive outlook.

As it is well known, the most important element in housing designs in hot, dry areas is to provide shade.

Control of the sun by shading removes its effects before it has a chance to light or heat the surface. This result can be accomplished both artificially or by natural means.

The artificial development of shading devices, about which so much has been written, has been often initiated without proper study. For example, the "Brise Soleil", the enlarged jalousie which covers the whole building and does an important primary job, nevertheless, presents several problems.

Their protective effect with regard to heat is rather questionable. If they are painted white then they reflect heat into the building, whereas if their colour is dark, then they absorb heat. It can also be noticed that the "Brise Soleil" has little value on heated Western walls in the afternoon, especially when they are accompanied by the breeze blowing from the north-west. This is the case no matter whether the "Brise Soleil" are of the horizontal, vertical, or egg-crate type.

Thus control of these devices needs both careful design and technical approach, which is somewhat difficult to achieve.

Therefore, we should not apply technical devices (especially in residential buildings) unless the natural means are not enough.

Looking back on the traditional design where rows of houses offered shade protection to the next, and when the wall surface exposed to radiation was kept to a minimum, we see what our ancestors had discovered: one of the first principles of protecting buildings from heat, namely: the reduction of thermal exchange with surroundings and having the minimum of volume exposed.

Today, the idea of compact planning for hot areas is revived, as is plainly seen in the previously mentioned Baghdad example; and also in the work of the town planning associates in Latin America (1945-1956), where the design was based on compact planning as against low density sprawl, where buildings are closely grouped together, and open spaces varying greatly in shape and size are always measured spaces. The low buildings with patio (courtyard) predominated and land coverage was high, although tall buildings were not excluded. This mixed

1) See Sun control and shading devices, by Olgaly and Olgaly
planning of high and low buildings resulted in a varied skyline, avoiding the monotony of long, parallel blocks or that of vast areas of one-family houses. Moreover, compact planning may present great advantages as a result of the increasing cost of land, taxes and utilities and also the lack of servant help, etc. . . .

As is seen in the Baghdad example, the architect developed his plan from the basic modal: The Court, which is a very ancient device in the Middle East. Every element is related to this basic court idea, thus the court becomes the predominant architectural feature in the design, ranging from the court for a dwelling unit or between a row of houses to the public neighbourhood court or square. E. L. Wiener and J. L. Sert developed the idea of the court calling it "the rebirth of the Patio." (see Fig. 129, 130, 131, 132).

In our traditional architecture, whether Pharoanic or Islamic, the court was on the north side and therefore the houses turned northward as a rule, thus influencing the orientation of the city.

Fig. (129) Layout of town - Different patios, Havana
Fig. (130) A residential Sector, Havana project, high density (295 per ha) - good relation with open space and social activities.

The Islamic court in the House of Fustat (Fig. 41) was ideal; it was not large but small, and narrow, since it is easier to shade and protect vegetation. It was rectangular in shape with its long dimension arranged along the north-south axis. In this way its east and west walls offered protection against the low, hot sun, throwing a maximum shadow. In this traditional court we found gardens and fountains. It was the best way of supplying moisture to our hot, dry climate, which evaporates, and in this way cools the air. This was proved experimentally by Mr. Warren Thormthewaite of New Jersey, who found that the moisture which evaporates in the process of transpiration of leaves, cools the air. It is said that some large trees are capable of disposing by this method of between 150-200 gallons of water per day.

In this way the garden-courtyard is a good cooling system readily built by nature. It keeps the ground shaded in the day, allowing it to radiate its heat quickly at night to the cooler sky.

The traditional design had organized the relation between indoor and outdoor space. There is no doubt that there is a contradiction today between the openness of our houses with their large picture-windows offering diminishing views, and their proximity to noisy, congested streets. Sert suggests that an answer to this might be the fences along property lines, so that houses look into an environment that each family can control. "If you look at a garbage can, let it be your own one." 1)
The system of different courtyards can offer excellent possibilities for the integration between a controlled inside and a controlled outside space. Moreover, they offer privacy, protection from noise and traffic hazards.

With the continuous upward trend of the Egyptian population, cultivated land becomes dearer and therefore new cities have to be extended into the desert. This is becoming easier with the extension of water supplies. The reclamation of desert land would create oasis-cities. The traditional courtyard for these regions would be ideal, for they would frame a small part of the sky and also pave a few metres of the desert.

From all of this we can see that the courtyard with its infinite possibilities for variation still provides a satisfactory answer to a great number of modern design situations.

With new techniques and modern traffic, the residential quarter which had its privacy and its security, was disturbed. We have seen how the Islamic quarters (see Fig. 43, 45), with their

1) J.L. Sert
The art of privacy is subdividing space without destroying it - Sert's house

fixed points of entrance, were secluded and practically self-sufficient. Today this self-sufficient sector is revived, taking into consideration the prevention of fast-moving traffic from passing through the sectors. An example of this concept has been shown in both the Baghdad and Chandigahr projects (See Figs. 121).

Abundant green areas are no doubt desirable, but it should be remembered that Oriental communities differ from the West, and also that the protection and maintenance of green belts is particularly difficult in the region if they are not in private hands. Long, straight vistas must be avoided, and small squares of different shapes providing for rest and play should be encouraged.

We must bear in mind that comfort in residential buildings is a day and night problem. This is different from the school and office which are only a day-time problem.

In the traditional house we have found that there are three types of living area: indoor, outdoor and indoor-outdoor space. Every part of these open and closed or semi-closed spaces has its function for a part of the day or night. Instinctively, people living in hot climates understand the efficacy of keeping doors and windows open during the summer nights and closing them immediately after sun rise. This method of trapping the cold air of the cooler hours and preventing the entry of the heated air from outside during the daytime, can actually keep the indoor temperature often more than 10 to 15°F cooler - a kind of cheap air-conditioning for the poor. ¹)

In hot climates people live and sleep a great deal out of doors. European-influenced architects are likely to forget this. At night the walls start radiating, giving off heat accumulated during the day, hence living and sleeping out of doors is desirable. Unfortunately, in the new designs,
most buildings have small balconies - while we should have large veranda balconies so as not to deprive people of the benefits of living and sleeping under pleasant starry skies.

In the Baghdad project we notice that the architect did not use the basement or cellar, which is traditionally used in Iraq for living in during the summer time in the hot hours. The explanation of this point is given by Dr. D.H. Lee who says that "The earth has such a high capacity, that diurnal variations in heating of its surface do not penetrate much deeper than two feet, and seasonal variations not much deeper than fifteen feet. Earth at greater depth thus maintains a steady temperature not very different from that of the mean annual air temperature." 2)

We hope that in our future designs the ground could be used as earth buffer for protection from heat. This point is mentioned in order to draw the attention of future designers to the possibility of using the ground as a buffer for heat insulation.

In our region the sun and the wind-driven sand are unkind to delicate materials and colours. Thus, in our traditional architecture we find a richly coloured interior and simple façades. They might have been aware of the effect of beating sunlight. An interesting point to be mentioned is that the orientation to the dwelling units towards the north was done primarily to avoid eastern and western exposures and also our ancestor might have felt that a northern outlook is more pleasant than one looking toward the south, for a view to the north presents objects with full sunlight falling upon them, while towards the south objects are in silhouette and one sees the shaded side.

Due to our intensive sunlight Egyptian architecture must rely heavily on the contrast of shape and the employment of texture. The brilliant play of light and shade outside cuts sharp contrast, while inside the atmosphere is smooth and cool; this might form the main component of a strong architectural expression.

This is a general view without entering into detail, for the basic form must be decided before details can be considered. We should live in our environment, and not attempt to exclude it. It is wrong to complicate our lives unnecessarily with technicalities, when we can find permanent solutions through the choice of sites, through building forms and construction, instead of improving the comfort of the house by mechanical and climatic control devices.

1) Dr. Ramdas: See "Climate and Architecture".
2) "Physiological Objectives in Hot Weather Housing" by D.H. Lee. - Int. Housing Activities Staff, Washington, D.C.
PART II  THE RURAL HOUSING

We cannot reorganize any city today without planning the rural environment. Neither can we plan this environment without reorganizing those urban areas to which it is directly related. Urban and rural factors are much more interdependent today than they have ever been before.

(Can our Cities Survive?)

No city has eliminated slums except where rural housing, health, education and employment conditions have reached fair standards. Partly for this reason, primary emphasis must be given to the rural problems.

(Research needs of tropical housing
National Institute of Science-India)
Chapter I

THE TRADITIONAL RURAL DWELLING

Fig. (133) Rural Egypt

Introduction

In the last 20 years the problem of the Egyptian village has been attacked several times, discussed and re-discussed. It is a tedious problem with everyone agreeing that something should be done, but how?

From a social or economic point of view I prefer not to treat the plight of the Fellahs in great detail. It is a known fact that his standard of living is low. I will only try to help in such re-
search by referring to sources of information and certain authorities and publications, for those interested in following the subject in detail.

I will give some consideration to ways and means of improving the social and economic conditions which have a direct bearing on the improvement of his house and the planning of the village.

Here are three important questions:

1. Existing conditions in the broad sense of the village
2. Attempts made to improve the design of house and village
3. Tendencies for future development.

Fig. (134) Different types of village dwelling

Just to consider the Egyptian house alone without giving due importance to rural housing is to neglect the dwellings of more than 75% of the population of the country.

It is the rural house and the village that remains typically Egyptian. They have continued uninfluenced, by either foreign techniques or culture. They may, by the wealth of their tradition, inspire the architect to pure forms and original solution.

The villages certainly have had an influence on the cities that grew and decayed in the Nile valley. This influence is still noticeable today. The town is being fed by the village, its main revenue comes from it, and its population is increasing continually by the influx of the rural population. The prosperous peasants are continually changing their residents to live in the
town, and with them they bring their traditions and their way of life which certainly influence the town. They themselves change but they also bring a change to the town. Thus I give the village the importance it deserves. The gap between the city and the village is creating a dangerous social problem and it is necessary that the architect and planner find ways and means to close this gap if only partially.

To smooth the differences between urban and rural living, conditions should be balanced by raising the level of less favoured areas to those which benefit by a higher standard of living. 1) The new technique are working full scale to change the city with little influence on the village. Our problem is how far we can make use of the advancing technology for bringing similar changes or even moderate changes in the housing and planning problems of the village.

B. Theodorovic says: "It seems impossible to introduce the train of thought of about one hundred years of Western industrial civilization to an Eastern country with over 5,000 years of continuous agricultural civilization. Yet, many experts have, at least to a certain extent, tried to do so, and a few generations of Egyptian architects have been educated more or less along such lines. The result was a failure however. There have been too many plans for standard rural houses and model villages, etc. and too few actual improvements." 2)

The magnitude of the problem is obvious. My object is to try to investigate and analyse some of these projects and to find out in my way what is the more feasible and practical application to our present problem.

The problem that faced reformers of the Egyptian village seemed insoluble, and many times led to despair perhaps because the reformers were already prejudiced against existing conditions by their basic admiration of Western civilization and its technical achievements. This civilization has left during the 19th century a deep impression on the minds and manner of living of the oriental intelligencia which unconsciously made existing conditions in their own houses repulsive to them, and so they seek to imitate as far as possible the Western style without questioning the cause they admire.

As long as that prevails it will be found practically impossible within the existing economic, social and cultural conditions, to handle village reform in a feasible way.

We should really start by asking ourselves is it true that the Egyptian village should perish in order that its population can survive and enjoy a better life?

Looking back on its history we find that it has endured thousands of years of alternate prosperity and misery with a growing population which has been reduced only now and then by epide-

1) See "Can our Cities Survive"
2) Mr. B. Theodorevic's report to the U.N.
Fig. (135) The mound
mics for which the construction and planning of the village were not always responsible. 1) Again we should ask ourselves how it was possible without meeting natural requirements for the Egyptian village to continue stable in form and living conditions for so many generations with only limited changes in the various provinces of the Nile.

Egypt itself is a gift of the Nile and the cradle of humanity. The Egyptians were the first settlers who cultivated, built and organized social, moral and political life. The present village of the Nile of which there is so much complaint, is the direct heritage of a people who gave the world its oldest civilization. We must therefore look for its raison d'être.

All through history the Egyptian had to choose between living in the plains of the valley where his fields and plantations existed, or on the desert slopes of the valley far from his cultivable land. The plains were flooded regularly every year, and even with the control of the river, the land was artificially flooded by the introduction of the irrigation system. This flooded all the cultivable land for growing food and various plants for clothing and other requirements. The peasant therefore chose to build his village whenever and wherever it was convenient for his farming land, water and main roads.

Fig. (136) The village becomes an island during the flood season

1) The old epidemics like Colera and others have been handled efficiently by the Egyptian Government for the last fifty years without actual great changes in the conditions of the inhabitants in Egyptian villages and towns. The last Colera epidemic was in 1947 after a lapse of many decades and this was introduced from India through some mistake in the British base in Suez.

The prevalent disease "Belharzia" among the population is a direct result of perennial irrigation and inadequate drainage. (See Egypt Mid-century, pp 64-65).
Flooding

The industrious exploitation of the soil required that he lived within easy reach of his cultivable fields. This forced him to create artificial hills in the flooded plain for his dwelling which was turned into an island regularly every year (Fig. 136). He had, moreover, to protect his village by annual repairs in order to maintain his dikes. He was therefore restricted by condition and by labour to an inhabitable area which he utilized to the maximum benefit for his family and live stock. The compact village therefore left no room for wider streets, playgrounds or public facilities.

Security

Although it is well known that in the history of Egypt there are long periods of complete security from external invasions, it is also known that the central governments were not always efficient enough to guarantee public security against robbers and thieves of cattle and crops. On the fringe of the Nile valley there continued from early times down to the present time an infiltration of hungry nomads from the East and the West - Asia and Libya - and exposed the "Fellahs" (settled peasant) security to perpetual violation. These outsiders were finally assimilated and became peasants themselves.

Fig. (137) A compact village
Insecurity contributed to the permanency of the compact dwelling in the villages of which there is so much complaint today (Fig. 137). It also contributed to the kind of Fellah's house in which security of his cattle and crops was more important. His living quarters were usually exposed to open attack in order that his cattle and crops could be kept in the safer part of the house.

Owing to these restrictions and a growing family in a limited space, he went on adding upper rooms to accommodate his family. And thus his house turned in to an integrated pattern of cells.

Climate

The climatical conditions should be given also their due share in influencing the form and construction of the Egyptian village.

Egypt is a country with a temperate climate all the year round, and although tolerably hot in the summer, it is mild the rest of the year. The sun shines all day, with hardly any rain except a little in a limited area on the Mediterranean coast. All the year round the climate makes life more pleasant out of doors than indoors. In the summer what a peasant needs as a shelter is shade. In the winter what he needs is the sun out of his door. Therefore, the house is more of a temporary shelter in full contrast to the European requirements and conditions, and therefore we should be careful in dealing with Egyptian dwelling. It is not good enough just to imitate or copy the Western style.

The Egyptian peasant lives under climatical conditions that permit him in all seasons to live and work out of doors, to resort to his house at night, and even at night for eight months of the year he is better off on his roof or in the outside courts than within a room.

He hardly needs any heating in the winter if he has enough warm clothes or covering. If he has not enough of both he provides himself, his wife and his children with a room called a "fourn" which is a chamber divided in two or three parts. In one half he builds a "mastaba" 1 metre high in the corner of which he makes an oven to bake his bread, cook his beans and vegetables, and so get as a by-product of this, a warm room for his family to pass the night. This high deck of bricks is their sleeping ground which remains warm all night. Adjacent to this is a third part, 50 cm high, which is used either for storage or in case of a bigger family for some of the children to sleep on.

The climate has certainly much influenced the way of living of the Egyptian peasant family, and we must take this into consideration whenever we are in the process of reforming his construction, justifying or even modifying it.
Climatic conditions permit living and sleeping and working out of doors. He has not thought much of large windows, and tends to avoid the glaring light and the scorching sun. He spends most of his time out-of-doors so at certain hours he may enjoy better his darker secluded dwelling. The Egyptian villager is by nature a cheerful contented human being, and to him this resort in the "fourn" or his dark "mandra" on cold nights or hot days may be an enjoyable change. It may be easy to criticise the Egyptian house, but we know that the Egyptian Fellah has occupied such dwellings contentedly for generations. But now and even for the last 50 years conditions are changing in spite of the permanency.
of the climatological and topographical conditions. The progressive control of the flood and the extensive new perennial irrigation system has permitted a break from the island mound. The development of education and the increasing public services in the village are influencing the traditions, added to all this a more authoritative central government. Stimulated by intensive agriculture and better products the fellah broke loose from the island village and expanded in one direction or another outside the original mound on which the village had stood for centuries. The expansions are usually more regular in their lanes and the homes are more spacious. This put a heavy burden on the reformer, the planner and architect to prove his skill and imagination in developing the village to meet the new requirements and aspirations. It is within this scope of a growing village and the new neighbourhood quarters in the approaches of the new growing industries that the architect can apply his modern technique and foresight for improvement and better future dwellings. The claim of some that the Egyptian village was not serving a useful purpose is incorrect. It had built strong traditions of neighbourhood and of social order and served its useful purpose as a home and a shelter for a peasant family. It has always been an organic creation that has fulfilled fundamental functions and requirements. But the changes we have mentioned above in this changing world of today require from the architect as well as the social reformer of their technique and ability to adapt (Einfühlungsvermögen).

The new villager will not be satisfied with old ways; he wants the modern facilities such as water plants, electricity and transport. The planners have to satisfy these desires to the best of their ability within the economic, social and cultural potentialities of the inhabitant,

a) The Village of Today as a Continuation of the Ancient Village

The history of the Egyptian village dates back to the time of the Pharaohs of thousands of years ago. Rural Egypt, in spite of the language and religion of the whole country having been changed more than once, remained the same in its planning, housing and general characteristics. The form of the building, the material used and the method of construction remained static (Fig. 139/140). The villages of today are a continuation of the ancient villages as Ricke stated: "Die altägyptischen Städte sind zu allen geschichtlichen Zeiten bewohnt gewesen und die Mehrzahl der heutigen Fellachendörfer steht auf altägyptischen Kulturstätten." He also added: "Jede neue Epoche hat auf den Trümmern und meist auch aus den Trümmern der jüngst vergangenen ihre Bauten errichtet." 1)

Perhaps the locations of these villages were ideal for several reasons, either because the villages are raised above the general level of the fields to avoid the flood of the Nile in the

1) Herbert Ricke
Fig. (139) A sketch of an Egyptian village in 1870

Fig. (140) An Egyptian village in 1958
flood season, or on account of the facilities of natural communication and roads as well as easy approach to the cultivable land.

Why did the village remain static? A short look back in history could give an answer. The Egyptian peasants living under similar conditions that endured generation after generation is perhaps the main factor for the village remaining static. His climate is static, the Nile, the source of his wealth is one of the most regular seasonal flows of water in the world, it goes up and down in unchanging rhythm.

The fellahs' products, and his marketing of his products are also static. Again the whole of Egypt is like an isolated island in the ocean; its fertile valley is bordered by two seas to the north and east, and the rest of the circumference is waterless desert. Invasions by barbarians or others were few through its long history of several thousands of years before Christ. The form of government was strongly centralized with its main interests given to the capital cities, while the village and the peasants were only a source of revenue. These governments exploiting the producing Fellah never left him sure of his property nor his products. Although we know little about the earlier generations before Rome, we know a great deal about later conditions of rural Egypt. The Roman Byzantine rule was perhaps the worst of the long period of exploitation of the peasants.

With the coming of the great change of religion, culture and language of the fellah through the Islamic conquest and Islamic revolution, he himself changed, but he never altered the construction of his village of his house. His religion, language, some customs were completely altered but his house, village and field remained the same. The conquerors and the varied dynasties later until the 19th century hardly ever thought of village improvement. Instead they emphasized the building of capital cities, palaces, gardens, bazaars, extending and decorating cities where kings and governors had their seat, and this went on all through history, flourished and decayed in the towns, but the villages remained static and almost the same as they have been in the time of the Pharaohs.

b) The existing Village and its Defects

Any description that includes all Egyptian villages has to deal with their general characteristic rather than with details. The villages of today look as if they have grown without any previous planning, with their maze of narrow streets seldom running across the village.

It is probably untrue to claim that the Egyptian village started without any planning at all. There was some planning and that can be traced in many villages. But the growth of the population and the limited area to which the village was restricted on the mound, worked through centuries to efface any planning that existed. The Egyptian villages planned and built under similar climatic, topographic, social and economic conditions are generally alike.
Nevertheless, there are variations dictated by local conditions of being more or less exposed to the flood of the Nile or the flood of basin irrigation as well as the influence of the relations between the inhabitants themselves, grouped in clans, and adjusting their planning to suit separate quarters and thus leaving open spaces between the groups.

These spaces became market places, play-grounds, or sites for mosques and churches. But whether a village was planned to accommodate varied clans in certain quarters or not it had ultimately through the growth of its population on the limited mound, become a compact of integrated houses, set wall to wall in narrow lanes. Many of those lanes became blind allies, settled usually by a single clan or a part of the clan.

The growth of population gradually absorbed all open space. The ever lasting decay and re-building of the villages on the mounds brought also a continuous change in the clanish quarters' disposition as well as a change in the reconstruction of the houses to accommodate the growing number of the family. The internal courts disappeared being replaced by rooms even encroaching on to the streets.

**The Common Utilities and Services of the Egyptian Village**

In all times the Egyptian village had few common utilities and services other than the mosque, the mill and the Gourn (threshold floor). Religion was always paramount and thus the mosque, the church or even the Kuttab (village school) were commonly maintained and prominence was given to their buildings.

The Mosque was usually placed on the outskirts of the village, but it became gradually enclosed by new surrounding houses as a result of the extensions dictated by the growth of the population. Nevertheless, an open space remained in front of the mosque (Fig. 141).

The house of God is respected. It is carefully built and looked after by generous endowments of the well-to-do and by offerings of unpaid labour from the poor.

The mosque is often the dominant feature in the village with its minaret being the vertical element against the skyline.
The Kuttab (school) is usually a simple building of one spacious room with the floor covered by mats for the children to sit on. The teachers' duty is to teach the children to read and write and recite the Koran (Moslem Sacred Book) and the four rules of arithmetic.  

As for other services in the village there is no rule for their location. The market place and the shops are generally on the outskirts or on the main country road (Fig. 142).

One of the former general characteristics of the village, now vanishing, is the stagnant pools round the villages. These originated from digging the ground in the vicinity of the village, either to provide earth for mud bricks as building material, or for the stable as a base for manure, or to reinforce the dykes every year against the regular floods. These pools were dirty, small lakes, breeding flies and mosquitoes and exposing the inhabitants to various disease.

The best common ground is the Gurn (threshing floor). It is an open space of land commonly owned by the village and used for threshing their products. A general weekly market place serves several villages together and is subjected to some administrative and sanitary rules.

These are the more common utilities of the traditional village, but nowadays there are other services and facilities being introduced into the village such as schools, hospitals, social centres, water, electricity and sanitary services which are mostly governmentally administered.

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1) The Kuttab has given way to the modern school. Compulsory education for boys and girls was introduced in 1924. The modern school is a building of several classrooms and utilities with a playground.
Fig. (142) The shops are generally on the main country road
The main defects of the present village can be summed up as follows:

1. Lack of planning in the extension of the ever growing village due to the increase in population in rural areas.
2. A maze of narrow streets and blind alleys, some without any pavement whatever.
3. General lack of communal facilities and utilities, though it is admitted that a movement of importance has developed since 1939.  
4. Small size plots and numerous internal sub-divisions due to growth and the inheritance of the family.
5. Lack of open space.
6. Pools of stagnant water and bad drainage.
7. Accumulation of garbage and heaps of manure stored in and around the village.

c) The existing Dwellings and their Defects

The house of the Egyptian peasant being connected with the field and the cattle and a growth within a society that goes deep down in history and tradition is similar in many respects and varying in others.

It varies because of the economic variation and the capacity of the individuals; it is alike because it is dictated by necessities and requirements of rural production, tradition and customs of the villagers as a whole.

1) Thirty years ago a law passed for the filling up of these pools and swamps to be utilized later as open ground, or for building sites.
2) In 1939 a ministry of social affairs was created and in 1940 a fellah department was added.
Most of the reformers, planners, designers have preferred to concentrate their efforts on a single type of house: that of the poorest element in the village, but there are actually, at least, three distinct categories representing the economic status of the village inhabitants. These are as follows:

1. The well-to-do peasant (Fig. 143)
2. The middle peasant and
3. The labourer or very small peasant

There is of course a category of the exceptionally rich peasant whose house may be an exception even in several neighbouring villages. I do not include this type of house because it is very much under the influence of the city (Fig. 144) and its proprietor is continually accommodating himself to a life much above the normal life of the village people.

The simplest house of the three categories, which we are going to deal with, is that of the peasant who sometimes works as an agricultural labourer or as tenant of an acre of land or less. This Fellah usually starts his independence by leaving the family house for a house of his own. He is then usually already married but his children are still not yet matured or capable of much work.

His house therefore is as simple as his family and his needs. It consists mostly of one room (rarely of two) about 3 x 4 square metres in size which may be the "Fourn", and a court which will later be divided to provide a stable when he is in a position to buy his

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Abbas Khalil, Social Welfare Seminar for Arab States of the Middle East, p. 122.

(1) First rate dwellings for rich and leading groups 10 %
(2) Middle class dwelling 20 %
(3) Ordinary dwelling consisting of one, two or three rooms 70 %.
Gamousa 1). A corner of the court is reserved to do his cooking and baking. Sometimes he adds an "Arisha" to his courtyard which is a raised platform roofed by reed or millet stalk and which can later be used as a sitting room. The walls are constructed of unburnt clay bricks and the roof of split palm stems covered with millet stems.

For him his house, though very simple, is something to be proud of. It shows that he is already a man capable of being treated as an independent personality with a home and a status in the clan of the village. It provides him with the necessary shelter against all weather; in particular, it provides his wife with the possibility of breeding geese, ducks, chickens, pigeons and rabbits which provides additional income for the family as well as perhaps a goat, or a female donkey or sheep. His house also provides him with a place for storing fuel, 2) his food and products 3).

How the Fellah Builds his House

It appears from archeological research that the planning and designing of the village as well as the house has remained practically the same (Fig. 145/146).

Also the construction material remained basically of unburnt clay bricks which was always available and cheap.

The poor peasant makes the mud bricks himself (Fig. 146) and only resorts to the help of the mason for constructing the walls. The rest of the work such as plastering, roofing or flooring is done by himself or co-operatively with relatives or friends. He starts by building a wall around the plot about 2 - 3 metres high. He keeps in his head the plan of dividing his plot into different sections to fulfil a particular function, and he visualizes the rest for future expansion.

He begins the first room as a fourn in most cases with a temporary "Arisha", a semi open space providing shade. The roof construction is either of palm stems and reeds laced with mud, or of wooden boards, rafters, or dome shaped. 4)

1) The Gamousa is a buffalo of the Nile valley and is essential to the Fellah. It provides him with food and a little income in the sale of its butter and cheese. In Egypt it is the dearest animal to the Fellah.

2) Fuel is usually made up of corn stalks, cotton stalks and dung cakes. They are a necessity because there is no other cheap fuel available. It is usually stored on the roof because of limited space in the house (Fig. 133).

3) One or two large jars or containers to contain grain for the family needs. These containers are made of earth laced with a mixture of mud and chaff which gives a hard surface, thus keeping the contents safe and dry and free from moisture.

4) In the Delta, the most common roof construction is of boards spread over rafters and covered with a thick layer of mud for insulation, or roofs with mud-covered stalks or stem reeds tightly laced and spanning beams or rafters of wood. The reed roof construction is more commonly used in Upper Egypt. It is in the drier areas that the mud brick dome roof became common. (Arthur Little)
This house which is his first cell is the basis for the development of the second category house. When he is more prosperous with a large family, more rooms are added, one of which becomes the Mandara to receive his guests. Usually the Mandara is located on the street and adjacent to the front door. The stairway replaces the wooden ladder with which he reaches the stored fuel on the roof of his first room (See Fig. 147a, b, c, d).
Fig. (146a and 146b) The planning and construction materials remained basically the same.

a) Anima shed
b) Wither

Fig. (147) The Development of the peasant’s house

a) The simple house
b) The addition of a storage room
c) "The Mandara" sitting place is added
d) The stairway replaces the wooden ladder; enlargement of the stable
The stable is enlarged to accommodate more animals. In such houses provision is made for a toilet placed somewhere in a corner of the stable (Zeribah).

The third category house is that of the prosperous peasant who has either inherited some cultivable land (10 acres or more) or has earned it. This house is usually built on a wider space of land and planned from the beginning to meet the requirements of a larger family, more storing space for his products, a larger stable for his cattle, as well as an upper floor of several rooms. Part of this house is built in stone, particularly the guest rooms (Mandara), with a spacious Mastaba (veranda) in front of it. The roof is of board and wood rafters with large size windows made of sashes and shutters. It is plastered with white lime and sand. While most of the house may continue to be mainly built of mud bricks, the foundation generally is of stone or burnt bricks to resist moisture.

These are the three normal categories of houses to be found in an ordinary Egyptian village, serving the same purposes and fulfilling the duties and requirements of rural life.

There are, too, rich peasants in many villages who actually maintain two houses. One is called an old Dawar which is the largest type of rural house and is an enlarged version of the third category house. The second is an annexe house which is a debased version of a city villa inhabited by the head of the family or used as a Salamlik (for guests).

Service and Activities in the House

The peasants are practical people in direct contact with nature, and influenced more than anything else by their needs and their requirements. Their houses are fundamentally designed to meet certain permanent conditions. The peasants have by instinct and inheritance developed their houses for the needs within their economic capacity and social status. They are functionally equal whether they are huts or Dawars (large peasant house) and meet the necessities of their life as peasants, tied to the land and connected with their livestock. The peasants are concerned primarily for the preservation of their race and their animals. They are also anxious to maintain the fertility of their land on whose productivity depends their whole existence.

<table>
<thead>
<tr>
<th>Years of residence</th>
<th>Number of families</th>
<th>Percentage of families</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>46</td>
<td>4.3</td>
</tr>
<tr>
<td>10-19</td>
<td>19</td>
<td>1.8</td>
</tr>
<tr>
<td>20-29</td>
<td>130</td>
<td>12.2</td>
</tr>
<tr>
<td>30</td>
<td>869</td>
<td>81.7</td>
</tr>
</tbody>
</table>

A series of studies by the Rockefeller Institute on a village in Lower Egypt.
The peasant's house serves his purpose whatever his class or whatever category his house may be. It provides him with all the protection he requires against climatic conditions. It provides him with shelter for his cattle and products. It gives a breeding quarter for poultry which is a source of food or money. And above all it gives him the pride he aspires for as a man, a father and a worthy member of his clan.

It gives him the sort of happiness he understands, homeliness, an intimate society and privacy which he desires and enjoys. In this house everything he needs is within his reach and under his care; his wife and his children, his cattle and his poultry, his stored products and the co-operative neighbours surrounding him.

The outside planner who comes from the city, however, looks on this house as inadequate and dirty, lacking sanitation, water and electricity to which he is used, but does not realise what deep sentiments of contentment and pride the Fellah draws from his house.

The Fellah only becomes discontented with his house when it becomes overcrowded with a growing family and he desires more live-stock to provide more money for his needs. He is not unhappy with his house, but merely needs a larger one to provide for his growing family. Those who may be unhappy and dissatisfied are those members of the family who are brought up in the city school or life and who become accustomed to the dazzling lights of the streets, cinemas, with electricity, water, baths and toilet facilities. Education and modern techniques in the cities are making the peasant house out of date. The most discontented of all are those people who live in the villages but who are constantly in touch with the great metropolis of Cairo and Alexandria.

The defects are certainly numerous and are well known to reformers. They all complain of the lack of utilities, better windows, ventilation, better floors, better building materials, lack of household furniture and facilities.

One of the chief complaints is that of having livestock inside the house with geese and chickens running about everywhere in the courtyard and rooms. One of the main problems in reform is that of how to separate the cattle from the living section of the house and the removal of manure.

In the following pages I shall investigate the various attempts and proposals for reform in village planning and housing.
Chapter II

ATTEMPS AT REFORM AND IMPROVEMENT

Introduction

We now wish to deal with the problem of rural dwellings and the various attempts at reform from the architectural, social and sanitary point of view. We must remember that although Egyptians were influenced early in the 19th century by European contacts, village reform was only thought of in the 20th century. The French Revolution had a great impact on all European countries, but from a social and political point of view hardly touched Egypt and its surrounding Arab countries. The Industrial Revolution on the other hand, which came later, did have an influence on the cities of Egypt from an architectural and economic point of view. In the 20th century the long previous peace with security and prosperity brought to the attention of the Egyptian intellectuals and the government the unsatisfactory state of the rural villages and its dwellings.

The two great wars which followed, although only reaching the fringes of Egypt actually increased the rural income and stimulated the desire for better habitation for the Fellah himself, and the Russian Revolution stimulated the government and intelligencia for a change.

The parliamentary system which was introduced to Egypt just after the first World War created a platform for reform in rural areas. Deputies representing the peasants were in the majority and everybody, whether minister or member of parliament, tried to act and appeal for the general demands of the villages. Attempts at reform were made everywhere, and a new Ministry of Social Affairs with a Fellah Department, an important administration, was instituted in 1939. From the beginning of the 20th century half hearted attempts to solve the rural problems were initiated.

A brief review of success and failures in this sphere will help to pave the way for some proposals which I think more appropriate and fitting to the actual conditions of the peasants.

(a) Early Experiments

Various experiments were made by the Domain (that is the state land administration) and the Agricultural society 1), Misr Bank, big land owners, the Department of rural affairs, and representatives of other private enterprise and other governmental activities.

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1) The Royal Agricultural Society was established in 1898.
The Royal Agricultural Society built a small model village in 1934, constructed of red brick and a reinforced concrete slab roof, as an example to be copied later for rural housing. In addition to this a mosque, a school and public baths were built. The houses were provided with indoor toilets and supplied with drinking water at convenient points.

There were two types of plans for the dwelling units. One to accommodate a small family consisting of two rooms, an open court, a fold and a toilet, the size to be 80 m\(^2\) (see Fig. 148). The other unit was for a larger family with a third room added, the size to be 130 m\(^2\).

![Diagram of the village of Bahtim](image)

Fig. (148) The village of Bahtim (The Agricultural Society)

In this experiment the Agricultural Society avoided placing the Fourn (oven) inside the room as well as the storage of fuel on the roof top, which did away with the necessity of a stairway.

Now the peasant is used to having the Fourn and his fuel inside the house in spite of fire hazards which expose his house and the village. The peasant being an individualist and very conservative, reconstructed his own Fourn within the house and stored his fuel on the roof.

The Agricultural Society then revised a plan which included the Fourn inside the house and the fuel on the roof top. Unfortunately, the whole experiment proved to be too expensive for the
ordinary peasant and even for the land owners who would like to imitate the society planning. Thus in 1936 a second experiment was launched. It was found more economical to use mud bricks, and two types of roofs were introduced: roofs of wood covered with sun-dried bricks and laced with mud, and another in a dome shape also made of sun-dried bricks only protected by a layer of mud plaster.

In this second experiment they included the traditional Fourn inside one of the rooms for warmth in the winter.

Although in both experiments the orientation and cross ventilation were taken into consideration, the planning of this type of dwelling unit was criticized because the animals still had to cross between the living rooms to get to their stables which are built within the confines of the house.

As a whole the general planning was criticized for extravagance and waste of land in terms of street areas. Again it lacked the accustomed security which is easier in a compact area. In 1952, sixteen years later, Arthur Little, an international expert, visiting Bahtim, made the following comments on the experiment:

"The most noteworthy thing about this development is that of the dome roof of sun-dried bricks. The only protection for the brick is a layer of mud plaster. The roofs were replastered last year but on the whole upkeep has been small. The domes have remained in excellent conditions for sixteen years. The fact that they withstood the heavy rains of the present winter without showing signs of failure speaks well for the domes in the Delta even when built of ordinary sun-dried brick." He added: "The experience of this village is good evidence that domes are practical even in the moist climate of the Upper Delta winters. It justifies the belief that dome roofs can be used to make a lasting permanent structure, if they are built of water resistant material, covered with resistant plaster, and if they have any flat roof areas properly sloped to prevent accumulation of rain water." Another observation of Mr. Arthur Little concerned the cost of the roof was that although only a small section of flat wooden roof between the domes was made, it accounted for a relatively high cost of the wood item. Even this small area of wood roof amounted to about 20% of the total cost of the house.

The previous models of the Agricultural Society experiment are an example of non-governmental institution. Now we would like to give an example of early governmental activities. The administration of public domain tried a model house in 1936-37, by constructing a Fellah house of two

1) Arthur Little, Inc. Cambridge 42, Massachusetts
   A report to technical co-operation administration 1952.

2) From time immorial wood was a problem in Egypt and this accounts for the old Egyptians being very careful in using it in their buildings.
   Herbert Ricke: "Wenn genügend Bauholz vorhanden gewesen wäre, dieses fehlte damals wie heute. Eine ägyptische Holzbaukunst, die als tragende Konstruktion und wandbildenden Baustoff ausschliesslich Holz verwendet hätte, hat es daher nie gegeben."
rooms, one above the other, with an open court and without either a fold, a fourn with an open court with or without either a fold, a fourn or a toilet (see Fig. 149/a). These three accessories were constructed outside the house, a common toilet for every four units.

This failed completely and they had to introduce (see Fig. 149/b) a toilet, a fold and a fourn into each house, but in spite of these innovation, the peasant did not like his two rooms one above the other.

The improvements realized in that early model were a difference in level between the lower room and the court, the floor made of concrete, the roof of reinforced concrete and the wall of red bricks.

In 1938-39 some alterations were introduced in a new model made of two adjacent rooms in the first floor, one of which included the fourn, and a fold with toilet. They used the previous materials (see Fig. 149/c).

Architect Ihrahim Nagib considered this model as the most successful work in this direction of the department of public domains, because of its adaptability to the peasant’s needs, and its low cost of 110 Egyptian Pounds (pre-war estimate).

After the war the administration of public domain resumed its activities in a new model which consisted of two rooms, the fourn being placed in one of them with an outside opening to carry out the smoke. The entrance to the house led straight to the fold, and an open store room for fuel and animal fodder was made in order to avoid storing on the roof which often caused fire. On the side of this store a roofed toilet was added (see Fig. 149/d). But in 1949 the store room was eliminated because it did not serve its purpose, and thus the area of courtyard became smaller. This model was the basis of a 1951 design with little alteration in the entrance leading straight to the fold (see Fig. 149/e,f).

In all these models the house had one entrance for the people and their cattle. As a whole the post war models were distinguished by two facing windows in the room to ensure better ventilation.

It is clear from the above mentioned that the "Department of Public Domain" has been shifting during the last 15 years from one design to another, influenced all the time by practical results, tastes and habits of the Fellah. It shifted from innovation back to tradition, construction materials being the only important change. This example studied together with previous experiments of the agricultural society proves one thing: that the Fellah was right in the general concept of his home, he knew his requirements, he adapted his planning to meet his available means. Even the advanced experiment on his house by a State Domain did not solve his problem in as much as it has complicated it by the higher cost of construction and using materials which are not always available to him and are more expensive compared with his traditional material.

The early pioneers of rural reform, whether in the Agricultural Society or in the various departments of the government or as private institutes and big land owners, have not yet solved
Fig. (149) Plan of the Experiments by Public Domain
the serious problems of the Fellah, but have contributed towards the growing demand that something should be done about these problems, and two schools of thought concerning rural housing were born. I shall try to be brief as much as possible in reviewing these schools, their ideas of reform, their method of planning and construction of the Egyptian villages. I may permit myself to call them the "Radical School" and the Evolutionary.

The Radicals may be subdivided into extremists and moderates. The Evolutionaries are those who maintain, for various reasons, that there is nothing to be done but gradual progressive reform of the old village and its extensions.

( b ) The Radical School

The extremists in this school actually represent a group of idealists revolting against the existing conditions of the village and desperately calling out for its eradication and replacement by a totally new site for a 20th century habitation, using the old village ground for agriculture.

Against these extremists are so many insurmountable difficulties that we hardly find it necessary to follow them as reforms, at least for the present generation. Their plans are impossible to carry out from the economic and financial point of view and they are certainly out of touch with actual requirements, social conditions and customs of the peasants.

Moudirieh EL TAHRIR (Fig. 150, 151, 152, 153)

The idealist's view found its expression in the new villages created as a nucleus in a new reclaimed desert land west of the Delta called the "Liberation province", Moudirieh EL TAHRIR". The village was supposed to be built primarily for 1500 people with a view for expansion to hold 5,000. It was to start with 300 houses and the necessary buildings for its various services for the whole growth of the village. The new village was built to be populated by peasant emigrants from other villages who were supposed to resign themselves to a better life already planned, organized and continually supervised for them. The school, mosque, meeting places, hospital, sporting club and the market were to be built and a group of employees for the various services, who would occupy some 40 houses in the village, were to look after the various services of that village.

The land was reclaimed, prepared for production with all the levelling, canalization, draining and roads, etc. Again electricity, sewage and water supply were introduced.

The dwellings of the village were reserved for human habitation. The Fellah's cattle, sheep, goats, poultry, etc. were to be distributed in a different quarter to be looked after co-operatively. The village as a rural community was to be supplemented with various rural industries.
The house as a unit consists of two rooms, one for the man and his wife and the other for the children, with a living-hall, a kitchen and a bath. The area of the plot is 55 m² with the addition of a small rear court. The construction materials were produced on the spot by mixing sand, gravel and cement to make a hollow sand cement brick, and the roof was made from hollow cement blocks reinforced. The doors and windows were made of wood and glass and the floor of cement.

The primary cost of the house was estimated at E.P. 350 (Egyptian Pounds). This did not include costs for various buildings for animals, stables, stores for products and fodder, nor its share in the common expenditure for the additional services of the house and the village as a whole.

These services, together with the cost of the house, were estimated at about E.P. 300 000. So it can be safely said that the house with its additional requirements had come up approximately to the amount of E.P. 1000. Of course this new province of reclaimed land with rural housing and village planning was supposed to create a model to be copied everywhere else. 1)

1) La Moudrieh D'EL TAHIRIR (science, determination et la Foi)
The cost of building and the reclaimed land was so enormous and uneconomical that it quickly brought a general reaction from parliament, the public and even the other governmental institutions, so that it is now very doubtful whether it can be proceeded with in accordance with its original idealist planning, and it may paralyse the activities of the extremist school for a long time.
The moderates, although they may be ahead of their time, are certainly trying to solve the problem taking in primary consideration where possible. I will cite as an example of this group Dr. Sayed Karim's proposals. Dr. Karim believes that the present village has lost through generations, by congestion, all open spaces on large roads and has become incapable of being reformed. It has become like the slums in a city, which must be demolished and rebuilt. Although he recognizes the difference in the price of the land between the city and the village, the former compensates for some of the reconstruction expenditure, while in the latter land is much cheaper. He therefore advocated a transition village. The old village will be rounded by a cordon preventing it from expanding and a gradual transfer of its population into a new planned village beyond the cordon (Fig. 154). In planning the new village he starts by two rows of houses with one road in the middle as a unit, and every phase should enclose one of those units. The density is 24 houses per acre. The plan is flexible to allow the village to grow to 1500 houses. He has taken into consideration all complaints of the old village whether social, sanitary or those concerning security.

Fig. (153)
"EL-TAHRIR" dwelling unit
The planning of a transition village

Dr. Sayed Karim has taken care of the health of the village by planning, dividing his streets into two categories. One for the front door facing north-west which happens to be the best orientation in Egypt in the direction of the prevailing breeze for a proper ventilation. The back door opens on to a back street facing southwards. This road is separate from the front road and is reserved for animals, clearance of manure and similar activities. Thus the village is divided into two completely separate sections (Fig. 155).

In the cleaner side of the village there is a square, the mosque, public reception buildings, mayor's house with his assistants, public health services, and a public bath. In the other section there is the flour-mill, cattle market, machinery and the threshing-floor. The house is also divided into two parts: one for the dwellers and the other for the livestock. The latter includes the toilet and other services. The front section contains an entrance, an open court and living rooms. The fundamental idea behind the design of the peasant house is not to initiate a new form, but to continue with certain alterations to improve and meet his health requirements.

He has placed the oven in a position to warm the sleeping and sitting rooms without the smoke disturbing the inhabitants.

The project was one of the earliest complete rural housing and village planning schemes.

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1) Dr. Sayed Karim's book "E sh*tirakiyet El villa". Also "Elemara" 1.2.1953
It met many of the required reforms. The main difficulty in applying this project is financial and the ingrained habits and traditions of the peasant against a house with a front and a back door, which will perhaps make the back street to him superfluous and in this case it will be a waste of land. The Egyptian peasant is so accustomed to spending part of his life working with the dirt of his animals, his manure and his working with the mud in his fields that it will probably take him a long time to change the actual method of his work.

Fig. (155) Planning of the transitional village by Dr. Sayed Karim.

(c) The Evolutionary School

The reformers of the evolutionary school, whilst agreeing on the necessity of going hand in hand with the developing resources of peasantry, and cultural and educational progress, differ among themselves as to the ways and means of approaching the planning, designing and construction materials. They are mainly for improvements in the existing village and its houses, convinced that it still serves a useful purpose.

This school, although it is not easy to call it a school, revolves round the belief that it is impossible to advance with the habitation of the Fellah before a change in his social and economic standards is made. It is only with developing and improving that the new house can develop and improve, and with it the whole village.

The activity of these reforms were first centred round the new "Administration of Village Affairs" (Ministry of Health), inaugurated in 1937, and later the "Ministry of Social Affairs".
set up in 1939, and other voluntary societies like the Women's Club, some international philanthropic institutes like the Rockefeller Foundation, all these had widely contributed to rural reform.

The Administration of Village Affairs (1937) was mainly occupied with a programme of water supply, filling the ponds and swamps, and sewage disposal.

It contributed mainly to hygienic improvements in rural areas, and also by various experiments to rural housing and village planning.

In 1939 the new Ministry of Social Affairs initiated an experiment at Shatanuf and Manayel villages as a preliminary to a vast scheme of rural social centres 1) all over the country. Their first object in these two villages was to experiment with rural reform through practical application and through co-operation and work with the people themselves.

The rural social centres are contributing indirectly to a great advance in social education which has an influence in the improvement of the house with reform within. This is justifying those who preached the improvement of the house as a result of the improvement of the inhabitants.

Moreover these rural centres are providing medical, technical and social services.

(d) Other Governmental Activities in Rural Housing

Another example of Governmental activity in the direction of rural housing and village planning is that of the Ministry of Health in "Sids", Beni-Swef Province (Fig. 156).

From the beginning of the century the Ministry of Health was the most active Ministry in dealing with the village problem, fighting all sorts of diseases and setting new services distributed all over rural areas for public hygiene and health. Through this interest the whole village problem and housing were to be reviewed, and the Sids experiment was followed by the promulgation of the rural law 1942. Under the terms of this law there were provisions for the establishment of town planning schemes for each village in such a way as to guarantee its future extension on a hygienic bases through the improvement of its streets and its old squares whenever possible, the improvement of the present dwellings etc.; necessary credit advances were also included in the provision of the law.

A wise policy enabled the establishment of certain sanitary installations in such a way that they would bring the peasant the knowledge that he is deriving a direct profit from the scheme; this would induce him to approve the implementation of new projects for his village planning and the demolition of all or some of the village houses.

1) Charles Issawi "Egypt at Mid-century" 1954, said:
"These centres constitute the most important single measure of its kind recently carried out in the Moslem world. Their object is to provide villages with a variety of social services by resident specialists." (p. 74).
"Such a policy was put into force and proved very useful indeed. It is worth mentioning that the inhabitants, who realised the useful purpose and felt the results of these schemes, were the first ones to help the authorities in carrying them out. They largely subscribed to the
purchase of a great portion of the land needed and to the credit required for the execution of
the scheme 1).

The village of Sids was chosen as an experiment in rural planning and housing because it
represents the kind most in need of reform. There are 5000 inhabitants living in a maze of
narrow streets which will be altered only with great difficulty, and its houses are so old that
numerous obstacles will have to be overcome in an effort to improve them. Furthermore its
standard of living is even lower than that of most of the other villages both from the social
and economic angles. Its land extend over 1,700 Feddans of which only 45 Feddans belong to
the inhabitants of the village. The rest is the property of the Ministry of Agriculture. Its
Fellaheen are mostly manual labourers.

The new plans aim at modifying the Sids village by widening the streets and lanes, and the
creation of public squares. It was found that 142 houses were to be demolished. A plot of
land (10 Feddans) was found situated far from the old village in order to allow sufficient
space for further extension of the building and until such time as fusion of the old and the new
villages became necessary (see Fig. 156).

The village planning of Sids

The old village: All narrow streets to be modified, providing a public square almost
in the centre of the village with two taps for distribution of drinking water in two different
places.

Village extension: Roads will be made and the land divided into plots of about 140 m²
each. Building will be authorised under hygienic conditions.

The new village: A section is to be reserved for all public facilities and another sec¬
tion for the rebuilding of new houses to replace those demolished in the old village when plan¬
ning is carried out (Fig. 157).

The Fellah's House (see Fig. 158)

After dealing with village planning including the necessary public services, some recommen¬
dations were taken into consideration for the model house:

1. A plot of land with an area of 140 m² which leaves adequate room for further extensions
   with a growing family.

1) See the second Social Welfare Seminar for Arab States of the Middle East 1950
   Lecture: Mr. Mohamed Amir Hilmy
Fig. (157) The new village of Sids

Fig. (158) The Fellah's house - Sids
2. The house to include two bedrooms, one stable, one haystore, one W.C. and two entrances, one for the family and the other for the livestock; two yards, one of them clean and neat, and the other reserved for the stable and the fuel house.

3. The house oriented to face North-South in order to allow proper ventilation and sun.

4. Groups of two houses should be erected in order to economise on space and avoid unnecessary lengthening of the streets. Saving in buildings could be made by the erection of middle walls.

5. No elevation of houses will be allowed on the streets in order to permit sun and air to penetrate into the houses. Construction of new rooms should be only allowed in the internal part of the house.

6. The stable will be installed in a place as far away as possible from the bedroom (either that of the house itself or the neighbouring ones).

7. The oven opening should be placed near the kitchen which is over the clean yard; this would prevent smoke from disturbing the inhabitants of the houses. This, however, would enable them to enjoy the heat radiated by the oven.

An experiment for the improvement of the existing village "Kom Bera" Giezah province was made. Here all the houses were surveyed for classification.

Thus a programme for arresting and correcting residential blights was introduced bearing in mind the following three points:

1. Preservation and protection of the better areas.

2. Rehabilitation of less severely blighted houses through large scale improvements and modernisation.

3. Clearance and rebuilding of the more severely blighted houses.

The quality of factors intimately related with health, safety and decent living will determine whether a house is satisfactory or not for human habitation. Thus a survey on the sanitary conditions in rural houses was based point ratings \(^1\) (Fig. 159).

The purpose of this survey study is to make better conditions in the house by insuring that every dwelling is provided with or has reasonable facilities for sufficient supplies of water for domestic use, provision for latrines, as well as facilities for street cleaning, chemical spraying for reducing insects. This can be helped by propaganda and health education.

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This experiment, which aims at better hygienic conditions through repairs and reconstruction and propaganda, had its success, in my view, not on what is to be done but on maintaining and continuing in a satisfactory manner what has actually been accomplished. The amount of money spent has to be spent and respent to prevent decay and deterioration of hygienic measures.
Mahal Zayed (Fig. 160)

In 1934 45% of the dwellings were destroyed by fire. The Government, therefore, directed a new project in which they divided the old city into four sections to reduce fire hazard. A complete new site near the city was then chosen on which a new village was built. There are 250 new dwellings, varying in size according to the family. It has all the communal facilities such as school, market place, clinic, with adequate open space for sports and recreation.

The blocks of houses are arranged back to back in rows. This arrangement provides for deep plots with small frontage on to the street. Every house has an interior court to the back of the dwelling. This gives good ventilation through continuous strips of courts.
Elmarg  (Fig. 161)

Erected 1941 according to Sayed Karim's project, Elmarg has been designed in a continuous ribbon of single plots. Each plot has access to the main road. A separate way for the animals has been made at the back of these blocks, leaving the front main road free for people and vehicles.

The size of the village is 14 fed- mans and has 121 dwellings with all facilities. The building material used was of sun-dried clay bricks laced with a special clay which was found near the site and which have proved to be excellent. The ceilings are made of wooden beams or rafters. 1)

Mr. B. Theodorvic, an expert of the United Nations Technical assistance spent two years in Egypt (Sirs-El-Layyan) in the ASFEC and produced a very useful report on the subject of rural housing and village planning. He was co-operating with a number of experts working in eight different villages. He came to the conclusion that behind the present Fellah's house stands an old history of remote traditions, and that it is serving its functional purposes, it is capable of being improved. He said: "The Egyptian village is characterized by unbelievable tenacity in spite of the very weak main building material of which it is made, the mud brick. Furthermore, ancient Egyptian mud bricks have stayed the test of time for a few thousand years, not only in southern Egypt, but in Northern Egypt, where there is rain and high subsoil water. Also rammed earth is a method of building used in provences bordering on the desert.

1) See Vol. 7, No. 5-6, 1947 ALEMARA
Therefore it is highly necessary, before attempting any changes or improvements in rural housing and village planning in Egypt, to study the existing wealth of traditional solutions and then see what modern science or scientific methods could do to improve them.

Statistical data about the present status of housing in some villages collected by the Rockefeller foundation, the Galub project, etc., as well as in the Egyptian Government census of 1949, shows that the average number of persons per family in rural areas of Egypt is 4.18, the occupancy of houses 5, and the average number of persons per room 2. At the same time the room space of houses ought to be quite sufficient."

He went on to say "that the problem is not one of building new houses but of improving existing ones and of building better houses. The improvement of existing houses seems to me the only possible way of applying solutions in a practical manner.

Fig. (162a) The old oven

Fig. (162b) Improvements on the oven by Theodorovic
Thus, Mr. Theodorovic, in an emphatic way, has decided for the most moderate school in rural housing and village planning.

First, the village which stood for thousands of years is still capable of enduring and serving a very useful purpose.

Secondly, there is no real acute problem of overcrowding.

Thirdly, that materials used can be maintained with some improvement.

The improvements introduced by Mr. Theodorovic on the existing rural houses revolve round the stove, water taps on public and individual pumps and fountains, night-soil disposal, stabilized mud floors, stable floors, a new method of manure production, white-washing, the production of cement stabilized mud bricks, and cement stabilized rammed earth walls 1) (Fig. 162).

These improvements depend mainly on education and might be retarded due to the fact that the peasant may not easily accept some of them.

Up to now we have been dealing with the two main schools for rural housing and village planning. We have chosen important examples from a large and actually wide field of experimentation and implementation representing a movement during the last 20 years which has certainly benefited social reform as well as the architect in thinking and planning.

1) The procedures and findings are described in a report by B. Theodorovic (prepared for the Government of Egypt) U.N. Technical Assistance.
Chapter III

POINTS FOR A SUCCESSFUL RURAL POLICY

(a) General Policy

I have referred on several occasions in the previous chapters to the attempts, experiences and examples of varied activities and proposed solutions originating from governmental departments, public institutions, societies, individuals and international expert advisers.

There was actually no lack of governmental initiative in this respect, but it appears to me that the main difficulty in implementation was the bureaucratic system dealing with an organic and human problem.

It would perhaps be more efficient to limit central government action to mobilizing and supervising the resources which are essential to an extensive housing programme. It can, for example, integrate the housing programme with a general development programme, supply financial capital, train personnel, develop technology, and exchange experience with other countries.

A feasible policy would be based on a "Regional plan" adapted to every province or district.

This regional approach can check the current powerful trend towards ever-growing and overcrowded towns and provide for a more balanced economic and social life within the region as a whole. This possibility, which is very much to the economic and social advantage of the region would be facilitated by modern transportation and by large water-shed projects now being undertaken. The latter will provide country-wide irrigation and cheap power transmission which allows the establishment of regional industries. 1)

The result would bring a more harmonious relationship between town and country.

Local Leadership

The planning should proceed "from the bottom up" and not "from the top down".

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1) Aswan Dam project
   The electrifying of Aswan barrage
Inhabitants of the districts and provinces were hardly consulted nor was their cooperation sought, and until the voice, support and cooperation of the local leaders play some part in Regional planning, it will remain in an experimental and bureaucratic state.

This will help to relieve the administration from concentrating on the cities and draining of local resources to supplement the requirements of the ever-growing, congested main towns. Under pressure from rural leaders, the revenue from taxation will be more equally distributed with a fairer share being devoted to on-the-spot benefits.

Traditionally, the villages always had an administration made up of the village elders, headed by the Omda (Mayor), together with the tax collector, the sheiks (heads of clans), and the Imam or leader of the Mosque. This leading group looked after the peace, tax collection, and common marketing of products or seed and manure.

This nucleus can be developed round and from the village community centre for future cooperation between leading groups and specialists serving the various needs and requirements of a village or a group of villages. The architect will then be able to assume his proper place and his activities will become more productive, not only in planning and designing but in the application of his ideas within the economic and social conditions.

One of the main defects in planning was that the planner lived in Cairo, far away from the village. The architect should be more in contact with the rural community, living with them, experiencing their desires, and thus better able to fulfil their needs. An excellent step was taken in the village of Gourna, where the architect lived on the spot for three years.

The local leaders will thus assume responsibility for the whole process, beginning with planning, execution and subsequent supervision and administration of social, sanitary and productive works. They will have full scope for their initiative in production, of which housing will form an important part.

Aided Self-Help

The rural population is accustomed to various forms of self-help. In the past, village construction depended on the participation of all those who were able to contribute either with funds or labour. That is how mosques, elementary schools and other public buildings had to be constructed. At the present time, the inhabitants co-operate in taking preventive measures against flood disasters through the reinforcement of banks.

Some successful aided self-help schemes could be introduced. The local leaders should be convinced of the value of the aided self-help.
If this step is taken these leaders will be in a position to influence and guide the programme.¹)

The community development projects carried out in countries which have similar conditions, have shown that much useful employment can be found for surplus rural labour.

An urgent matter, which has not yet received sufficient attention, is the use to which Egypt’s enormous reserves of unemployed labour can be put. Labour is the only commodity which is abundant in Egypt, and is the one which is most wasted.

If the available time wasted by seasonal unemployment is used to help the Fellah to build his house through building other peoples’ houses or by employing it for other local activities, a considerable part of the cost of his house may be thus paid for co-operatively through his spare-time work.

This will require a well-planned housing scheme by local co-operative organization for financing, marketing material, labour and long and short term credits.²)

Cultural, social and Spiritual values

We must bear in mind that the Egyptian rural society has its own special status and conditions, which must be considered when preparing reform programmes.

It is impossible to neglect or overlook the cultural, spiritual values inherited through ages. However, in attempting to introduce changes, slavish imitation must be avoided. Also one must avoid superficial renovation.

Reforms must not attempt to isolate the present of the society from its past. Such an attempt can only cause social instability without resulting in any essential improvement.

We want to free rural society in Egypt from inherited problems and adapt it to the changing conditions of the modern world, but we should be careful to preserve the character of the society and its good elements. There is no doubt that the Egyptian countryside has potential strength which should be exploited. Reform programmes based on superficial imitation will lead to nothing but the dislocation of the social life of the village. This will be detrimental to the village, will weaken its cohesiveness and will diffuse doubt and despair as to the success of the reform programmes.³)

¹) The model projects we took as examples for our rural social reform rapidly deteriorated and reverted to their initial state, because the inhabitants had not been prepared to accept them, did not feel their need for them and did not care much for their success or failure (Dr. Abbas Ammar, Lecturer 1954 Arab States Fundamental Education Centre).

²) For further information concerning aided self-help, see detached bibliography (Appendix B) (Aided Self-Help in Housing and Improvement) Housing and home Finance Agency International Housing Service, Washington, D.C.

³) See Dr. Abbass Ammar
(b) Village Planning Policy

An early decision to be made is whether a village is worth laying out afresh on its present site or whether a new site should be chosen.

One school of thought with reformers and planners is that the old villages are in need of reconstruction, there being no use in "repairing" them in their present condition.

Another group thinks that the Egyptian village, although apparently grossly out-of-date and full of defects has to continue. This is not altogether without reason. The village is still fulfilling fundamental needs and maintains a traditional way of life and productions which have kept Egypt's agricultural economy reasonably profitable for generations.

The pressure against the old village and the desire for reconstruction are tremendous, but the limitation to these aspirations are also very great.

It is sufficient to bear in mind the financial and inherent difficulties in order to restrict the desire for reform to what is feasible and possible in the actual circumstances.

The Difficulties in Reconstructing the Old Village

Financial

Some ideas of the enormous funds needed for the reconstruction programme may be had from old statistics and facts:

Rural population = 16 million approx.
Average number of persons per family in rural area (see B. Theodorovic report page 5) = 4.18
Community facilities (see report of Earis) = 100 L.E. per family
Area Utilities (electricity, water, roads, etc. Report of Earis) = 15 L.E. per person
The cost of dwelling (deduced for Arthur Little Report) = 300 L.E. per unit
Number of units needed = 16 millions / 4.18 = 4 million approx.

The cost

The houses = 300 x 4 million = 1,200 million
Area utilities = 15 x 16 million = 240 million
Community facilities = 100 x 4 million = 400 million

Total cost = 1,840,000,000 L.E.
It is impossible for the government to bear the burden of this huge task alone. The only alternative is for the inhabitants to contribute. 1)

From the table we can see that the income of the majority does not permit them to contribute to the building of a new house.

Inherited Problems

The original site must possess natural topographical and other advantages which determined the existence of the particular village for so long. Among these may be stated the following causes of difficulty in changing:

1. Siting in relation to drainage and irrigation ditches, farmland and roads.
2. Attachment of the village folk to their village, with the mosque where they prayed, the 'dawar' which witnessed their celebrations, the coffee shop where the fellah has his tea and the market with the tree that provided a shady spot for their chat.
3. The villagers do not see the need for transfer. A resistance to change is often met with. Sometimes people are not aware of their real needs even though they may be frustrated in their present way of life.
4. Only 3 percent do not own their dwelling in the villages. This makes the problem even more difficult, involving the dispossession of the great majority.

From the foregoing discussion, the problem appears to be that of providing suitable housing plans or improvements within the income of the villagers, answering present-day needs in the transitional stage of their development.

The Extension

An important point is that the old village is no longer static, but growing and extending.

In the last 50 years the Egyptian village extended enormously beyond the traditional mounds. This was brought about by the change of the irrigation system from basin to perennial irrigation.

1) Personal Income

<table>
<thead>
<tr>
<th>Income/Month</th>
<th>No. of Families</th>
<th>Percentage of total number of families</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than L.E. 1</td>
<td>52</td>
<td>4.9</td>
</tr>
<tr>
<td>L.E. 1 - 5</td>
<td>653</td>
<td>61</td>
</tr>
<tr>
<td>L.E. 5 - 10</td>
<td>288</td>
<td>26.9</td>
</tr>
<tr>
<td>Over L.E. 10</td>
<td>78</td>
<td>7.3</td>
</tr>
</tbody>
</table>
With this rapid growth, law No. 46 of 1942 was promulgated to enforce regulations for the planning of extensions to the villages and the improvement of sanitary conditions in existing villages.

But unfortunately it was too late; the great movement of growth and extension was already well under way, and the law has failed to be fully implemented in any village until now.

The extension suffers from the same old defects, but being beyond the mound it permits in many cases the introduction of better planning, common services and open spaces.

The Ezbas enjoy slightly better conditions than villages. In fact some pioneering work in improving rural habitation took place in Ezbas. The States Act of 1950 stipulating minimum standards for new Ezbas construction should be put into current practice.

The opportunities exist for planning and organizing this extension for future habitation.

From the previous attempts and examples in Egypt we find that planning is based on the "grid-iron" system. This mechanical geometric layout, is hardly more pleasing than the previous village mound. The grid-iron plan uses too many roads of equal importance and is expensive.

It may be said that village planning is in its first steps. It has passed the stage of road planning, to the rudimentary forms of grouping. (See sketch: The Development of Village planning).

Fig. (163) The Development of Village planning

1) An Ezba is an agricultural settlement, a private small village, established by a landowner or an agricultural company. At present there are more than 10,000 Ezbas in Egypt. They usually consist of two parts, the first housing administration offices, storage room for products, and equipment, markshops and stables. The second contains residential quarters for the Fellah. It consists of a row of houses separated by streets and is often surrounded by a fence which has only one large gate. (See Marcau, G.T.)

2) Hassid
The need for collaboration between the planner and other specialists is evident, sociologists, economists, experts in hygiene, teachers, agriculturalists and other should co-ordinate their labours and co-operate. Regional planning needs team-work to produce the general line for an equitable layout, with respect to location and areas of various districts intended for dwelling work, or for recreation, as well as to establish traffic networks.

**Traffic and Communications**

Villagers are to a large extent self-sufficient, but with the inevitably increasing contacts with the rest of the country, trade is increasing, and with it the need for vehicular transport. There is no doubt that in future there will be an increasing use of long-distance traffic for goods and labourers, and that main roads which carry this traffic will affect the location in order that the older villages may make use of modern transport, and to facilitate the movement of agricultural machinery they must be joined by accessible roads to the main roads.

It is important that the main roads should not traverse villages, but should by-pass them, for motor traffic is increasingly a danger to life and limb. As a general rule the main road should be at some distance from the village, while the access roads to it should be so designed that their number is a minimum and at the same time provide good visibility.

It should be also kept in mind that no geometric layout is intended. What is required is that the centre of the village should be connected to the main road with the least possible disturbance to residential quarters.

**New Elements in the Village**

With better technique in agriculture and with the increasing variety of food and dairy products, there is a growing need for all sorts of seeds, insecticides and various chemical products, including of course large quantities of artificial fertilizers. Modern implements together with trained personnel have also to be employed. Provision will be made in part of the old village for co-operative marketing, storage and administration.

Near to the co-operative building centres, it is expected that shops, cafes and restaurants or even hotels may be introduced; advance planning for these is necessary.

**Social Centre**

The social centres now being spread all over the country (as mentioned before), will also have to be designed to serve one or a group of villages. The success of the centre depends also on its locations.
Cottage Industry

To improve the economic conditions of village people, some simple industries could be introduced such as brick-making, lime-burning, weaving, tanning, etc.

Health and Hygiene

Housing and community improvement, particularly in the rural areas, must go hand in hand with the advancement of economic conditions, social education and health.

The environmental sanitation of the village should be improved by providing services such as water supply, drainage, electricity, etc.

Water Supply

For health reasons clean water must be provided in every village. Some attempts have been made to handle this problem 1).

These are two ways of approach:
(a) by a central water plant or (b) by individual pumps through the help of co-operative Societies in the village (or by both).

Where there is a central plant it would be more convenient and practical to have public taps within easy reach of the various quarters of the village. The village provided with clean water in this way can develop some other services such as public baths, washing centres and lavatories for the villagers. This should be grouped in accordance with local habits so as to separate the buildings for men and women.

Drinking troughs for cattle would also help to reduce many live-stock diseases.

Cleanliness

There is a general complaint about the lack of cleanliness in the village roads and surroundings. The government in a half-hearted attempt constituted "village councils" in some of the big villages, one of whose purposes is to maintain general cleanliness of roads and surroundings. This system could be extended to all villages.

1) (a) M. Hassan Goma El-Amara 1953
    (b) A Agamieh El-Amara No. 1-2, 1953
    (c) See The Arab State Seminar 1950
Electric Power

There is no doubt that a source of cheap power ¹ is essential to the establishment of many improvements among which may be numbered water and sewage pumping, lighting and all sorts of cottage industries.

The most convenient way by far is through electricity. The fellah rises at dawn and retires early, as is dictated by his work, and thus the provision of power in the individual home is not of such importance as the illumination of public places and buildings, which give some cheer and character to the village.

(c) Improvements of Dwelling Design

Whether conceived as a machine for living in or as a home for the whole family, a house or dwelling unit must fulfil certain basic requirements, including privacy, shelter, hygiene and safety.

The Egyptian house can be subdivided into three major areas of activity (Fig. 163).

The first area is a well sheltered sleeping and sitting area. The rooms should contain built-in furniture. Each room should have a built-in bed (Mastaba) or seat along one side, a table, shelves or recesses in the wall at a convenient height for storage or for use as closets; there should be hooks on the walls for hanging clothes on.

The roof should be fire proof or as resistant as possible to fire hazards and should be flat, suitable for sleeping on in summer.

The second area is the enclosed open court for out-door living. It is the core of the house and the focal point of family's activity, being equivalent to kitchen hearth in Europe.

Here the kitchen is as a simple roofed-over extension of the court (Arisha).

It should contain storage space for the few kitchen utensils needed and a small open fire for cooking on as well as an oven whose flue could be extended to pass through the sleeping area to provide heat in winter, also a large jar or two for storage of the family supply of grain.

The court would also be used as a children's playground and would contain a stairway to the roof.

The third area contains the stable, a toilet and storage space for cattle fodder and equipment. This area must be separated from the sleeping quarter by the courtyard as a buffer. The stable must be separate from the living quarters, but should permit of easy visual supervision by the fellah.

¹) This may soon be possible in a large number of villages in Upper Egypt when electrification of the Aswan Dam, is completed in 1960, as also for villages in the vicinity of industrial centres or important city power plants.
Fig. (163a/b) The house is divided into three parts.
It should also be located close to the main entrance in order to allow for the easy movement of animals from house to field, and to facilitate removal of manure. The toilet: the fellah does not yet possess a sufficient understanding of sanitation which will induce him to take proper care of any toilet installation, unless it is simplified. The septic tank system has proved to be best. Storage space for cattle fodder and equipment should be located outside the house proper for sanitary reasons and cleanliness.

A word should be said about the floor. It should be firm and smooth, resistant to moisture and water, but not cold and hard for winter.

**Hard and Soft floors:**

Since a great deal of the peasant's life in Egypt is spent on the floor it is of the utmost importance that it should be of the highest possible hygienic quality. This is not the case with mud and mud mixed with chaff, the only materials used in a middle class peasant house all over Egypt.

These floors, with their non-solid surfaces, allow for easy accumulation of dust, dirt and harbour of bugs and insects.

It is well known that mud floors can not be washed as they become muddy and slippery when wet.

Besides so many disadvantages, there are undoubtedly some advantages for mud floors. Raw materials, mud and chaff are easily available to the peasant. Construction and repair are cheap and easy. If floors are kept dry, the thermal conductivity and thermal capacity factors allow for actual living on floors in winter and summer. Finally, there is relatively easy protection from direct contact with the floor by the use of mats (Hasira).

Considering the possibilities of improving floors in the Egyptian rural house, one must see what are the functions performed in the particular rooms or spaces. These spaces can be then classified into two groups some preferably with hard floors, and others with soft.

The main spaces in Egyptian rural houses are: the vestibule (mandarah), the court, the summer or guest room, the winter room, the stable, toilet and bath. For example, the spaces which should have hard floors would be: the vestibule, the court, the stable, toilet and bath. The spaces which should have soft floors would be the summer or guest room and the winter room (Fourn).

Recommended hard floors are made of rammed brocken red brick (Homra) covered with cement plaster. All hard floors would be treated with cement as the necessary hardening and

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1) See Theodorovic
waterproofing layer. Soft floors recommended are: rammed earth and light stamped earth floors (t6f) without cement plaster or soil/cement or landcrete floors or combination of earth and soil/cement floor.

All these floors are reasonably cheap, easily constructed by the peasants themselves and easy to maintain and repair.

**White-washing**

White-washing bestows direct and indirect benefits among which are general cleanliness and beneficial reduction of heat radiation and absorption.

Also, the clean appearance of white-wash is conducive to cleaner habits and maintenance among the inhabitants.

In designing the village house, it must be recognized that the Fellahaen have neither money nor opportunity to provide themselves with small furnishing and household items that are necessary for convenience and sanitation.

In the traditional house there are few elements, for example niches in the thick mud walls of which the houses are built, while a (mastaba) replaces the chair and bed.

There is a wooden "Sandook". The better-off or peasants go to the extreme of using fancy furniture which the peasant does not really need, it being a senseless imitation of comfort as provided in the Egyptian cities.

The village could develop its own furniture, and this can be locally produced either from bamboo (bouss) or palm leave stems (geriéd) or wood. Bouss and Geriéd are already used in upper Egypt. Rural industries of this kind should be encouraged. It would be a great field for artisans and household economists to show us their talent and initiative.

Without these improvements the new house would just be a better-built replacement for the old, perhaps to some extent also more comfortable, but it would not encourage a better state of healthy living.
(a) Considerations of the Choice of Materials and Construction

The architectural form of any village or town is obviously influenced by the building materials which are readily available. These also limit the number of alternative methods of construction. Rural housing must be undertaken at reasonable cost within the means of low income groups, avoiding expensive materials such as red brick, wood, steel or concrete (see sketch for a comparison of costs).

Thus for the success of any rural housing project in Egypt, reasonable considerations must be established as to the materials and construction applicable.

Large quantities of scarce materials should not be used, these being moreover needed for city expansion and slum clearance. Urban demand for steel, concrete, brick and wood has priority. Cities with higher standards of living and higher incomes can get these materials in comparison with the village which cannot afford the high prices. Evidently most of the building materials necessary for city construction cannot be used in village housing if costs are to be kept within reach of the tenants. Imported materials must be omitted as it is well known that a successful housing programme can only be carried out with a minimum strain on the nation's economy.

Costly and unreliable transport facilities in the agricultural areas make it necessary to use local materials. Specialized labour and machinery that would have to be imported either from the city or from foreign sources must be avoided.

The traditional type of building construction in Egypt is, of necessity, based upon the natural products of the soil; in fact, upon the soil itself. The abundant earth is used in various forms for floors, walls and sometimes for roof construction.

From time immemorial the most used and available material in the Nile valley was the sun-dried clay brick, which is a good building material when
properly used, apart from the humid regions in the Delta where red bricks are often used.

The earth, one of the cheapest materials for building, normally within the reach of even the poorest person, has been neglected because of its apparent demands for maintenance and its structural instability in the presence of water. Adobe construction therefore has been used largely in areas of low rain fall but its use need not be so restricted if the buildings are constructed properly.

This is specially true since techniques in the use of admixtures have been developed which increase the resistance of earth to the effect of moisture.

Stabilized and unstabilized mud bricks have been tried in Egypt. Experiments were carried out and successful results were achieved when a small amount of bituminous material was thoroughly mixed into the clay giving the brick a suitable moisture resistance 1).

Further study of the stabilized brick would be of great importance if it would lead to a brick that could stand the humid climate of Lower Egypt, and it would also be a great improvement if the brick could be made to hold plaster for decoration and protection of the outside walls and whitewash or other suitable treatment for the inner walls.

Fig. ( 165 ) Selling price or Material cost in Egyptian Pounds per Thousand Bricks

Construction

In view of the very great increase in cost of all building materials it may be of interest to show the difference in price of a ceiling (which consumes a great proportion of the total cost 2) for a room 3 x 3 m². 3):

1) Some research was made in Cairo University, Faculty of Engineering, also by Arthur Little at Cambridge, Massaschuttes.
   For more precise information concerning adobe the reader is referred to the detached bibliography of "Earth for Homes" - Housing and Home Finance Agency, Washington DC.

2) In the Design Book of the Fellah Department (Ministry of Social Affairs), the cost of a wooden roof was 46% of the total cost of the model house No. 8 of Agaize.

3) The Fellah Department give statistics showing the prices of different ceilings.
a) Ceiling made of wooden boards covered with sackcloth and mortar £ 12,850
b) Ceiling made of reinforced concrete £ 12,500
c) Ceiling in form of arches and domes made of sun-dried bricks £ 4,000.

No matter what type of brick is used the dome, arch and vault seem to be the answer to the roofing problem.

A. Advantage of Dome Construction

1) The utilization of local materials easily and cheaply available to the "Fellah".
2) Reduction of quantity of imported materials such as wood and iron, leading to economy in the State budget.
3) Good thermal insulation due to low conductivity, together with the thickness of mud bricks and the increased volume of enclosed air.
4) It makes use of local craftsmen who have achieved a high degree of workmanship in this type of construction and can easily teach others. This attribute is hereditary. Domes, arches and vaults have been used in Egypt as far back as the early dynasties.
5) It suggests the possibility of using overhead natural lighting and ventilation.
6) No breeding place for insects as in timber and palm stems.

Fig. (166)
Section through typical domed rooms

B. Disadvantage of Dome Construction

1) The loss of the roof space which is necessary as a storage area for the farmers.
2) In summer the roof space is useful as a cool spot to sleep on.
3) The use of extra material and the heavy load on the walls.
4) Much care must be taken to avoid the monotony resulting from the constant repetition of the almost identical circular domes.
5) A psychological objection raised against the dome roof is that Egyptians cannot help comparing domes with the tombs for which domes have been traditionally used (Fig. 167).
Many Egyptians for whom mud bricks and domes lack a certain novelty value, lack the enthusiasm for them engendered by the objective considerations of Westerners.

The pros and cons of dome versus other roofs will be finally decided upon by financial considerations, and aesthetic acceptability is to a certain extent in the hands of the architect.

The application of the Adobe system as a constructional form has been introduced in different parts of the world.

An excellent example of Adobe construction was applied in a co-operative farm by architect De Mars and Burton Cairne in the year 1936-37 (Chandler, Arizona, U.S.A.). The "Adobe" system of construction was selected because it is economical, fire resisting, and gives good insulation. This system is well known in the district and local labourers are quite familiar with it. As these buildings were put up partly with the intention of finding work for unemployed, the system proved very good because a large part of the building cost went in labour.

The new village of Gourna for example was constructed mainly of sun-dried bricks, available at the site, at low cost. Moreover, the dry climate of upper Egypt permits the use of sun-dried bricks and dome-shaped roof construction.

Hassan Fathy, the architect, a man of great talent and deep understanding of village dwellers, has been able to bring out the spirit of traditional architecture without using costly building materials.

1) See U.N. Housing and Town and Country Planning Bulletins
2) See "New Architecture" by Alfred Roth
I believe that the following few lines, written by a visitor to the new model village, expresses the feelings of admirers of the new movement.

"My first visit to this enchanting village that lies across the river has been an unforgettable experience. So many travellers delude themselves into believing that they have found Egypt, who look for her in the picturesque streets of Cairo and the boulevards of Alexandria. Yet within a few square miles around Luxor they would find the true spirit of this attractive country, for here is rural Egypt long ago and rural Egypt of today: the link is unbroken." (Article - Egyptian Traveller Magazine by G.I).

Therefore I prefer to describe this new experiment in a detailed manner.

Fig. (168) The new model village of Gourna
Example: "The new model village of GOURNA"

Village Planning

The old village of Gourna is made up of 5 hamlets and is situated on the Western Bank of the Nile facing Luxor at the foot of the mountains near agricultural land. The population of the village is about 6000.

Fig. (169) A house in the old village

The village was founded in the region of the ancient Tiba tombs, and many of the ancient tombs are annexed to their houses. The misuse of the tombs violates one of the most important, antique areas of the world as many of the monuments were subject to destruction and loss. So the Department of Egyptian Antiquities found it necessary to remove the villagers and build them a new village some distance from this site.
These circumstances, therefore, presented an occasion for the building of a model village where the research of engineers interested in rural construction will be focussed. This setting gives an example of what could be done in other schemes under study by various Egyptian Village Construction Authorities and Institutes.

An area of 50 Feddans was chosen located at the cross section of the two major roads near the Armant railway station. It is bounded by the banks of the Fadilia Canal leading to the temple of Siti on the east, and by the bank of the Farhana Drain leading to the two statues of Amenophis III (Memnon) and the city of Habo, on the south. The area is safe from flooding by the Nile.
Different size of dwellings avoiding standardization
The design took into consideration the local tastes and popular instinct of Upper Egypt, avoiding mechanical repetition in the design, using the architectural and ornamental materials commonly used in the region, which have their own meaning to the inhabitants. Decorations are in keeping with the spirit of the village of Upper Egypt, for this construction was entrusted to local workers and experienced draftsmen. In this way the project is typically Egyptian both in spirit and materials.

Fig. (172) Traditional Dome construction
Fig. (173) Foundations made of limestone

Fig. (174) The traditional stairway in new Gourna
Construction

The basic idea on which the constructional policy of the experimental project was based was that the architect put himself in the place of the fellah, limiting himself to the construction methods and building material available to him, and introduced technical improvements both in material and design without increasing the cost.

Construction materials were limited to those found or produced locally. Unbaked bricks were used for vertical walls, an exception being made for water closet walls which were built with red bricks on foundations of limestone from the quarries of Gourna (Fig. 173). The ceilings are of unbaked brick in the form of vaults and domes like those in the granaries of the Ramesseum and those used in olden times. This design is still in use in Upper Egypt and Nuba (Fig. 176 / 177) with the following advantages:

1. Reviving traditional forms which will save the nation a vast expenditure for the purchase of material which could be produced locally.
2. This type of ceiling requires only mud and straw, obtained locally.

1) For example, a pre-war estimate for building ceilings with wood in rural and farm houses amounted to 60% of the total cost of the house.
3. Wood is scarce and expensive with the added difficulty that the region of Gourna is infected with wood-worm.

4. The unbaked brick ceilings give a smoother effect and are more hygienic than wooden ceilings in that they can be whitewashed with lime from time to time. They also are free of infestation unlike the wood and reeds normally used for cheap construction.

5. The risk of fire, common in Egyptian villages, is greatly minimized.

Fig. (176) A traditional ornament found in the region

Fig. (177) Domes found in the region
General Design

Five original hamlets were designed which were separated by five major roads in the new village.

Houses are built in the form of units composed of neighbouring houses for relatives or those wishing to become neighbours. The house of the head of the clan is in the centre, surrounded by the rest of the houses (Fig. 178).

Above: plan. Key: 1 mosque 2 Khan 3 town hall 4 theatre 5 market place 6 church 7 boys' primary school 8 crafts school 9 girls' primary school 10 bath 11 shops 12 infirmary 13 town square

Fig. (178) General layout of Gourna

There are three types of roads:

a) The five major roads mentioned above diverge from a main square and lead right to the ends of the hamlets which they separate, passing through various squares and open places in which educational establishments stand.

b) Minor streets lead from the squares to the several units making up the quarters.

c) There are access roads giving into an open space within the dwelling group and through which outsiders need not pass, thus affording the inhabitants peace and privacy.

The architect has not grouped all the important buildings in one place, but has distributed them in different places, introducing an element of surprise and giving a certain importance to the various quarters. Particular care is needed to design small houses, especially when they are to be built in large numbers, side by side. The architect paid particular attention to this point in grouping the houses.
Public Facilities

The Mosque (Fig. 179)

There is one large enough to hold the entire population of the village to attend Friday prayers. It is built according to the local style, and the minaret has an outer stairway which is also of a style common in Upper Egypt. Attached to the mosque are a water closet with latrines, together with showers, hot for the winter and cold for the summer.

Fig. (179)
The mosque

Craft's Centre

The agricultural land of Gourna village does not exceed 600 feddans ¹), so that the inhabitants cannot live on income accruing from agriculture alone. It was, thought, therefore, to introduce certain crafts to replace the loss of the old trade. A spot has been chosen to enable craftsmen, who will come to the village, to teach inhabitants such crafts as weaving, spinning, wool dyeing, linen dyeing, as well as pottery, earthenware and straw work, etc.

¹) The feddan measures 4,200 metres.
Omda's Office
The Mayor's residence is situated in the big square. It comprises a large reception room, Government offices, telephone, post office, etc. The reception room is used for special occasions commonly practised in Gourna village. There is also accommodation for government officials who may have to stay overnight for business purposes.

Cultural and Recreational Elements
1. Artificial swimming pool
2. A permanent exhibition of locally manufactured goods
3. A theatre
4. A club
Market (Fig. 181)
The market place is situated facing the main station to afford easier transportation. The market is divided into two sections: one for food products, the other for livestock. The market can also be used as a playground for the children except on market days.

Health and Hygiene

Drinking Water and Bathrooms

The villages obtain their supply of drinking water from uncovered wells on the borders of the desert. As the wells are a considerable distance from the villages, the inhabitants are compelled to economise with the water which is not good, especially in summer when there is a lot of dust and dirt. For this reason artesian wells had been sunk in the centre of the village to a depth of 25 metres. The area around the pump were paved and slightly below road level to prevent surplus water forming mud, as is the usual case in the village.

To facilitate the use of water inside the house until drinking water connections are installed in the village, large pottery vessels will be placed as reservoirs on the terraces which will be connected by iron pipes to taps and latrines. Unlike metal reservoirs they do not rust and they are not affected by heat in the warm weather.

Latrines: Each house has a hygienic latrine with a small faucet which when opened will allow water to wash the latrine.
Sewage: A group of houses are connected with one big sewage reservoir. Inspection boxes are provided at each house to clear the pipes when obstructed, such work to be entrusted to special workers. Experiments on the "Rockefeller" latrines are being carried out and if they prove successful will be commonly used because of their low cost. All these are innovations and reforms on the old type of village.

Trees: Besides the trees planted in the market to provide shade, other trees have also been planted. Each house will have a grape fruit tree and one other citrous fruit to provide nutritious food. They could also be a source of income.

Schools: Most of the older inhabitants have had no schooling whatever and are illiterate. However, their children will be given this chance by the introduction of schools. Two primary schools have been built, one for boys in the north-west of the village, overlooking the Gourna mountain and fields, and the other for girls, located at the centre of the village. The class rooms have been provided with proper ventilation.

Housing
The inhabitants of the old Gourna village comprise rich and poor land owners, merchants, labourers and workers living in houses varying in area between 20 - 600 metres, and in size between 1 - 20 rooms. These houses differ in relation to their importance, shape, building materials, design, etc. Some 20 years ago the Survey Department made a general survey of the old village giving accounts of the area of houses, number of rooms, kind of building material, and their tenants, but this information is of little avail for present circumstances. Therefore a new course was adapted for the design.

Your Neighbour
(From an Arab proverb: Choose thy neighbour before thy house). The inhabitants informed the "omda" (Mayor) of their neighbour preference so that the location of the houses could be planned and designed accordingly. This was not an easy job due to conflicting claims on inheritance and other problems.

Essentials in House Planning
To combine the factors of facility, health and economy, the following points were taken into consideration:
1) Studying the customs of the inhabitants and designing the house in a way to fit their mode of living.

2) Segregating living quarters from livestock but keeping it inside the house; providing a courtyard surrounded by rooms where children can play and at the same time watch the animals. It will be provided with one fruit tree. A stairway will provide access to a veranda where the mother can do her work and keep an eye on the children at the same time.

3) Provision for a stairway to the store rooms and drying space.
Fig. (184) A façade of a house in Gourna

Fig. (185) First-floor plan
Fig. (186) A vertical cross-section

Fig. (187) Foundation plan
4) Built-in furniture for storing purposes, and large stone benches to be used as beds for the fellaheen who is poor and cannot afford separate beds.

5) Providing each house with one open room for sleeping accommodation during the long summer season.

6) Ceilings to be constructed in dome or arch form unless otherwise requested by the inhabitants.

**Bedrooms**

These are constructed to avoid all draughts. Sleeping space is on one side with built-in cupboards on the other side. Windows allow healthy ventilation.

**Installations**

The planning committee of the Model Village made use of the experiments made by the Fel-lah Department in connection with facilities for cooking, baking, heating, bathing, washing, and supply of drinking water. It also carried out experiments on the suitability of the bore hole latrine in disposing of excrement and dirty water, and constructional aspects for disposing of animal excrements (organic fertilizer) by sanitary means.

The following is a description of some of the equipment and installations suggested for designing the folds, preserving local fertilizer and providing the necessary workers.

**Washing Clothes**

The Egyptian fellaha will never change her way of washing clothes, i.e. sitting before a large brass basin full of water. It was thought to devise a plan that will comply with the normal way making a change only regarding the position of the body with the height and distance of the basin enabling the fellaha to do her washing comfortably.

The design is as follows: a large sink 1.20 x 1.20 m, with a seat in front, built of bricks and covered with a layer of cement. A second sink with a faucet under which the clothes can be soaked, is built on to the first one. The fellah can also place the brass over the brick sink, do her washing and afterwards empty the basin into the sink.

The brick sink can also be used as a bath for children, and if built into the bathroom will serve both purposes.

This kind of work will require qualified persons.
Cooking and Washing Utensils

The fellaheen do their cooking on the earth, or on a stove out in the courtyard or next to the stables where they can use wood and dried dung as fuel. They very often cook in the bedroom for kitchens are a rarity in the rural house.

The solution was to build a hearth of sun dried bricks and a fireplace of red bricks with a chimney connection 20 x 20 to dispose of the smoke which is very irritating to the eyes, nose and throat, and which stains the walls. A second chimney or outlet can be installed for disposing of cooking odours and steam. On the right of the hearth is a niche for storing fuel and on the left is a basin for washing utensils connected to either the washing tub or the latrine, whichever is nearest. Kitchens should be large and airy to suit both summer and winter seasons.

Baking Oven

In the case of the baking oven, a chimney similar to that for the hearth can be used. It can be made of earthenware or pottery up to a diameter of 20 cm. The women who built these ovens in Upper Egypt can also adapt themselves to the modified version without any training (Fig. 188).

Fig. (188) A risha with cooking oven
Heating

Though Winter is very short in Egypt, nevertheless, the temperature sometimes drops to even below zero which warrants heating. Usually the fellaheen sleep on the heated ovens but this is not healthy for the body may get into direct contact with the heated surface. Sometimes they make fires to heat the room, but they have to keep them in the open air to get rid of the smoke, then bring them back to the rooms. In this way most of the heat is wasted and the process has to be repeated several times to give any effect.

The excessively cold and long winter seasons in countries of Central Europe compel the farmers of this region to heat their houses both day and night. For this purposes they have devised heaters that do not consume much fuel.

The idea in such heaters is to have the heat pass through channels for long periods. After the smoke has completely disappeared up the chimney, the chimney is tightly sealed and the heat is retained. If the heater is left burning for one hour the conserved heat will last for ten hours, keeping the rooms at a pleasant temperature. The effect is that of a hot water bottle.

Fig. (189)
A chimney in the Architect's house
Fig. (190a/b) The well, vaults and domes
Summing Up

Although much has been said about the lack of economy and the raising of expenditure in the Gourna experiments, we should, before passing judgement, know the reasons which I believe to be outside the scope of the architect. This does not necessarily discredit the project.

The local population not only refused to co-operate, but even went as far as to sabotage the project due to the fact that they refused to leave the old village because of the profit they made from illegal trading in the antiquities found there. Another reason which caused the rise in costs was the governmental bureaucracy, complications, and lack of harmony between various branches which caused stoppage of work on many occasions.

There is no doubt that the architect's ingenuity in reviving traditional forms deserves admiration, although much criticism has been levelled at this project by Egyptian architects who pointed out faults in the scheme. Nevertheless, the step is a great one, which deserves much encouragement and respect. We must admit that this architect has given life to an old heritage with a local touch which I believe to have been quite a difficult achievement, and proving to the world the renaissance of architectural forms taken from the genuine countryside with its ornaments and materials.

It is up to our architects to achieve the object in a way that pleases them, but what is not wanted is imitation or copying of various forms which have neither creative nor aesthetic merits, a position that should be avoided by Egyptian architects. Aesthetics are often confused with luxury or associated with the idea of extra expenditure, or with the non-essential items to achieve the whims and unusual effects. It would be ridiculous to talk of aesthetics based on such conceptions.

But what I would like to express is that truth, proportion, harmony, rhythm and composition, grouping, defining space, plastic moulding, creating elements of surprise, are concepts through which architects can transform the most modest collection of buildings into a work of art.

I believe it would be advisable to form a committee of specialists to make studies of the old and new Gourna villages. The committee would note the advantages and disadvantages of the newly introduced improvements, and register the success or failure of the Fallaheen in using them.

In the light of this data this (not necessarily governmental) committee would then suggest the necessary modifications which, together with the design and experience would be a guide to future village construction.
Fig. (191) Transformation of a modest collection of buildings into a work of art
Leer - Vide - Empty
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Zusammenfassung

Die stürmischen Fortschritte der Mechanisierung und der Technik in den letzten hundert Jahren brachten Veränderungen in der Welt mit sich, die früher mehrere Jahrhunderte erforderd hätten.

Die Wirkung dieser Technik hat es unmöglich gemacht, vom historischen Standpunkt aus zu beurteilen, wie ein heute in Entwicklung stehendes Land im Vergleich zu anderen westlichen Ländern, und zwar zur Zeit gleicher Bedingungen während der letzten zwei Jahrhunderte, da- steht.

Denn die moderne Technik wird überall in Gebieten wirksam eingesetzt, die kaum industrialisiert oder auch nur schon landwirtschaftlich fortgeschritten sind. Ihre Auswirkungen sind ungeheuer schnell und verwirrend, und niemand kann mit Sicherheit voraussagen, welche Resultate sie im Verlauf von einer oder zwei Dekaden in einem weniger entwickelten Land zeitigen wird.


Vielleicht kann der Architekt und Planer in den oben aufgezählten Grundlagen Fingerzeige für zukünftige Pläne finden.

Die moderne Technik muss in Rechnung gestellt werden, doch ist ihre Anwendung den Gegebenheiten des Gebietes anzupassen.

Der erste Teil dieser Studie bietet einen Überblick über die überlieferten Formen des ägyptischen Wohnbaues und über dessen Entwicklung.

Die Studie hat nicht den Zweck, einen alten Stil - sei er nun pharaonisch oder arabisch - neu zu erwecken, doch kann ein Blick auf die Vergangenheit neue Gedankengänge hinsichtlich des altägyptischen Konzeptes über Städte- und Wohnbau befruchten. Da sich diese Formen organis ch aus den Bedürfnissen des Volkes in Aegypten entwickelt haben, können sie vielleicht wertvolle Fingerzeige für eine zukünftige Gestaltung bieten.

Wenn ich Gewicht auf die historische Entwicklung lege, möchte ich nicht etwa unrealistischerweise die moderne Technik unterschätzen oder Vorurteilen gegenüber den heutigen Konzepten der Architektur und Städteplanung Raum geben, die sich manchmal in den in Entwicklung stehenden Ländern bemerkbar machen.

In den jüngsten Jahren zeichnete sich in Aegypten eine Entwicklung in Richtung auf Wohnbau- projekte grossen Masstaben hin ab. Ich habe in dieser Studie einige Beispiele für derartige, vor einigen Jahren errichtete, Musterwohnbauten sowie auch für in Ausführung stehende Projekte gezeigt.
Der Zweck dieses kurzen Überblickes ist es, die Richtung und Grundgedanken der neuen Bewegung in Aegypten darzulegen.

Eine Initiative ist ohne Zweifel vorhanden und sie verdient auch Lob, doch hoffen wir, dass die Zukunft Entwicklungen bringen wird, welche den einzelnen regionalen Gegebenheiten ihren besonderen Ausdruck verleihen werden. Wir müssen uns des eigenartigen Charakters der verschiedenen Gebiete bewusster werden und dürfen uns nicht nur auf engumschriebene technische Normen verlassen, die manchmal von anderen Ländern mit verschiedenen kulturellen Gegebenheiten und daher mit verschiedenen Bedürfnissen übernommen wurden.

Im zweiten Teil bildet die Tatsache den Ausgangspunkt, dass Aegypten in erster Linie ein Agrarland ist.

Wenn wir nur das ägyptische Haus allein betrachteten, ohne uns gebührend auch mit dem ländlichen Wohnbau zu befassen, würden wir die Wohnhäuser von 75% der Bevölkerung des Landes vernachlässigen.

Drei wichtige Punkte wurden in diesem Teil besprochen: die bestehenden Gegebenheiten im Rahmen der Dorfwohngemeinschaft, die Versuche, die zur Verbesserung der Planung von Wohnhaus und Dorf unternommen wurden, und die Richtungen der zukünftigen Entwicklung.

Wir kamen zum Schluss, dass die Unterschiede zwischen den Lebensbedingungen auf dem Land und jenen in der Stadt ausgeglichen werden müssen. Dies müsste so geschehen, dass das Niveau der weniger begünstigten Gebiete auf dasjenige gehoben würde, welches die Regionen mit höherem Lebensstandard geniessen.

Bis dahin - d.h., bis die Zuwanderung aus dem platten Land durch verbesserte ländliche Lebensbedingungen unterbunden werden wird - hat es wenig Sinn, die Slums der Städte zu sanieren.

Jede Verbesserung der ländlichen Lebensbedingungen muss den wirtschaftlichen Verhältnissen der Dorfbewohner, sowie der traditionellen und deshalb auch zweckmäßigen Verwendung der örtlich verfügbaren Baustoffe und Bauformen Rechnung tragen.

Unter den Kennzeichen der Zeiten raschen sozialen Uberganges finden sich Verwirrung und Verarmung des ästhetischen Empfindens.

Es hat den Anschein, dass Aegypten nur unter dem Einfluss der westlichen Zivilisation grosse wirtschaftliche Fortschritte erzielen kann, doch darf aus kulturellen, sozialen und politischen Gründen nicht zugelassen werden, dass dieser Einfluss die bodenständige Kultur zerstöre oder verwische.

Deshalb bedarf es in der Ubergangsperiode der Geduld, des Selbstvertrauens und sehr viel schwerer Arbeit, wenn die unserem Wesen gemässe Form entwickelt werden soll. Wenn wir Aegypter das nicht zuwege bringen, werden wir auch weiterhin die gegenwärtigen Schaustellungen eines verwirrten Gemisches von "Halbkulturen", wie sie sich in unserer zeitgenössischen ägyptischen Architektur widerspiegeln, erleben.
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