THE PLANNING OF RURAL LAND USE IN THE NILE DELTA

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INTRODUCTION

The total population of Egypt now amounts to approximately 23 millions. Of this total 70% live in the rural areas and of these 70% are engaged in agriculture.

During the last half century the population has doubled having increased at the rate of about 400,000 per year. The area of the cultivated land, on the other hand, has been increased only by about 20%. The present total area of cultivated land is about 5.5 million feddans (1), and the possibilities of reclaiming land are strictly limited being dependant on the water resources of the Nile.

The out-put per worker from the cultivated land is still far less than that in many other countries (2). On the other hand, the yield per feddan is high in the Nile Delta, but in view of the large numbers engaged, (by reason of the population pressure and dependence on primitive agricultural methods), the per capita production is low. The rural density of population in the Nile Delta is about 1,400 persons to the square mile. This great and continuously increasing pressure on the land is the major obstacle to attain the high productivity which could be achieved by the application of mechanization to agriculture and the consolidation of the fragmented holdings of the cultivated land. (See appendix 2).

In addition to the basic problem, the rural areas are beset by other problems of a social nature - illiteracy and ill-health. Many proposals and schemes are now being implemented to deal with these problems both in the educational and hygienic spheres, as well as in the main field of economic development. These schemes however, have been concieved on a somewhat piecemeal basis, in the absence of

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(1) A feddan approximates closely to the English acre being 1.038 acres. See Appx 1.
(2) The average out-put per head amounts to one third of a ton of wheat as compared with an average out-put of 2 tons per head in Western Europe and one ton per head in the countries of East Europe. The productivity of the British Farmer is 2.66 times that of the Egyptian.

any overall regional plan of the area. The need for such a plan is becoming increasingly apparent, and it is the purpose of this thesis to examine the foundations on which such a plan should be established in order to secure the maximum benefit.

From the point of view of rural life generally, there are no major differences between the various rural parts of the country; therefore, any conclusion drawn from a study of the Delta area would be, to a very large extent, also valid in other rural parts of the country. The Delta area, however, being the largest of Egypt's agricultural regions and the most intensively developed, offers the greatest scope for examining the common problems at their maximum intensity.

The major rural problem of the Nile Delta is not the poor housing conditions nor the low standard of living so much as the great pressure being put on the cultivated land through overpopulation. Any projects for combating disease, illiteracy or poverty will be in the end defeated if the problem of overpopulation is not overcome.

The solution of the problem is made especially difficult by reason of the fact that, in attempting to remove certain consequent social ills, a vicious circle can be established all too readily. The successful combating of poverty disease and illiteracy will reduce the rate of mortality and consequently increase the number of population which is the main problem. This might be offset to some extent by a reduction in the birth rate as a result of consequent changes in social standards, but in its turn - in the case of Egypt - the value of any such slowing down of population growth would be insufficient to enable the expansion of cultivated land to keep pace even with the reduced rate of growth (1). Consequently other measures are necessary if the population is to survive.

It has been thought that industrialization together with agricultural expansion to the limits possible through control of the Nile waters might solve the problem. But will this really suffice to meet this problem which is daily becoming more acute? . . . . . .

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(1) The rate of growth of the cultivated land is about 15% and of the cropped area is about 25% of the rate of growth in population and which is about 2.5%

And even if these two policies were sufficient to meet population growth, would they, in themselves, bring about an adequate reformation of rural life and of rural settlement pattern and structure? These are the questions to be answered before a unified and comprehensive policy for the rural parts of the country can be framed. Furtherfore, in attempting to frame such a policy it must be remembered that the present rural structure in the Nile Delta has continued almost unchaged for thousands of years and is based on age-old traditions, many of which are even now still passionately cherished. Any future changes must, therefore, be conceived in this context with all the care and consideration of the human side of the problem which the conditions demand.

The present limitations on agricultural production in Egypt today coupled with the pressure of population on the economic resources of the country are giving rise to a problem which is becoming daily more acute. Besides horizontal expansion in the cultivated land, it is essential at the same time to start on some vertical schemes (1) for increasing the productivity of the present cultivated area to produce the most it can yield in the most economical manner. Such vertical reform generally gives quick results at relatively low cost particularly if it is applied not only to the existing cultivated land but also to any land reclaimed under a horizontal scheme.

Combination of crops, fertilization, and irrigation are the main characteristics of Egyptian cultivation. The yield of the land is very high in spite of methods which are uneconomical as compared with European standards; the implements are out-of-date, and the human labour is wasted on an incredible scale. But these very primitive methods have produced a very stable kind of cultivation and have contributed considerably towards keeping great numbers of the rural population in the villages. This is a fact which mechanization cannot easily challenge.

Rural industries, on the other hand are in a very poor state and need immediate reconstruction. They are of special importance because they constitute the focal points in the process of the changing structure of rural settlements. In spite of their primitive methods they introduce a new spirit into the village;

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(1) By means of improving soil qualities, using selected seeds, improving drainage, and consolidating the fragmented holdings which dominates the rural areas.

the spirit of the machine, of modern commerce, and of co-operation on a broad basis. Yet this problem can be solved only within the larger framework of rebirth of the whole country. 'It is especially closely linked up with the rejuvenation of agriculture and village life, so much that a separate development is not feasible.' (1)

The population problem remains a very acute danger for Egypt. It is not only one of reducing but of gradually redistributing the population if any new reclaimed land becomes available. It has been suggested that the problem can best be met by some form of population control (e.g. birth control) as raising land productivity will be amere palliative if the population continues to grow. Another measure which has been considered is that of immigration to such countries as the underpopulated neighbouring Arab states. But such a measure involves social as well as political implications which cannot be resolved unless greater units between the Arab nations is achieved. It seems that the only refuge for the excess in population are the great Egyptian deserts.

Although the problems of rural Egypt are cultural and hygenic as well as economical, the economic problem must always be given prior consieration. The procedure of development must be run on parallel lines representing the three aspects of (a) economy, (b) culture and (c) health, drawn against time and resourses.

The Egyptian Region of the United Arab Republic now embarked upon an important phase of economic reconstruction under three major schemes. The first is that of industrialization which will absorb half a million workers over a period of five years and is to be followed up by a second five year industrialization plan starting in 1963. The second main scheme is that of the High Dam near Aswan, which is due to be completed in ten years time from now. This project will help in the reclamation of about two million feddans in the Nile Deltas as well as providing perennial irrigation for another 700,000 feddans in Upper Egypt. The third scheme is that of the 'New Valley' which is designed

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(1) E.A. Gutkind: 'The Revolution of Environment.' London 1946. page 266.

to link up the existing oases in the Western Desert as starting points towards creating another valley starting from a point about 300 kilometres west of Aswan the various oases serving as radiating points from which an area of some 3 million feddans could be cultivated from underground waters. These long-term schemes and others in the field of rural reconstruction will eventually affect the rural structure of the country, and the Nile Delta in particular. Owing to the present lack of any organised surveying and planning activities on a regional bases in the areas, it has been necessary to collate all available information on existing conditions in the Delta and its implications, in order to discover the foundations on which a regional planning system might be built.

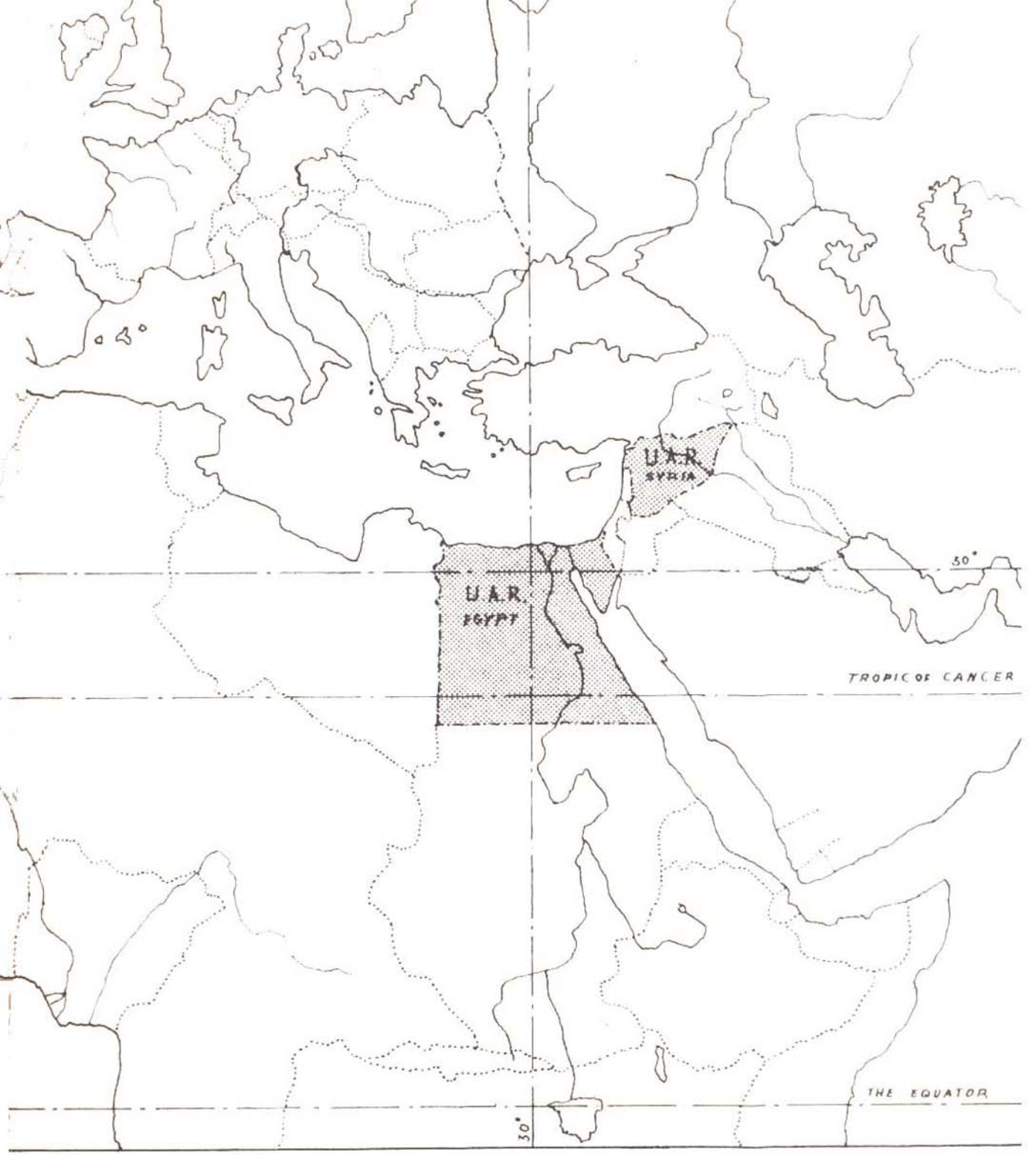
The approach to this study is based on a general outline of the country as a whole from the physical and the economic points of view. The rural land uses in the Nile Delta are then examined together with the physical social and the economic determinants. This is followed by a brief accountof the national policy for rural reconstruction particularly the agricultural policy and the Land Reform measures. The effects of mechanization and the limitation of its application ~~in the~~ to Egyptian agriculture are also discussed. The present scheme for industrialization is examined with regard to its effects on the rural structure of the country. The problems resulting from the existing land tenure system and the effects of land fragmentation on agricultural production are also given relatively detailed consideration in this study. It was also found necessary to examine the question of the consolidation of holdings together with the possibilities of its application and its implications in regard to the rural structure.

It was impossible to examine in detail the existing conditions in the whole of the Nile Delta region, but a comprehensive regional survey has been carried out in a typical rural district in the Delta in order to secure a representative picture of the rural conditions. In the course of the study it was found necessary to divide this district into several planning units as a suitable basis for a planning system in the rural area. A typical rural settlement together with its cultivated land was then examined in further detail to get to the roots of the problem. The possibility of applying a new planning method, derived from these studies is then demonstrated.

Naturally, this is not the end but the beginning of a new approach towards planning rural land uses in the Nile Delta. More is still to be learned from research not only in the economic and the social fields, but also in other fields such as rural housing and building materials. Only when such studies are completed will it be possible to put forward proposals for a comprehensive planning system and the establishment of reliable standards for the future development of the rural areas of Egypt.

PART I

NATIONAL FACTORS



EGYPT'S SITUATION

MAP NO.1

CHAPTER I

GENERAL BACKGROUND

Before considering the Land Uses in the Nile Delta it is essential to give a general picture of the whole country as a background for the problem.

Physical Features

Situation:

Egypt forms the north-eastern corner of Africa and occupies nearly one-tenth of the total area of that continent. Bounded on the north by the Mediterranean on the south by the Sudan, on the west by Lybia, and on the east by Palestine and the Gulf of Akaba and the Red Sea. Egypt measures 1,073 kilometres (about 750 miles) in length, 1,226 kilometres (about 950 miles) in breadth and embraces a total area of almost exactly 1,000,000 square kilometres.

The situation and comparative size of Egypt is seen from the map (No. 1), showing it to be in a strategic position connecting the three continents of Europe, Asia and Africa and serving as a focal point in the main system of communications.

Geology:

The deposits composing the present-day land surface of Egypt comprise strata representatives of all the five great eras of geological time, though not of all the Periods comprising some of those eras.

The distribution of the deposits of the various periods as now exposed at the surface in Egypt is shown on the geological map, (No. 2) (1)

A great complexity of igneous and metamorphic rocks the Archaeozoic (2) and Proterozoic Eras (3) form the very base of the country's structure.

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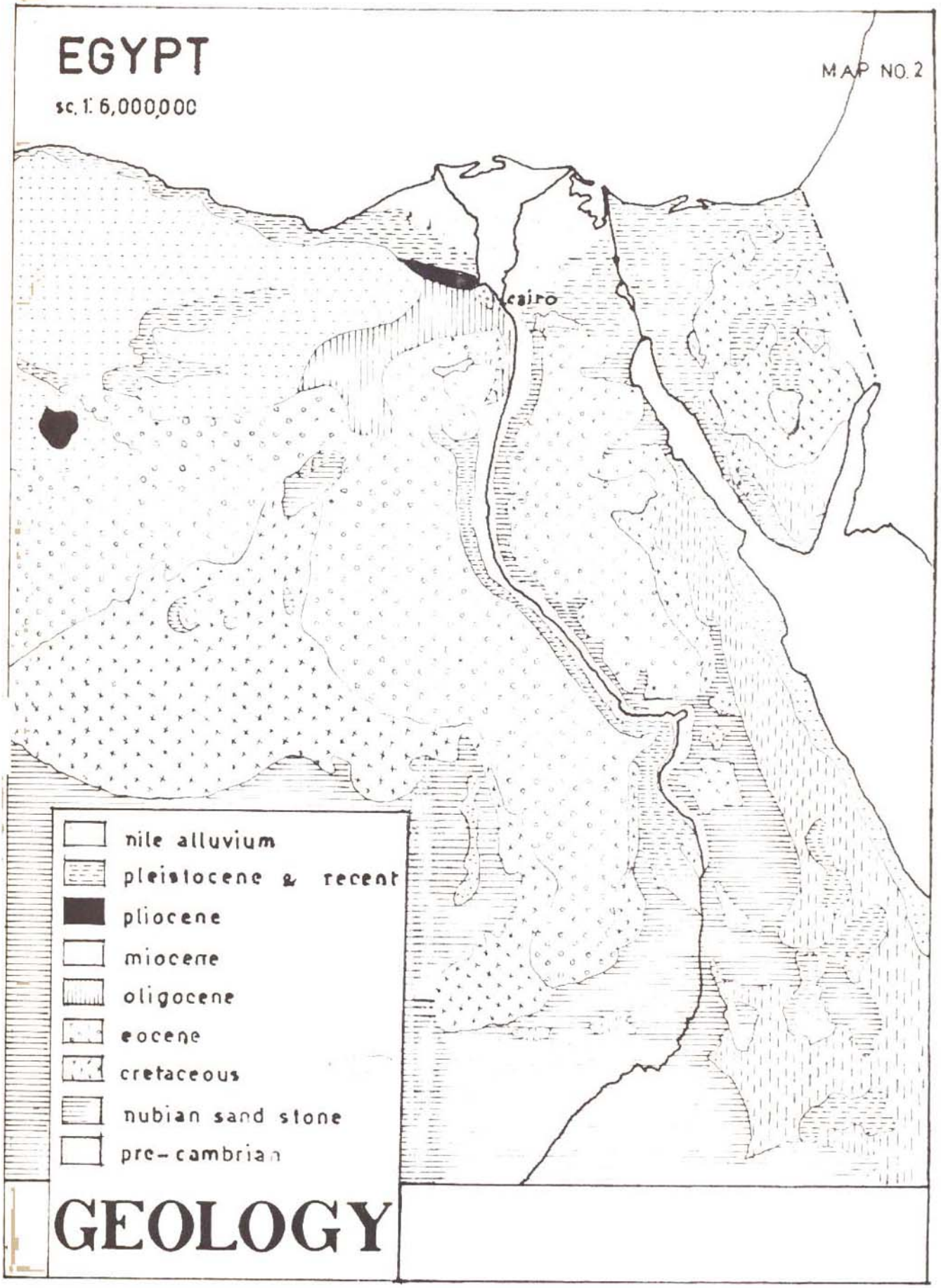
(1) Ball 'Contribution to the Geography of Egypt.' - Government Press Cairo 1934 - page 15.

(2) Ended about 1,000 million years ago.
(3) Ended about 500 million years ago.

EGYPT

sc. 1: 6,000,000

MAP NO. 2



GEOLOGY

The Palaeozoic Era[1] is represented only by deposits of the Carboniferous Period, layers of sandstone and limestone of this period forming the first cover to the Archaeozoic rocks. Representing the Mexozoic Era[2] are sandstone, marble, limestone and shales. (500 metres in thickness) of the Jurassic period as well as Nubian sandstone of the lower Cretaceous series with a thickness of 500 metres and covered by a series of limestone and clay nearly of the same thickness.

Each of the six Periods of the Cainozoic Era[3] is represented in Egypt; firstly by a Series of limestone, marble and clay, with a thickness of about 700 metres, of the Eocene period[3]. By the end of the Eocene a gradual rise of land took place while the Eocene sea was retreating northwards. From the Oligocene[4] onwards, the northern part of Egypt, down as far as the lattitude on which Cairo now lies, was under the sea. The sea therefore covered the whole of the present Delta area. By the late Miocene period[5] all Egypt except the Delta proper and a coastal fringe was part of the main land. For the first time in its physiographic history the Nile began to approach its present-day course at the head of the present day Delta. During the Pliocene period[6] a rise occurred in the sea-level and the sea-water filled part of the Nile valley as far as Esna - in upper Egypt - giving rise to a long estuary. Towards the end of this period a new change of land level in relation to the sea occurred which caused the sea coast to move towards the north. With the beginning of the Pleistocene period[7] the filling of the Pliocene gulf began giving rise to the present day Delta.

Geographical Features

Egypt falls into six closely defined geographic regions, viz :-[8]

(a) the valley and Delta of the Nile
(b) the Faiyoum
(c) the Suez Canal Zone
(d) the Western Desert
(e) the Eastern Desert
(f) the Peninsula of Sinai

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(1) Ended about 175 million years ago
(2) Ended about 50 million years ago
(3) Ended about 30 million years ago
(4) Ended about 17 million years ago
(5) Ended about 10 million years ago
(6) Ended about 500,000 years ago
(7) Ended about 20,000 years ago
(8) Atlas of Egypt. Survey Department - Cairo - 1928

The cultivated land is confined to the Nile Valley, the Delta, and the Faiyoum province. Within the cultivated area, the eye rests everywhere on a level expanse of flourishing fields dotted with villages and palm groves and intersected by numerous canals of running water, while in the deserts the prevailing aspect is one of utter desolation, of bare mountains and hills and stony plateaux. The contrast is heightened by the suddenness with which one type of landscape gives place to the other. (See map No. 3)

Here we are concerned with the valley and the Delta of the Nile. From Aswan northwards the flat strip of cultivated land gradually increases in width at the same time the height of the cliffs on both sides decreases as Cairo is approached at which point the valley opens out into the Delta formed by the branching of the river just north of Cairo. The average width of the flat alluvial floor of the Nile Valley between Aswan and Cairo is about 10 kilometres. It is noticeable that the cultivated land on the west of the river is, as a rule, wider than that on the east.

The River Nile feeds an extensive system of artificial canals over the narrow strip of alluvial land on either side of the river within its trough-like valley, and over the broad expanses of the Faiyoum depression and the Delta. This alluvial area occupies about 3% of the total area of the country and is one of the most fertile lands in the world, being capable of supporting a very dense agricultural population.

The Nile Delta has an area of 22,000 square kilometres over half of which has been cultivated. The northern part of the Delta is occupied by extensive shallow lakes and marshes, some of which have been reclaimed. The rich agricultural lands of the valley and the Delta of the Nile have been entirely formed by the deposition of sediment of the river's water (1).

Practically all the towns and villages of Egypt are situated in the Nile valley and Delta. All towns and principal villages are connected by railways and by motor roads, the latter mostly occupying the banks of canals. A considerable amount of internal commerce between towns and villages situated on the

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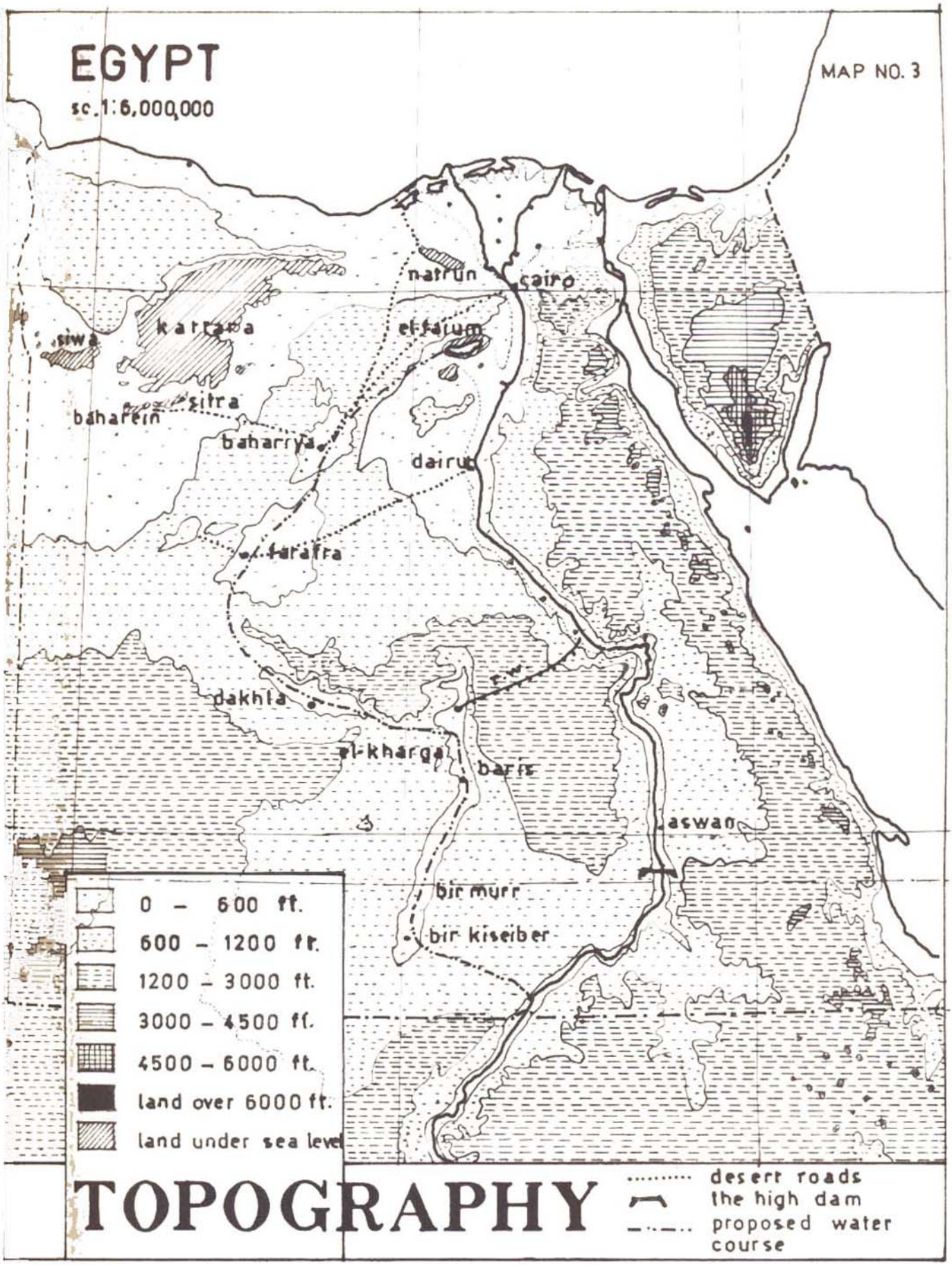
(1) Ball, J. 'Contribution to the Geography of Egypt' Government Press, Cairo, 1939, page 33.


EGYPT
sc. 1:6,000,000
MAP NO. 3
natrun
cairo
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dakhla
el-kharga
bariis
aswan
bir murr
bir kiseiber
0 – 600 ft.
600 – 1200 ft.
1200 – 3000 ft.
3000 – 4500 ft.
4500 – 6000 ft.
land over 6000 ft.
land under sea level
TOPOGRAPHY
desert roads
the high dam
proposed water course

river and the main canals of Egypt is carried out b the sailing craft, relying on the wind to travel up-river and the current to float down-stream. The development of the means of communication throughout the country has been given much consideration in recent years.

The Alluvial Land:

The alluvial land of the country, the cultivation of which occupies the vast majority of the Egyptian population and provides the principal source of wealth of the country, consists essentially of blackish brown Nile mud. This has accumulated to a considerable thickness in consequence of the river having for thousands of years annually overflowed its banks and deposited suspended matter on its flood plains.

The thickness of the deposit varies in different localities, the variations depending partly on the sand and gravel on which it was originally laid down and partly on successive changes in the line of the river.

The main thickness of the Nile mud proper varies from about 6.7 metres between Aswan and Qena, to about 11.2 metres in the northern part of the Delta, the average thickness in the Delta being about 9.8 metres and between Qena and Cairo about 8.3 metres. (1)

Not all the alluvial land formed by the Nile mud is at present cultivated. Large areas in the northern parts of the Delta remain as yet untilled because they lie at such low levels as to be difficult for proper drainage. Almost in every province in Egypt there are some uncultivated areas owing to irregularities of surface and others where moisture cannot be retained, but these areas are relatively small in number and area.

The spil is classified into two types:- (2)

(a) Black alkali soil formed in localities where the level of the sub soil-water has risen nearly to the surface.

(b) Gypsum-veined soils, formed in localities where the rise has not been so great.

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(1) John Ball, Contribution to the Geography of Egypt. Government Press Cairo 1939, page 162.

(2) John Ball, Contribution to the Geography of Egypt, page 35

The two types are alike in being retentive of water, but in other respects they are different from each other, these differences being referred to in detail later in the thesis. (See Chapter II)

The Nile Water and the Land:

The country's land is irrigated by a vast system of canals. The Aswan dam gives the advantage of continuous irrigation throughout the year, particularly in Lower Egypt.

Each feddan receives about 7,000 cubic metres of water which leaves eight to nine tons of silt.(1) Immediately after the water is drained off (about November) the crops are sown. They are then left until the harvest time without further irrigation.

The Nile no longer completely floods the land. Its water is stored in reservoirs then distributed through barrages into a network of canals which water the land throughout the year.

The Nile is in flood from Agust to October. When the flood is over and the water level is subsiding between November and April, the land being still moist retains sufficient water for the winter crop. During the low water period from April to July, the reservoirs are gradually emptied to provide water for ripening a second crop, called the Summer crop.

The sun by its summer heat cracks the soil so reviving the fallow land and mellowing the soil by letting the air penetrate deeply into the earth. Thus the land is dehydrated and renewed.

We see the Nile, helped by the sun, continuously at work preparing and cultivating the land, and so determining the Fellah's physical environment and his livelihood.

Climate:

Being situated between the lattitudes of 22° and 32°N. Egypt lies for the most part within the temperate zone, less than a quarter of it being south of the Tropic of Cancer. It is characterised by a warm and almost rainless climate, with the exception of the coastal ar as. The air temperature in Egypt frequently rises to over 40°C in the daytim and during the summer (i.e. 100°F)

(1) Hurst, H.E. the Nile. London 1952 page 165

and seldom falls as low as 0°C (i.e. 32°F) even during the coldest nights of winter, and the average rainfall over the country as a whole is only about 1 cm a year. Along the Mediterranean littoral, where most rain occurs, the average precipitation is 20 cm. and the amount decreases rapidly as one proceeds inland from the coast. The average at Alexandria is 19cm. at Cairo (170 kilometres south) it is 3 cm. at Asyout (300 kilometres south of Cairo) it is ½ cm., and at Aswan (600 kilometres south of Cairo) there is practically no rain at all. In some years heavy rain may occur, but never for any lengthy period. In summer, late spring and early autumnsunshine produces quite high temperatures, particularly when the sun shines from clear, cloudless skies.

In these times the shade is a pleasant relief from the heat of the sun. However, during the winter the sunshine is very welcome, for the weather can be cool and the wind keen, although the period when such conditions are likely to occur is not very long, usually lasting from mid-December until the end of February. As a result of this the solar heating properties are just as welcome in the winter as the sunshine is objectionable in the summer.

A north-westerly wind prevails almost all the year long apart from the autumn when the wind is mainly south-easterly.

With such a scarcity of rain, it is not to be wondered at that by far the greater part of Egypt consists of barren and inhospitable desert.

THE PEOPLE

It is still not possible to give any very definite answers to the precise origins of the Egyptian people. The ethnologists of the eighteenth, nineteenth and the twentieth centuries have built their various interpretations of the origin of the Egyptians on different evidence and findings.(1) But it can be said that in prehistoric times Asiatic invaders, perhaps Arabs of Babylonians, conquered the Nile Valley and intermingled as the predominant race with people who were already there being probably a composite stock comprising a mixture of indigenous population combined with elements from . . . . . .

(1) Petrie, Sir. W.M.E. 'The Making of Egypt': 1939

Ethiopia and North Africa.

Three original types are recognised;(1) (a) The Semites, (b) The Mediterraneans, (c) The Libyans. But the climate and type of life soon wore away all but superficial differences between them and created a specifically Egyptian stock, the Ancient Egyptians of the pre-dynastic period (2).

The age of the Pharaohs(3) (which followed the pre-dynastic period) appears to have left a lasting imprint on the Egyptians, especially the fellaheen. The present fellah differs but little from his predecessor of 5,000 years ago. From the Pharaonic Period he has derived much of his social life and many of his habits and beliefs. His environment, his work, his dress, his manners, and nearly aspect of his life have changed very little over the centuries.

During Egypt's long history the country has seen many civilizations, invasions and conquests. The effects of these civilizations were to be seen in the big towns and cities rather than villages, which were somewhat outside the stream of change, as their poor and ignorant inhabitants could be so easily kept down. The main exception to this rule was the Islamic civilization which spread its effect throughout the length and breadth of the country and impinged upon all clasdes of the community, in so far as its religious faith was concerned. The village still retained its ancient habits and general way of life but adopted the practice of the Islamic religion.

There are, however, even today, conflicts between the Islamic culture and practices, derived from the ancient way of life, which still persist.

Egypts offers a clear example of a correspondence between human concentration and physical productivity. Here probably more than anywhere else irrigation and population are coextensive. The number of population appears to have varied throughout Egypt's history and pre-history.(4) Prehistorical discoveries give early indications of the population fluctuating between seven millions, the

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(1) Ayrout, H. The Fellaheen, A Schindler, Cairo 1945, page 21
(2) Ten to fifteen centuries before 3200 B.C.
(3) From 3200 B.C. to 100 B.C.
(4) Bridge, Sir, F.A.W. 'Short History of the Egyptian People, London 1914

given by Diodorus Siculus, and ten millions. In the time of the French occupation the number was 2.5 millions. The first detailed census in 1873 showed five million inhabitants. In 1927 the number has risen to more than fourteen millions. In 1937 it stood at 15.9 millions. In 1947 the number was eighteen millions, and in 1957 the number was estimated at twenty three millions and by 1977 the number may jump to as much as thirty three millions.

Out of the total population of Egypt 93% dwell in the basin of the Nile which represents only 3% of the whole territory. In this area the towns, overcrowded and few in number, contain about six million inhabitants. The rest of the Egyptians are country folk.. According to official records 70% of the population of the country folk work in the fields (1).

Thus the rural density of population is about 1,400 persons to the square mile(2). There is much work to be done by the fellah. Help is therefore wanted as cheaply as possible; and the cheapest available is that of his own children. Thus the fellah is forced by the exigencies of the land to have children and as many as possible. This for him is the meaning of marriage and family.

Where conditions are less favourable to agricultural production the density decreases. In the south it is about 800 people per square mile. Around Kafr El-Dawar, further north, it is about 200 per square mile. The maximum is reached in the province of Menoufya where the density is over 2,000 persons per square mile.(3)

There is still another factor of prime importance to be considered, that which results from the fellah's ignorance and ill-health, This factor gave the fellah a stable unadventurous disposition. He stays tied to his native village which represents for him security of both past and present. Migration is comparatively rare, even between the different provinces of the country.

For 5,000 years the fellaheen have endured misery, poverty, supression, disease and ignorance so that the Egyptian of today is faced with a long-standing problem of a most complicated nature and one which every day grows more pressing.

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1) General Census 1947, Ministry of Finance, Cairo 1949
2) General Census 1947, Ministry of Finance, Cairo 1949
3) General Census 1949, Ministry of Finance, Cairo 1949

LAND AND THE STATE

In Ancient Egypt the Pharaoh had been, theoretically, the sole owner of the country and all that was in it; in practice, however, he had been merely the head of a state in which private property and private rights were respected.(1)

The Crown had large estates, but the greater part was in private hands. All land was under the control of the State. In practice, the result was that all land-holders merely leased their land from the State, with this anomaly, that the lessee was bound to the land but the State could dismiss the tenant at will.

The farmer was forced to remain at the place where he was registered. He had to cultivate the land, sow, reap and transport his crop at his own expense.

Besides his own legitimate work, the State required the farmer to keep all the canals in repair and to transport State property, all without pay. The farmer was also ordered what to grow on his land. The production was then heavily taxed. Rent or taxes were paid in kind, and to whatever limit the State demanded.

After the Roman occupation the trends in land ownership and tenure followed the pattern prevalent during this period both in Europe and Asia. The land was divided into areas owned and administered by strong princes or alternatively by soldiers as was often the case after a military invasion of the country such as the Turkish conquest in A.D. 1516.

The system of land tenure was still feudal, having hardly changed since the establishment of the Mameluke(2) regime, which supplanted the Ayyubid dynasty established by Salah Al-Din in 1163 A.D. after his defeat of the Crusaders. The leading Mamelukes parcelled out of the country, each controlling a group of villages whose taxes he often farmed, and holding tax free land. Excluding 'Wakfs' (mortmains in favour of religious institutions), the bulk of the land consisted of communal land subject to tax. Peasants enjoyed no property rights

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(1) Francis, W. Agriculture in Egypt, Government Press, Cairo 1949
(2) A Pretorian guard of Circassiun and Central Asian salves who enjoyed many civil rights. They were more like soldiers of fortune than slaves. Many came to Egypt on their own free will.

and were tied down to the soil, but in practice they were left undisturbed and allowed to hand the plots down to their children provided they met their taxes and supplied the requisite corvee[1] labour on the tax farmer's estate and performed the necessary irrigation works.

During the transition period after the decline of the Ottoman rule (in the 18th century) and the rising of the Mamelukes, the fellaheen took the opportunity of the troubles which occurred during this period and secured a somewhat stronger hold on the land they cultivated. By this time the land could be inherited and the fellah secured all rights of selling transferring the ownership of his land. During this period the personality of the fellah started to emerge and develop so that soon a strong public opinion grew which was opposed to the Turkish rule. The religious leaders were at the head of this movement and they decided that the best way to get rid of the Turkish rule would be by establishing their own military force. They chose Mohamed Ali (an Albanian officer) for its command and eventually he became the ruler of the country.[2]

Under Mohammed Ali the land system was considerably modified. On the one hand, large tracts of uncultivated land were granted to his own relatives and followers. On the other, plots of 3 to 5 feddans were alloted to peasants who, though not enjoying legal ownership of the land, could freely dispose of the produce.[3]

After a certain period of good rule, Mohammed Ali took the land ownership documents from the tax collectors and gave them large estates called 'Wasayia' to cultivate, free of tax forever. The fellaheen consequently became landless and worked as slaves for the new rulers.

A cadaster was made and collective village responsibility for taxation abolished in favour of individual responsibility. Between 1813 and 1818 Mohammed Ali divided the cultivated land of Egypt into defined areas with dividing boundaries between the villages, whilst within the village areas the land was further sub-divided into different allotments. A number of fellaheen were

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(1) Forced labour
(2) July 1805
(3) Issawi, C. Egypt at Mid-Century, Oxford Press, London 1954. page 21.

appointed to cultivate each of these allotments under specially severe conditions.

Due to the injustice and the ill-treatment which the fellaheen received, many of them emigrated to the Syrian Region. The number of migrants amounted to 6,000 as estimated by Abdel El-Raffii.(1)

Many foreigners were called to Egypt to help Mohammed Ali in the administration of the country's affairs. They were given large estates (totalling about 200,000 feddans) as grants called 'Abadyiat'. The rest of the cultivated land was distributed among the members of his family in the estates called 'Schafeleks'.

Until 1840 the fellah was subject to the system of monopoly. He had to deliver all his cotton to the Government at a low price. But the Sultan remained the sole owner of all conquered land. Estates of former Sultans remained outside this control. Vast areas still uncultivated were allotted with full rights of ownership to notables, high officials, or members of the ruling house, who were in a position to bring them under cultivation. This is the origin of the large estates. Small property came into being by a slow process which began with the sub-division of the land.

In 1846 transfers and mortgages of property were authorised. Under Said, the rights of male, and subsequently, female heirs were recognised. In 1871 Ismail's financial embarrassments led him to offer absolute property rights to all those paying six years in advance (Mukabala law). In 1858 foreigners were authorised to purchase land.(2)

After seven years of Ismail's rule (1863 - 1879) the area of land which he owned increased from 25,000 feddans to 950,000 feddans divided into 51 estates. About 876,863 feddans were given to his relatives and his foreign friends.(3)

During his rule, the influence and prestige of foreigners became stronger. Their affairs were dealt with by their own consulates. In the meantime, the Consulate's Tribunals were established. Every consulate had its own law applied to its own subjects. These Tribunals used to deal with the registration, the selling or the mortgage of land between its subjects and the fellaheen. In 1875

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(1) Marii, G. Agrarian Reform in Egypt, Government Press, Cairo 1958, page 8
(2) Ibd.
(3) Issawi, C. 'Egypt at Mid-Century. Oxford Press, London 1954. page 21.

this legislation was taken over by the Mixed Tribunals on behalf of the foreign countries without any consideration being given to the local law.

During Tawfik's rule (1879 - 1885) the Government sold most of its cultivated land in large lots to the rich families of the country. In 1891 owners of areas of land subject to taxation were given the full rights of ownership.(1)

Thus in the space of thirty years Egypt effected the transition from communal to small-scale individual ownership. The benefits of the change are obvious but it also had its drawbacks in the form of excessive fragmentation of farms and heavy indebtedness to mortgate banks and usurers.

At the same time the area under cultivation was extended from 3,050,000 feddans in 1813 to 4,743,000 feddans in 1877 and an increasing share went to cotton.

Under Said and Ismail, 8,400 miles of canals were dug. These canals tended to silt up and required much forced labour to keep them clear.

Cotton absorbed much labour. The population in spite of Mohammed Ali's wars and a high death-rate grew rapidly to about 6,800,000 in 1882, but the demand for labour was such that a shortage was felt and a remedy, fortunately unsuccessful, was sought in the establishment of foreign colonies on the land.

After a phase of widespread abuses in land surveys in every province, a survey department undertook the immense task of demarcation in 1892. After due consideration of roads, canals, and natural boundaries, the land of each village called (Ziman) consisting of an average of 2,000 feddans was divided into sections (hods) of 50 to 100 feddans and marked off by iron boundary pegs. The village site was shown as a single area and exempted from taxation. This work was completed in 1907.

The Aswan Dam, completed in 1902 and heightened in 1907-10 increased the quantity of water available in summer by over 2,000 million tons.(2) Middle and Lower Egypt were converted to perennial irrigation and the basins of Upper Egypt assured of a regular supply. The cultivated area rose from 4,764,000 feddans

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(1) Issawi, C. 'Egypt at Mid-Century.' Oxford Press, London 1954 page 21
(2) Willcocks, Sir. W. and J. Craig. Egyptian Irrigation - vol. 1. London 1913.

in 1881 to 5,658,000 in 1911 while the crop area[1] increased to 7,712,000. The bulk of the increase was taken up by cotton, which in 1913 accounted for 1,723,000 feddans (22% of the crop area) and by maize, whose acreage increased by nearly 50% to 1,306,000 feddans, its relationship to the total fell from 21% in 1879 to 17% in 1913, while the acreage under beans actually declined.

The population continued to grow swiftly, from 6,800,000 in 1882 to 12,750,000 in 1917[3]. The rate of growth, however, persistently declined as the shortage of labour came to an end. It may be said that the turn of the century marks the end of the period of labour shortage and the beginning of the period of population pressure on land.

Although Cairo and Alexandria expanded rapidly, the bulk of the increment in population remained in the rural areas. The Government's policy of encouraging small landowners, the abolition of the last remaining restrictions on ownership, the extension of the cultivated area, the breaking up of the Royal Estates of 280,000 feddans, the formation of several land companies with the object of reclaiming land and selling to the peasants, the great expansion of credit facilities, and, of course, the sub-division of land among heirs - all helped to raise the number of landowners from 738,000 in 1895 to 1,556,000 in 1913[4]. The bulk of this increase is accounted for by small owners (those owning less than 5 feddans) who in 1913 numbered 1,411,000 with a total holding of 1,419,000 feddans. It will thus be seen that the mass of rural population - in 1937 census the number of men occupied in agriculture was given as 2,258,000 - consisted of small peasant proprietors. But the process by which the number of landowners was increased had one very serious drawback; the accumulation of a huge mortgage debt, estimated at over £E 51 million, excluding short-term loans granted by usurers.

The reduction of taxes, better irrigation and the abolition of the corvee, and the diminution of military service undoubtedly greatly improved the fellaheen's position and, although the ruin of village industries meant a loss

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(1) As the cultivated land can bare more than one crop throughout the year
(2) Willcocks, Sir. W. and I. Craig. Egyptian Irrigation - vol I, London 1913
(3) General Census 1947 - Ministry of Finance 1949.
(4) Issawi. C. 'Egypt at Mid-Century'. Oxford Press, London 1954 p. 35

of income and indebtedness was great, it is possible that their economic position at the beginning of this century was better than at any previous or subsequent period.(1)

Out of the 7,000,000 feddans of the cultivated area the Government still holds about 1,400,000 feddans. Every year the Government used to bring under cultivation some 80,000 to 100,000 feddans of land formerly too marshy or too dry, and has sold off the greater part of it in small lots to private owners. The state domains give work and livelihood to about two million fellaheen.

Since the Moslem conquest many landowners have laid all or part of their estates under a sort of entail (wafk); charitable trusts of 93,000 feddans or remarked for the founder's descendants of 600,000 the latter does not exist any more.

As the outcome of the past policies the country was faced with the following facts in 1952 when the present regime assumed power:(2)

(a) The area of the cultivated land was 5,823,000 feddans which was about 3% of the total area of the country.

(b) The productive area of the cultivated land was about 9,200,000 feddans assuming that the parts of the cultivated land is were cropped more than once in the year

(c) The number of population amounted to 21,424,000

(d) While the increase in population in the last century was about 100% the increase in the cultivated land was only about 15%

(e) There was a drastic decrease in the agricultural output per worker. The average person's share of wheat had decreased in the last twenty years from 90 kg. to 50Kg. which compelled the Government to import extra food for the nutrition of the people, which nevertheless decreased from 2953 calories per person to 2337 calories per person.

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(1)Issawi. C. 'Egypt at Mid-Century.' Oxford Press, London 1954. page 223
(2)Marii, S. 'Agrarian Reform in Egypt' - Cairo 1947 page.

THE ROLE OF AGRICULTURE IN NATIONAL ECONOMY

The fundamental basis of Egyptian National Economy has always been, is still and will continue to be 'agriculture'. About £E 1,200 million[1], i.e. two thirds of the national capital are invested in agricultural land including live stock, implements, etc. On the other hand about 60% of the working population are engaged in agriculture, representing wit h their dependents a proportion of 70% of the whole population. Moreover, agriculture yields an annual income of 224 million pounds or 27% of the national income.[2]

Agriculture therefore represents the greater part of the national capital, and national labour as well as a considerable portion of the national income.

Besides, agriculture plays another important role in the economic field. In foreign trade, for instance, agricultural crops and products represent about 94% of the nation's exports, while in the inland trade 56% of shops, firms, etc. are engaged in the trade of agricultural products and food stuff, employing 40% of the commercial personnel and contributing 25% of the capital invested in commerce.[3] As regards industry it is clearly observed that in about 75% of the nation's factories, industry is based on the conversion of local agricultural crops employing 70% of industrial labour and 50% of the capital. In other services like transportation, banking, etc., agriculture plays a large part in their activities.

Present Condition of Agricultural Production:

Agricultural production is still below the desired standard in terms of output per man and per acre. Comparison between productivity and the labour unit in Egypt has proved that an Egyptian farmer produces foodstuff for three persons only, while the production of his colleague in Great Britain is sufficient for eight; in other words the productivity of a British farmer is equal to almost three times that of the Egyptian.

As to the productivity of the unit area (a feddan), Egypt is still behind

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(1) Sidky, A. 'Egypt's Agrarian Policy'. Government Press, Cairo 1954
(2) Saiid, M. 'Agricultural Economics'. (Arabic Text) Cairo 1953
(3) Saiid, M. 'Agricultural Economics'. (Arabic Text) Cairo 1953

many other countries in most crops. The yield of a feddan of wheat in Egypt is only 70% of that of an equivalent area in Holland and 89% of the product of a similar area in Britain.(1)

Moreover, the yield of a feddan in Egypt has considerably dropped recently with a consequent drop in total agricultural production.(2) In addition to the conspicuous drop of production there is still a considerable loss in yield of the country's agricultural resources, a loss too heavy to be borne by the national economy, and which is caused by insects and pests attacking the crops. The loss due to such pests alone is estimated at £E 37 million per year.

The picture given by the following table is fairly clear. Between the two World Wars, Egyptian agriculture achieved a substantial increase in output, but this was more than offset by the sharp decline in cotton prices.

Table (1) Indices of Volume and Gross Value of Agricultural Crops (1939 = 100):(3)

	Pre War Years							
	Volume 14 Main Crops	Value 12 Main Crops		Volume All Crops Livestock	Value All Crops Livestock		Volume All Crops 1934 - 8	Value 12 Main Crops
1924-8	83	145	1940	94	94	1946	98	209
1929	93	118	1941	89	115	1947	100	258
1931	80	75	1942	79	184	1948	112	285
1935	92	78	1943	75	187	1949	110	325
1938	94	94	1944	79	229	1950	119	442
1937	103	97	1945	81	267	1951	118	-
1938	93	89	-	-	-	-	-	-

As to the wealth of livestock, this is still in a more deplorable state despite the potentialities of success and progress. The farmer's average production of milk varies between 1,500 and 2,000 lbs. per year while the average jumps to 4,000 lbs. in dairies adopting modern means and methods; and to 6,000 or 7,000 lbs. in countries where animal production is given special care and attention.(4)

(1) Sidky, A. 'Egypt's Agrarian Policy' - Government Press - Cairo 1954
(2) Due to land fatigue and fragmentation
(3) Issawi, C. 'Egypt at Mid-Century' Oxford Press London 1954 page 79
(4)

In addition, the production of milk suffers much from epidemics among the cattle; the loss due to such diseases and low productivity may be estimated at no less than £E 30 million per year.

THE ROLE OF INDUSTRY IN THE NATIONAL ECONOMY

In the nineteen-thirties a fairly rapid rate of industrial growth was maintained. During the war this was accelerated, the index of net industrial out put rising from 100 in 1939 to 154 in 1944. There was a rise of 27% between 1944 and 1947.(1) Since, however, industry continued to play a minor part in Egypt's economy, the level of total output is still mainly determined by the size and value of the agricultural output.

A comparison of the population growth with the increase in total output shows that production is only just keeping pace with the rise in numbers.

The need for industry began to be realized in Egypt during the First World War, owing to the shortage of important manufactured goods. This shortage brought into being several minor industries, some of which survived the war, and gave the older ones a new lease of life.

The tariff of 1930, increasing duties on imported goods, marks the beginning of large-scale industrialization.

The Second World War greatly stimulated Egyptian industry. Not only were imports reduced drastically, but there was large-scale expenditure by Allied Troops stationed in Egypt. Some Egyptian products found their way to neighbouring countries. Several industries expanded considerably, especially textiles, preserved foods, chemicals, glass, leather, cement and other building materials, petroleum and mechanical industries while new industries were established, such as the iron and steel industry, the dehydration and canning of vegetables, rubber goods, jute processing, the making of spare parts and tools, and, above all, a wide variety of chemicals and pharmaceuticals.

The first three post-war years were a prosperous period for Egyptian industry. By 1949 foreign competition began to weigh heavily on all sectors, but this was relieved somewhat by the outbreak of war in Korea(2) which gave Egyptian industry a new impetus.

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(1) Issawi. C. 'Egypt at Mid-Century. London 1954 page 143
(2) 1951

The population censuses of 1937 and 1947 put the number engaged in manufacturing, mining and building at 610,000 and 835,000 respectively and there was a further increase of 81,000 between 1947 and 1951.

The industrial labour force constituted less than 2% of the total population, and more than 2/3 of it was engaged in producing finished consumer goods. This was in the time between 1921 and 1930(1) Between 1927 and 1937, the number of industrial establishments, many of which continued to be small handicraft units, increased by about one-quarter and the number of workers by a slightly larger proportion. Something like 3% of the annual increment in population was being absorbed in secondary industry.

With the greater utilization of existing capacity and a considerable expansion in the number of establishments, industrial employment doubled between 1937 and 1945, while real net output in 1950 was about 140% above the 1939 level.(2) During this period the country became self-sufficient in a number of consumer goods and capable of providing the bulk of its requirements of several others. Although manufacturing occupied only 6% of the total working population, it accounted for about 11% of the net national product.

The following figures which indicate the number of industrial establishments in Egypt between 1928 and 1951 include handicraft establishments and small workshops which accounted for a substantial proportion of the total.(3)

Table (2) Industrial establishments and employers (1928 - 1951)

Year:	1928	1938	1944	1947	1951
No.	62,500	92,000	129,200	133,600	124,600
Employment:	188,000	274,000	458,000	578,000	659,000

Employees comprise administrative, technical and clerical employees, salesmen and skilled workers and labourers.

(1) Issawi. C. 'Egypt at Mid-Century'. Oxford University Press. London 1954.p.144
(2) Issawi. C. 'Egypt at Mid-Century'. Oxford University Press. London 1954.p.142
(3) Issawi. C. 'Egypt at Mid-Century'. London 1954. page 140.

The net industrial production rose steadily between 1938 and 1951 as indicated in the following table.(1)

Table (3) Net Industrial Production Prices (1938 - 1951)

Year	1938 £E	1944 £E	1947 £E	1951 £E
At current prices	13 million	46 million	54 million	105 million
At constant prices	13 million	20 million	18 million	31 million

The following table shows the structure of seconday industry in Egypt between 1925 and 1948. The industry is classified in three categories:-

A) Finished consumer goods: including food, textiles, tobacco, furniture, jewellery and plate, toys and leather.

B) Other finished goods: including stone and clay, metal and engineering implements, tools rubber and plastic goods.

C) Intermediate materials; including wood, paper, chemicals, leather and certain other semi-finished materials.

Table (4) Structure of Secondary Industry in Egypt (1925-1948)

Year:	1925 employment	1936 employment	1948 employment	1948 output
A	66%	67%	79%	75%
B	21%	20%	11%	6%
C	13%	12%	10%	20%

The average net per capita output of manufactured goods has also risen steadily between 1938 and 1951. In 1938 the output per capita was 4, in 1944 it was 11, in 1947 it was 12, and in 1951 it had risen to 15. (These figures are valued in current U.S. dollars)(2)

(1) Issawi. C. 'Egypt Mid-Century' - London 1954 page 140
(2) Issawi. C. 'Egypt Mid-Century' - London 1954 pages 161 - 2.

Location of Industries

The 1947 census showed that 17% of the productive establishments, employing 24% of all workmen were located in Cairo, and 7%, employing 21% in Alexandria. This is due to the fact that:

(1) The two cities house nearly 1/6 of Egypt's population andnearly half its purchasing power.

(2) They are well provided with rail, river, or sea communications.

(3) They contain the cheapest and most reliable sources of electric power.

(4) The willingness of labour to migrate from country to towns. The higher literacy rate indicates the presence of more skilled labour.

(5) The presence of shops selling spare parts, and of workshops, mechanical skills and other external economics.

To these economic factors should be added a sociological one, that the pioneers of Egyptian history lived in the main cities.

The main industries located outside Cairo and Alexandria are the extractive industries, most of which are in the eastern desert: the food processing industries, such as the sugar-industry of Upper Egypt and the rice mills of the northern Delta, cotton ginning, and spinning and weaving (in Mehalla) and Kafr El-Dawar.

There are some industries in the other big towns of the Delta and Upper Egypt but on a less important scale. The town of Aswan is now being developed to be a great industrial centre, in the south of the country.

The improvement of roads and the provision of cheap electricity in the country-side may be expected to result in a dispersal of Egyptian industry and such a process should, as far as possible, be aided by the Government.

There are other factors explaining the concentration of Egyptian industry.

(1) The narrowness of the market.

(2) The dearth of entrepreneurial ability.

(3) Lack of industrial credit and of funds for investment in industry make things difficult for the small entrepreneur.

(4) The desire to obtain monopoly profits.

The textile factories in the Delta employ the great bulk of the workers and most of whom are recruited from the countryside. The Egyptian worker is still very much a peasant at heart. In most cases he has not lost his attachment to the soil and often lives along in the city or town, leaving his family in the village. The intention nowadays is to build workers' quarters near the big factories. Schemes of this nature are under execution in Abu-Zaabul (north of Cairo), Helwan and Suez. This is besides the already established quarters in El-Mehalla, Kafr-El Dawar and Alexandria.

From the social welfare point of view, it was found that out of the 25,000 factories, only 23 have built homes for their workers; only 37 have resident medical and nursing staff, and only 125,000 workers employed in 150 factories benefit from social and medical services. Out of the one and a half million industrial workers of the country, 7% are children (under 15) and 3% women.

Industrial Developments

At the present time an extensive geological survey is being carried out all over the country to find what minerals are suitable for exploitation. But the main mineral resources which dominate the industrial status of the country at the moment are those of iron-ore deposits near Aswan and the Western Desert (with reserves of about 200 million tons) and of the oil field of the Red Sea Coast. The electricity output at present is about 55 kilowatts per head, but the electrification of the Aswan Dam, which is nearing completion will give enough electric power to achieve the first stage of industrialization; the production of enough nitrate fertilizers to meet the country's needs and cheap electric current.

Steel works have been built near Helwan, south of Cairo. Using imported coke this plant produced 150,000 tons of steel in its first year, (1958) and is expected to produce 240,000 tons per year by 1961. As a result of this development subsidiary industries (light tools, household equipment, car-bodies) are rapidly expanding. A factory producing railway carriages is now built beside a bicycle factory producing 25,000 machines per year. Former military factories

are now engaged on civilian production, and factories producing building materials (cement, bricks, tiles and sandstone) have also been built. The pressure on these factories is increasing as a result of the great consumption which the State public works entail. (75% of the products). A fourth cement factory has recently been completed.

The traditional industries, i.e. textiles are also showing a marked expansion. As far as cotton goods are concerned, the government is trying to increase the output of the spun fabrics and to improve their quality, so as to export finished goods instead of raw materials. Production has increased by about 14.5% between 1954 and 1955. Oil refining has increased by 80% since 1956. New refineries have now been built near Cairo and Alexandria. The output of the present oil fields was estimated to be about 3 million tons in 1958 (4).

Food industries are developing slowly due to the narrow home-market, but, on the other hand, the sugar industry is prospering and a new refinery is under construction. The chemical industries are developing at a normal rate, while the production of fertilizers is rapidly expanding. The production of super phosphate is about 200,000 tons a year. A newly built nitrates factory is expected to produce 300,000 tons of fertilizer per annum.

Other industries are also prospering; mainly tyres; wool; ready-made clothes, furniture; aluminium articles; sewing machines; refrigerators; gas cookers; radios; paper; batteries; and other electrical equipment and all materials connected with the building industry.

Present Industrial Status

The industrial status is now changing along the lines already mention. The striking feature of the present industrial position is the great gap between the small and the large industries. There are now about a million and a half industrial workers in the country, 90% of whom are unskilled labourers. This number may be increased to two millions in the coming three years. Out of the total number of firms (25,000) 68% employ less than 5 workers each, while 65 factories employ more than 500 workers in each. Medium-sized industries should now be developed fromsome of the small-sized ones producing goods for local consumption. This type of industry might be integrated with the local agricultural production of the different zones and districts. This type of industry, in other words will fil. the gap between the rural handicrafts and the large industries by establishing rural industrial centres for this purpose each serving a population of about

100,000 as discussed later in this study.

Another feature of the present industrial status is the lack of co-ordination and integration between factories. This is due to the fact that every factory produces its own energy, repairs its own equipment, transports its own products and even sells them itself. The exception to this rule is the Abboud organisation which consists of a system of separate but inter-related specialised workshops, factories and transport organisations.

In this sphere the policy of the present regime is (1) to direct and control the means of production, (2) to fight private monopolies, (3) to set up medium-sized industries and (4) to establish a system of 'mixed economy'.

In connection with the rural problem, which is the main subject of this study, lies in raising the standard of living of the 18 million fellahs so as to increase their purchasing power for the expansion of industrialization.

A ten years plan, which is still in its initial stages, is being drafted with the purpose of creating co-operative societies to industrialize farming. The plan will be put into operation in two years time, i.e. 1961.(1) The Director of the plan introduced it by saying that the poor and suspicious fellaheen would never invest their small savings, in an ordinary concern, but that they would bring their milk, eggs and vegetables to a local factory which would transform their produce under their own eyes, sell it and share the profit between them. They will be the first to consume what they have helped to produce and thus will have a share in financing these agricultural-industrial co-operative societies.

The industrialization of the country by means of Rural Industrial Units aims at reabsorbing part of the farming labour force, directing agricultural capital into industry and creating a home market. The instrument of this industrialization is the agricultural-cum-industrial co-operative based on two principles; decentralization and local control. There will be no huge concentration around the main cities but industrial and rural units at district level; local capital local labour, and local markets. In order to give the necessary impetus, the State makes the first investments and keeps watch over these experiments whose

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(1) Jean and Simonne Laconture. 'Egypt in Transition, Methuen and Co. London 1958, page 355.

nucleus will be the Agricultural Reform Centres. (In the author's view, the nucleus should be the Collective Unit Centres as to be explained later in this study) The industries will be, first and foremost, food industries. 'Household' industries (furniture, hardware, small machines) will be carried on side by side with the former; they have been started already in the rural centre of Wadi El-Natroun and the Liberation Province.

Problems of Development

Like any other backward country trying to carry out a nineteenth-century economic revolution in a twentieth-century social context, Egypt faces several great obstacles. Some of these are economic, others technical, others are political, social or cultural.

A comparison of present-day Egypt with England at the eve of the Industrial Revolution brings out many of these difficulties. Unlike most underdeveloped countries, Egypt has already had its Agricultural Revolution, but the fruits of this process have been largely absorbed in maintaining a greatly expanded population at the same low level of subsistance, instead of providing the surplus necessary to build up other sectors of the economy, notably industry. The standard of living of the Egyptian peasants today is much lower than that of seventeenth-century English peasants, a fact which correspondingly reduces the country's capacity to carry out the large-scale saving required for development. The rapid growth of the population, accelerated by the discoveries of modern medicine, channels a further appreciable flow of savings into merely maintaining existing levels.

CHAPTER II

CHAPTER II

THE NATIONAL POLICY FOR RURAL RECONSTRUCTION

a. AGRICULTURAL POLICY

The State has given the development of agricultural production and expansion its utmost attention as it is the backbone of the country's economy. The policy of the Permanent Council of National Production has two main objectives.(1) The first is to increase the productive quality of the cultivated land by improving the agricultural crops, by selecing better seeds, combating disease, using appropriate fertilisers in adquate quantities and introducing new crops. Facilitating agricultural credits for the fellaheen was also considered. This is besides improving irrigation and drainage systems, preserving agricultural products by combating harmful insects and improving the methods of storage; also giving special care to the improvement of the breed in livestock and dairy herds by the introduction of better yielding units and combating disease.(2)

The second objective is to increase the cultivated area in the country. The council has put forward a long-term programme based on the schemes drawn up for controlling the waters of the Nile. This is in addition to the immediate projects for agricultural expansion. A four years programme was initiated to reclaim 234,500 feddans including 194,000 feddans in the Delta.(3) A further 21,150 feddans are being reclaimed in the Oases of Siwa, El-Kharga, El-Dakhla, El-Bahariya and El-Farafra, whilst the project of El-Tahrir Province envisages the reclamation of an area of about two million feddans of which 40,000 feddans have already been reclaimed. This latter scheme will be discussed later in this chapter.

The Land Reform Law of 1952 had, to a certain extent, affected the rural structure of the country although it did not affect all the rural population. A short account of the law and its application will be given in this chapter.

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(1) It is worth mentioning here that the country loses about £E 40 million through plant diseases and storage losses.
(2) Permanent Council of National Production, Report 1955, Government Press
(3) Marii. S. 'Agrarian Reform in Egypt', Government Press, Cairo, 1958.

Due to the fact that agricultural development must be accompanied by industrial development, the Permanent Council of National Production has given much attention to the development of industry. A five years plan for industrialization is now in progress.

Agricultural Credit

In view of the great importance of agriculture in the Egyptian economy, the predominance of small scale farming, and the great pressure of the mass of the rural population on the cultivated land, cheap short term agricultural credit is more necessary than any other form of assistance. Until 1930 there was no institution specializing in agricultural credit, except the Agricultural Bank.

In 1931 The Banque du Credit Agricole was founded. In 1940 it had over 100 branches and nearly 500 'shoonas'(1) distributed all over the country. Its original functions included the granting of short term loans (for 14 months) for the purchase of seed and fertilizers and other seasonal cultivation expenses; and medium-term loans (for 10 years) for the purchase of livestock or machinery or for land improvement. In addition, it sells, for cash or on credit, fertilizers and cotton and other seeds.(2)

In 1951 the bank was renamed the Banque du Credit Agricole et Cooperatif, half of its capital then being subscribed by 1,955 rural and consumer co-operatives. In 1958 £E 9 million were used in the credit scheme.(3) About 71,000 land holders owning 151,099 feddans will benefit from the scheme. During the period between the 1st of January and the end of May 1958, £E 1,834,485 were granted on loan for buying seeds and petroleum products.

Another scheme is to establish 2,000 village banks in about half the villages of the whole country.(4)

Rural Reconstruction

Two lines of attack are being used in the policy of rural reconstruction. The first comprises short-term programmes which deal with improving the system of agriculture by regulating the agricultural rotation, livestock breeding, combating harmful insects and disease, regulating the credit system, improving the seeds

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(1) Open Air Storage space
(2) Issawi. C. 'Egypt at Mid-Century' Oxford University Press, London 1954.p.221
(3) Al-Ahram, 7th July, 1958
(4) - do -

introducing partial mechanization, producing more manure, regulating both irrigation and drainage systems, expanding rural industries and improving marketing facilities.

The second consists of the long-term programmes which need more capital such as those aimed at increasing the productivity of the existing land resources, reclaiming land, controlling water resources and introducing rural industries.

One of these schemes is designed to improve the poorer cultivated lands which amount to 1,300,000 feddans and comprise 20% of the whole cultivated land of the country. Another such scheme aims at the improvement of irrigation and drainage in about 900,000 feddans.

Other schemes have also been prepared for the reclamation of the salt marsh lands in the northern parts of the Delta by draining away the salt water and introducing Nile water after certain regulations in the irrigation shifts, and also using the drained water as far as it is suitable for irrigation.(1) This scheme during the flood season will irrigate more than 140,000 feddans in the northern Delta as well as 10,000 feddans in the Tahreer Province, also 28,000 feddans reclaimed by the Egypto-American Land Reclamation Department (under a Point Four Scheme) and 14,000 feddans owned by the Land Reform Department.(2)

Reclamation of Deserts

The Egyptian deserts were thought of as the only opening for development and exploitation as they constitute 90% of the total area of the country. The geological survey and study carried out by many experts have proved that there is a natural underground river connecting the few Oases in the Western Desert. In this connection Dr. E. Paul said,(3) 'When anybody travels across the arid Desert he must compare the Nile Valley which he had left behind and what he expects to see of the Oases which are still far away; but he does not think at all that a few hundred metres below his feet there is a huge water reservoir.' It is an undoubted fact, that the Lybian sand stone strata which contains this underground water lies under the Lybian Desert stretching under the Oases

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(1) In the southern part of the area the degree of salt solution is small and does not preclude its use for irrigation purposes after a certain measure of treatment. Maris, Agrarian Reform.

(2) Tell, B. 'El-Khargu Oasis.' Government Press, Cairo 1932

(3) Issawi. C. Egypt at Mid-Century, Oxford University Press, London 1954.p.104-6

depression and feeding the Oases from its copious water supplies through a number of springs.

This strata is distinguished by its porous structure and lies between two impermeable formations. The underground water runs from south to north as its sources are in the Lakes Area in the Upper Nile, the rainy areas of Darfour and Awdi and the Andi mountains.

In his book on El-Kharga Oasis, B. Tell.(1) said that the amount of water which comes out of the springs of El-Kharga in a year does not exceed the amount of water which saturates a square kilometre of the strata which is 122 metres thick.

This means that underground water in the Oasis area could feed the Oasis for 3,000 to 4,000 years without consideration to the vast areas which contain the underground water under the surrounding deserts.

Here again is another prospect for exploiting the Western Desert if a chain of pumps were constructed along the Oases' depression, and experiments are now being carried out to determine the nature and potential of the soil in these areas.

Flood Control

The possibilities of desert reclamation will always be dependent mainly on the availability of water as a main factor and such projects usually depend on the investment of a large amount of capital if success is to be achieved. Use certainly can be made of underground water supplies but quicker results can be obtained from Nile water by virtue of its silt content. At present about half of the Nile water is still being wasted every year despite the fact that dams and reservoirs have been built in the upper reaches of the Nile to conserve its resources. This wasted water amounts to about 40 milliard cubic metres lost either in the sea, into the ground, or by evaporation.

Between August and December the river provides the amount necessary for Egypt (30 milliard cubic metres) and the Sudan (4 milliards) but fails to do so between January and July when Egypt requires 28 milliards and the Sudan 2 milliards; for at this time of the year the average flow of the river is only 15.4 milliard cubic metres.(2)

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(1) Tell, B. 'El-Kharga Oasis'. Government Press, Cairo 1932.
(2) Hurst, H.E. 'The Nile.' London 1952

The High Dam and the New Valley

There have been many schemes and proposals for using the water now being wasted but all ended in vain as there is no existing dam which could preserve this large surplus of water, and its flooding into the sea could not be prevented. This was probably the main idea behind the High Dam project which is designed to ensure permanent storage of the water. It has bee noticed that the volume of water changes considerably through the different years. In 1878-1879 the volume of water was about 151 milliard cubic metres , while in 1913-1914 this volume decreased to about 42 milliard cubic metres. During the critical period (February/July) when about 22 milliard cubic metres are required the supplies can be particularly fickle - in 1878 the supply amounted to 36 milliard cubic metres whereas in 1913 it was no more than 7 milliard cubic metres.(1)

All the dams and the schemes already built were designed to secure and to increase the annual storage of water. The High Dam is designed to secure a permanent storage of 130 milliard cubic metres; which after making allowance for silting, evaporation and other losses will ensure a net storage capacity of 70 milliard cubic metres.

The dam is to be built 6.5kmt south of Aswan. The water level in front of the dam will abe about 147 metres high and can rise to 180 metres. The stored water will cover more than 3,000 square kilometres from Aswan to Wadi Halfa which will be eventually submerged by the water.

The erection of the dam itself will cost about £E 120 millions including £E 10 millions to be paid as compensation for the land and towns which will be submerged by the water. In the first 10 years of the scheme the water is to be exploited in the reclamation of 1,400,000 feddans in the north, east and west of the Delta. The reclamation scheme will cost about £E 49 millions which will raise the whole cost of the scheme to £E 209.5 millions. In the following 10 years 600,000 feddans are to be reclaimed at a cost of £E 241.5 millions.

In return, the Government's income would be increased by £E 18 millions per year. This would increase the national income by £E 255 millions per year.

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(1) Permanent Council of National Production Report 1955, Government Press pages 120 - 172

This is in addition to the value of the 2million feddans to be reclaimed and which is estimated to be £E 300 millions. After a second ten years of the scheme it is estimated that the Government's income will rise to £E 23 millions while that of the national income would be £E 355 millions per year.(1)

Against these gains it must be appreciated that there will be a marked decrease in the general distribution of Nile silt as a result of the elimination of flooding and the concentration on canal irrigation. It is estimated that this will involve the reduction usable deposits of Nile silt from 13 million tons to 6 million tons per year with a consequent reduction of its value from £E 460,000 to £E 236,000. This loss, however, is relatively low when compared with the gains to be derived from the scheme.(2)

Other reclamation schemes in the Syrian region might prove to be worthy of consideration. In the case of the High Dam Schemethe land to be reclaimed is limited by certain natural and economic factors while the prospects in the Syrian region are very much wider in scope.

As a result of the High Dam Scheme the banks of the Nile between Aswan and Esna about 90 kilometres north, will be exposed to continuous water erosion. Because of this, a canal is suggested to be built north of Aswan to relieve the banks from erosion. Another alternative to this canal is to divert the excess water to the desert where it can reach the Oases depression to create, perhpps another valley in Egypt. From the topographical study of this area, one can see that the chain of the Oases which streches from south to north and ends in the depression of Qattara, compose another valley in the Western Desert, and lie above a rich underground water supply which in conjunction with receiving silt from the Nile would seem to indicate good grounds forassuming that this valley had a high fertility potential. One of the great obstacles in desert cultivation is the instability and looseness of its soil, and this can be rectified by the addition of silt. Consequently if the silt be brought with some of the excess water from the High Dam it would seem that the possibility of creating another productive valley in Egypt would be feasible.(3)

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(1) Permanent Council of National Production, Report 1955. Government Press pages 120 - 172

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(3) Footnote overleaf.

The water could be taken through an R.C. pipe-line or a covered canal to connect the different oases, debouching excess water finally in the Qattara depression. The electricity to be generated from the High Dam could also be used for running this chain of pumps as well as electrifying the whole valley, for the purpose of desert reclamation. The oases would act as centres for expansion along the pipe-line or the covered canal whose water supplies could be augmented from the underground resources (See Map no. 3)

There is no more than an idea at present and a wide range of studies and research would be necessary to assess its possibility as a long term scheme in the economic development of the country.

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(3) from previous page:-

Fortunately, after writing the foregoing the author learned that on the 23rd December, 1958, the Government embarked upon a similar scheme under the name of 'The New Valley' for which a directing board has been established. Eighteen wells have been built in the valley and great amounts of iron ore have also been found in El-Bahariya Oasis. This is believed to be the largest mine in the country. A road has been designed to connect Manqabad on the river Nile to the town of El-Kharga in the New Valley.

The new Valley will comprise also the Oasis of Siwa and the depression of El-Qattar. It was estimated that the area to be reclaimed is about three million acres. The scheme is to start with one million acres, 10,000 of which are already under cultivation. A system of roads and air transport has been planned to connect the Nile Valley with the New one and schemes for populating the area have been worked out

b. LAND REFORM

In 1923 when Egypt started to practise her parliamentary life and the competition for parliamentary seats made many of the representatives of the rural areas try to increase their holdings so as to dominate and secure more votes from their farmers, a natural outcome was increase in land values and accordingly increase in rent.

Many of the landlords used to live in towns and rent off their land. Statistics show that 75% of the cultivated land was rented to small or landless farmers. This situation let to the creation of middle-men who used to take their profit from both sides, the owner and the farmer. This added a further burden on the fellaheen's income in the form of a further increase in the rental value.

On the 23 rd July 1952 a new regime came into power and one of its first measures was that of Land Reform. On the 9th September 1952 a comprehensive and well thought out land reform was promulgated. Excluding uncultivated land in process of reclamation, the size of an agricultural land holding was limited to a maximum of 200 feddans per owner. Any surplus was to be requisitioned by the Government within five years of date of enforcement of the law, and the portion to be requisitioned each year was to be not less than one-fifth of the total land to be requisitioned.

The land requisitioned under these provisions is distributed among small farmers, that is, farmers owning under 5 feddans, and each of the recipients is allotted a property of not fewer than 2 and not more than 5 feddans. The price of land so distributed is to be estimated on the basis of indemnity to be paid by the Government plus 15% for expenses; it is to bear 3% interest and to be repaid within thirty years. The price was fixed at 10 times the rental value.(1)

Object: The object of the Government's reform policy was not only redistribution of the land but also increased agricultural productivity and improved levels of living as well as the diversion of investment from land speculation to productive enterprise. The Higher Committee for Agrarian Reform

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(1) Marii. S. 'Land Reform in Egypt' Government Press, Cairo 1958 page 27

is responsible for the requisition, distribution and management of the land affected by the legislation, and for providing credit and promoting co-operatives.

Procedure: An area of 566,000 feddans belonging to 1,789 landowners was to be requisitioned over a period of five years and distributed to 200,000 families comprising 1.2 million persons.(1) The expropriated land is distributed in holdings of from 2 to 5 feddans and the recipients must be farmers owning less than 5 feddans of arable land. Orchards, which require special technical care are to be distributed among graduates of agricultural institutes in units not exceeding twenty feddans. To implement this scheme the country has been divided into twenty-two districts, fourteen of which are located in the Delta and eight in Upper Egypt. Up to February 1955, a total of 415,085 feddans of land and 4,617 feddans of orchards had been requisitioned. Now all the land within the scope of the scheme had been distributed.

Finance: Since then legislation has been enacted, granting financial autonomy to the Higher Committee of Agrarian Reform. The budget system, based on estimates of the funds required to carry out the reform, was found to be unsatisfactory and was replaced by a system providing for a balance sheet and profit and loss account to be established at the end of each financial year.(2)

Economic Holdings: Up to 1952 when the land reform was put into operation, more than 70% of all holders consisted of farms of one feddan or less whilst as much as 27% of the farm area comprised holdings of more than 100 feddans. The expropriated land is allocated to small owners, and is farmed co-operatively in large units. The large scale of operation and the system of crop-rotation in large areas is continued, thus ensuring the maximum return. Each farmer receives his quota in three different parts, each of which is under a different crop and is part of a united area of not less than 60 acres.

Guards against Fragmentation: The Agrarian Reform Law of 1953 guards against the fragmentation of holdings on land which has been redistributed. If, as a result of division among heirs or through sale, exchange or donation, the

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(1) Marii, S. 'Land Reform in Egypt' Government Press, Cairo 1958. page 27
(2) Marii, S. 'Land Reform in Egypt' Government Press, Cairo 1958. page 155-166

land should be parcelled into lots of less than five acres, the parties concerned must reach an agreement as to who shall assume ownership.

The statistics of 1952 showed that out of the total number of 2,760,000 holdings with an area of 5,962,662 feddans there were 2,492,234 holdings of each less than 3 feddans occupying a total area of 1,573,917 feddans distributed according to size as follows:-

Table 5 Distribution of Holdings of less than 3 feddans in Egypt

Area of lots	Area in Feddans	No. of owners.
Less than $\frac{1}{2}$ feddan	413,551	1,459,167
From $\frac{1}{2}$ to 1 feddan	356,695	552,162
From 1 to 2 feddan	449,816	327,612
From 2 to 3 feddan	354,855	103,293
Total	1,573,917	2,492,234

A holding of less than 3 feddans is economically unsatisfactory; this means, therefore, that 27% of the cultivated area is not exploited efficiently, particularly so in view of the fact that even these small holdings are themselves usually further subdivided and distributed in different parts of the area.

Co-operative Organizations: In all areas where land requisition has been carried out, co-operative societies have been established, and farmers owning not more than five feddans of land must belong to them. Compulsory association is regarded as necessary at present, even though it is likely to become unnecessary later on as farmers come to realise the benefit of co-operation. By the middle of 1955, 125 co-operatives had been established; others are in the process of being organised in areas not affected by the reform. The initial capital of the co-operatives is derived from the payment of £E 1 per acre which farmers have to make upon registration of their land.(1)

These co-operatives are multi-purpose societies providing credit, farm requisites, including machinery, storage facilities and other agricultural and

(1) Marii. S. 'Agrarian Reform in Egypt'. Government Press, Cairo 1958. p.105 - 130.

social services required by their members, such as the selling of crops and livestock. A supervisor representing the Higher Committee for Agrarian Reform is attached to each co-operative, and through him the services of the technical staff of the Committee are also available for help and guidance to the members. The co-operatives have a special function in supervising the rotation of crops so as to ensure that land is utilized in the most economic manner.

Farmers are satisfied with the results already obtained through the co-operatives. In one of them production showed an increase of nearly 20% through use of better seeds and fertilizers. The co-operative was also instrumental in reducing irrigation costs and inproviding better breeds of poultry, tractor service for mechanical tilling of the land, livestock insurance and other benefits. From 1952 to 1954 the individual members' income in this co-operative rose from £E 12.5 to £E 32.5, and the net income per acre from £E 12.5 to £E 41.5.

Credits have risen from £E 1,410,000 in 1953 to £E 2,142,865 in 1955. The co-operatives have carried out irrigation schemes and other services costing £E 350,000 in 1953 and £E 752,427 in 1955. They have sold, co-operatively, 27,666 'kantars' of cotton in 1953 and 230,000 in 1956 with a price of £E 2 more than the usual market price per 'kantar.' (1)

Machine Service: In the areas where land redistribution has taken place, machinery has been sold to the co-operatives (which were organized at the same time) for use by their members. Maintenance service is provided by local workshops. Machinery and tractors belonging to previous owners of requisitioned land have also been utilized.

Tax: A basic exemption equivalent to the first £E 4 of land tax was introduced in favour of farmers whose total tax does not exceed £E 20.(2)

Other Measures: The aim of the land reform policy is not only to improve the nutritional level of the farming population, but also to expand agricultural production in order to support the industrialization of the country. Since 1953, a supplementary allocation of £E 30 million has been made for agricultural improvement programmes. A seed improvement scheme affecting both food and

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(1) Marii, S. 'Agrarian Reform in Egypt.' Government Press, Cairo 1958. p. 118
(2) Marii, S. 'Agrarian Reform in Egypt.' Government Press, Cairo 1958. p. 29.

industrial crops was expected to encourage general use of selected seeds by the end of 1956. More than 90% of the initial cost of this programme, £E 7 million, will be repaid by the farmers.(1)

Under another scheme, 300,000 feddans will be reclaimed at an expenditure of £E 6 million and under the soil conservation programme, irrigation and drainage systems are being improved, afforestation of sand dunes has been started and a laboratory of the latter programme is £E 10 million. Measures have also been introduced to combat plant and animal diseases; this involves the construction of two grain elevators and the formation of 300 veterinary units to render free service to farmers.

Impact of Land Reform measures: The reduction in rents affecting two-thirds of the cultivable area in Egypt has, according to an estimate of the Ministry of Agriculture, added £E 40 million annually to the income of the tenant class, while wages of agricultural labour, under the wage adjustments provided for by the land reform law, have gone up, according to official estimates by 50%.(2)

The effect of redistribution of land, reduction in rents and other measures taken in connection with reform has been to provide a stimulus to agricultural output. In areas where land reform has been carried out the production of wheat is estimated to have risen by 30% cotton by 10% and sugar-cane by 15%, as compared with the previous yields. The net income per feddan and the average annual individual income have increased by 100% to 300% since the reform.(3)

The agrarian reform has decreased the price of land and thereby diminished the incentive to speculate in land. Partly as a result of the reform, considerable sums have been diverted into investment in industry and commerce.

Land Distribution: Land distribution was based on an extensive social survey of the areas affected by Land Reform Law, taking into consideration the cost of living and the production capacity per fed an. Priority was given to the farmers already working on the requisitioned land and then to those with large

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(1) Permanent Council of National Production, Report 1955, Government Press pages 24 - 37

(2) Issawi, C. 'Egypt at Mid Century.' Oxford University Press, London 1954 page 127

(3) Marii. S. 'Agrarian Reform in Egypt.' Government Press, Cairo 1958. page 245.

families.[1] The distributed holdings were between two and five feddans for the landless farmers or those who owned less than five feddans and were in great need and could cultivate the new holding.

To arrive at a fair basis of distribution, the individual members of the family were allotted a standard unit according to their age as follows:.

Under 7 years	= $\frac{1}{4}$ unit (one unit = $\frac{1}{2}$ feddan)
From 7 to 14 years	= $\frac{1}{2}$ unit
From 14 to 21 years	= $\frac{3}{4}$ unit
Over 21 years	= 1 unit
The head of the family	= 1$\frac{1}{4}$ units

The large 'multiple' families were divided into two or more smaller consistent ones, each of which received $\frac{1}{2}$ feddan less than they would have received as a separate family.[2]

The new owners are to pay the price of the land in payments over 30 years with an interest of 3% and a charge of 15% for administrative expenses. The annual payment is about £E 14 per feddan. This is less than half the rent of the land under ordinary conditions.

System of Land Division: After the survey of the requisitioned land the dividing procedure was carried out on the field after studying the irrigation and drainage system in every area. In the light of this study, the land was divided according to the rotation system (which is usually three rotations) so that every land-holding could be divided conveniently into three or two plots according to the rotation system. (see fig. 1.)

Tenancy System: As already mentioned there were two existing systems of land tenancy. The first was the defined or fixed rent which the land lords who live in towns prefer and under which the farmer usually takes the risk of any loss in land production. In this case the land reform law has now fixed rental value at seven times the amount of tax paid on the land. The second way was the combined rent where both the owner and the farmer participate in the expenses

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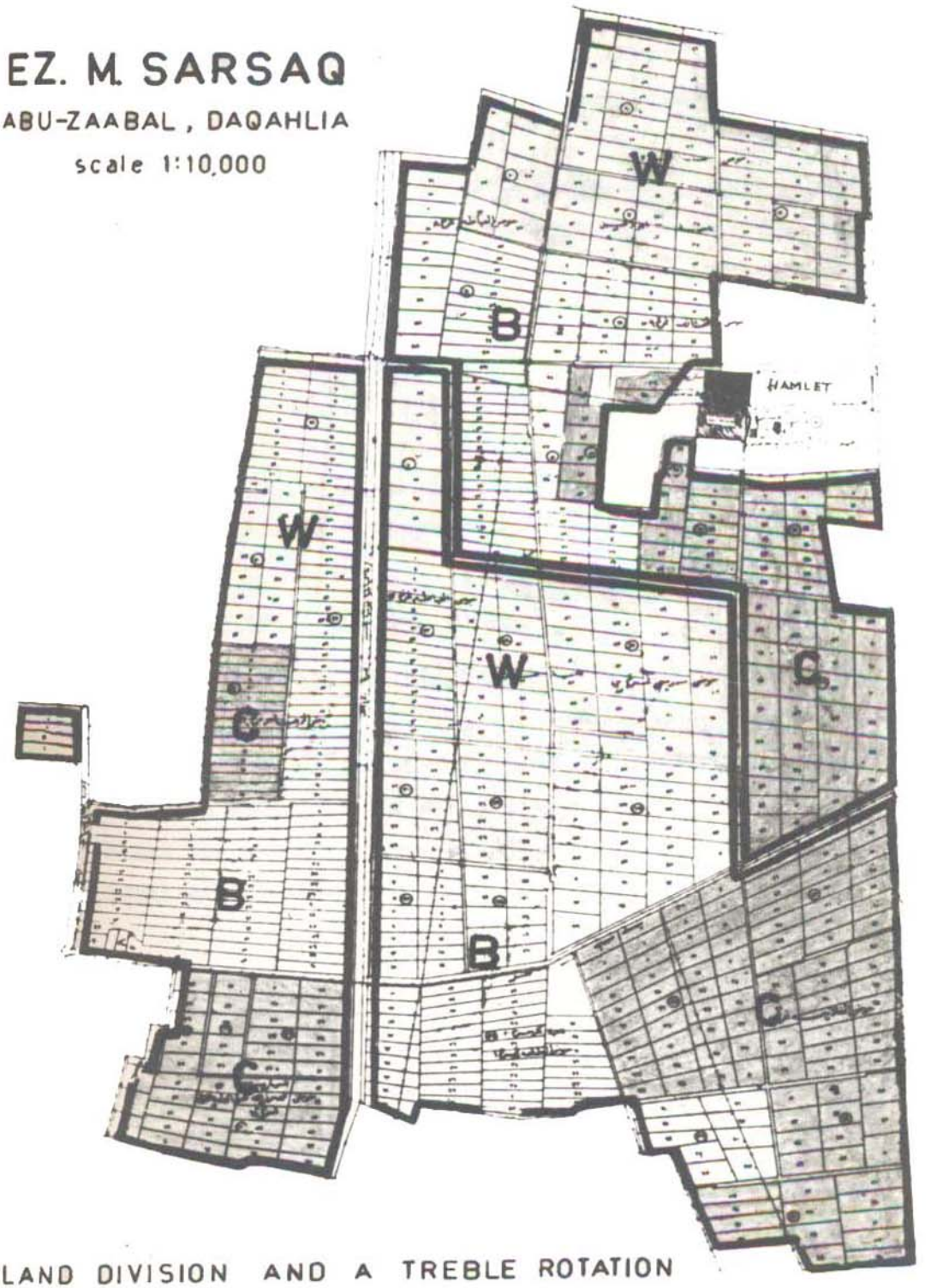
(1) The family as defined for purposes of social research 'is a group of individuals getting their livelihood from one and the same source on the land rented by the head of the family, no matter whether members of the group reside in one or more places.

(2) Marii. S. 'Agrarian Reform in Egypt.' Government Press, Cairo 1958. p.81-84

EZ. M. SARSAQ

ABU-ZAABAL , DAQAHLIA

scale 1:10,000



LAND DIVISION AND A TREBLE ROTATION SYSTEM ILLUSTRATED IN AN AREA UNDER THE MANAGEMENT OF THE LAND REFORM COMMITTEE.

C Cotton B Clover (bersim) W Wheat

FIG. 1

of cultivation and then divide the product between themselves. This system, even when operating fairly does not encourage the farmer to give the land his fullest attention and care.

It is worth mentioning that the rented area has been increased from 17.3% of the whole cultivated land in 1939 to 60.7% in 1949, then decreased to 57% in 1954. Over the same period the rental value of the feddan increased by 472% while the cost of living rose 293%.(1)

Housing: It has been decided that a reasonable area of the requisitioned land should be reserved near the old village for future extension and the building of new rural houses for the farmers who benefit from the scheme. The Land Reform Department finances the building operations and the costs are then paid back by the farmers over long periods at a reasonable interest.

This scheme has been carried out in 13 districts where 1159 houses have been built at a cost of £E 300 to £E 400 per house.(2)

Limitation of ownership to 100 or 50 feddans:

If the ownership limit were to be fixed at 100 feddans only 24,000 additional families (120,000 persons) would benefit as compared with the 1.2 million persons who benefitted under the Government's scheme; but if the limit were to be lowered to 50 feddans the number of the additional persons who would benefit would rise to a total of 450,000 persons.

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(1) Marii. S. 'Agrarian Reform in Egypt', Government Press, Cairo 1958. p. 250
(2) Marii. S. 'Agrarian Reform in Egypt', Government Press, Cairo 1958. p. 258

Planned Collective Rotation System

At present the agricultural Act No. 500 of 1955/56 lays down that in the areas of perennial cultivation (77% of the total cultivated land) the area to be cultivated by wheat should not exceed 33% of the area of any holding. Act No. 501 of the same year is similar to No. 500 and applied the same limit on cotton cultivation. These two Acts apply even to the tiny fragments of cultivated land and in effect tend to increase the fragmentation of the cropped areas. It is well known that every crops makes different demands on man-power, on water resources and on finance in its production. In the case of the fragmented and tiny holdings many complications in cultivating occur from one holding to another due to the differentiation of the methods used for the different crops on each holding. A loss in the overall production in the land is inevitable so long as this method continues.

In order to make the provision of the above laws work more satisfactorily it is now proposed to adopt a planned three or two rotation system to larger areas of 'hods' divisions by the grouping of the small and fragmented holdings. Under this system the farmers have to co-operate with respect to their obligation to produce the different crops. This system will help in (1) preserving the land fertility, (2) regulating the cultivation process, (3) saving irrigation water and regulating drainage, and (4) combatting pests and harmful weeds.

The planned rotation system has been applied by the Ministry of Agriculture in the villages of Domera, Nawag and N. Semia, Gharbia. (See fig. 2) As already mentioned before the output from the land covered by this experiment increased by 20% in the case of wheat, 5% in the case of maize, and 19% in the case of cotton. In the area of Shebia El-Kom, in the Mid-Delta the same system has reduced the costs of irrigation from £E 2.188 per fed an to £E 1.030.

The system does not call for much monetary expenditure except that necessary for surveying, planning and technical supervision in its application.

The application of the system is faced by many practical difficulties due to the complicated system of land tenure, heredity laws, social and psychological instincts among the peasant group. These difficulties have been discussed by Mr. S. Marii, the Minister of Agriculture and Land Reform in his Book

N. SEMLA

GHARBIYA

TYPICAL LAND FRAGMENTATION AND APPLICATION OF TREBLE ROTATION

C Cotton W Wheat B Clover (bersim)

Scale 1:5,000

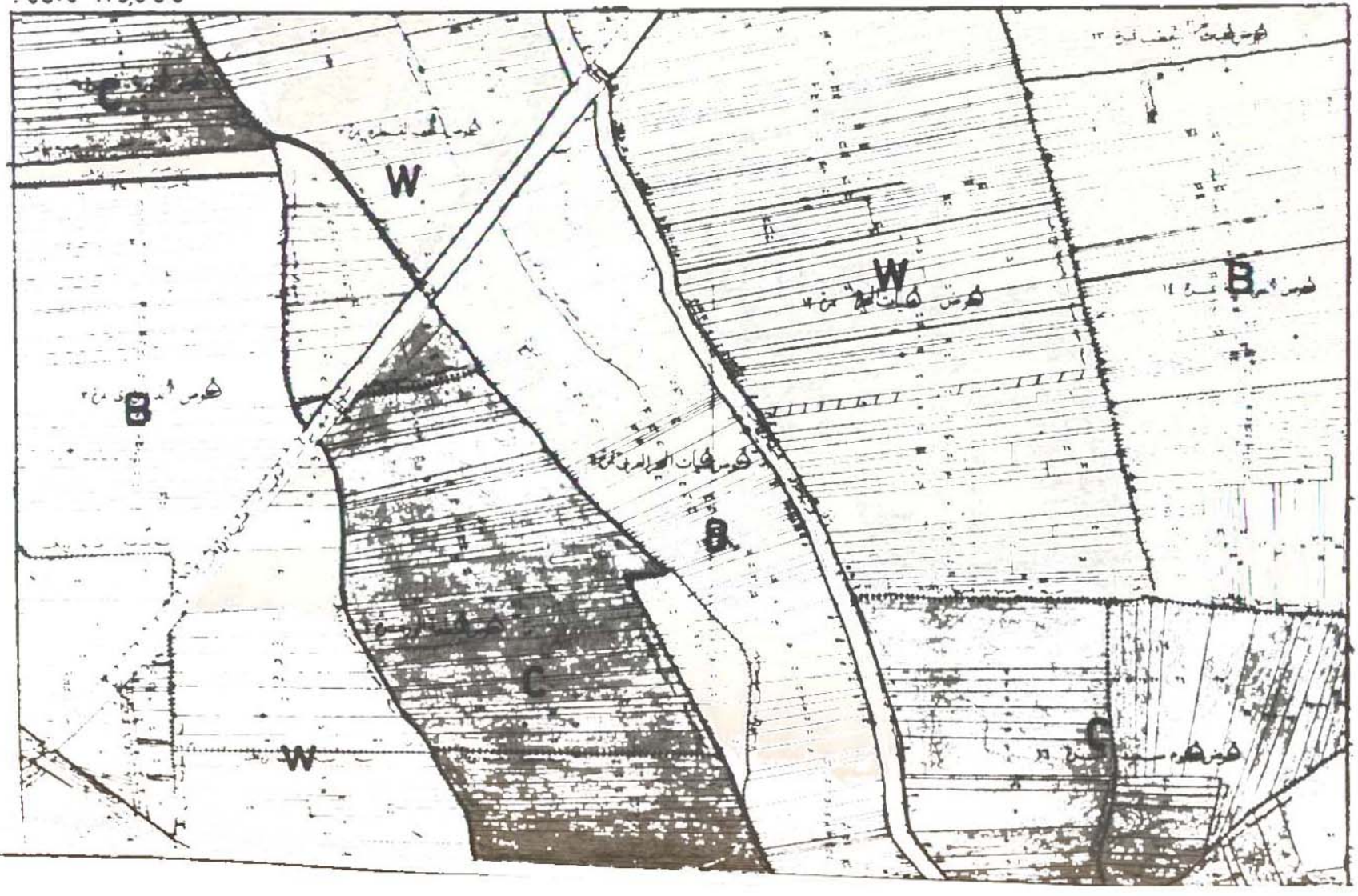

FIG. 2

'Land Reform in Egypt'.(1) The Minister suggested that the three rotation system is to be applied as a first step towards consolidation or co-operative farming even though the fragmented and tiny holdings remain as they are. This means that a farmer of, say, one feddan has to cultivated his whole holding by the crop determined by the rotation system, for example, cotton, while another farmer has to cultivate his feddan by winter crops in the same year and according to the same rotation system. In this case the first farmer has to co-operate with the second in cultivating a part of the second's holding for winter crops in return for the second farmer cultivating an equal area of his land with cotton. In the following year the crops would probably be reversed. The peasant group will then appreciate and practice co-operation so that in the future it will be easier for the fellah to respond to the new planning system of cooperative farming and also appreciate the benefits to be derived from the consolidation of the fragmented lands.

The Nawag Experiment.(2)

The importance of the Nawag experiment lies not only in the way it was implemented and the results it achieved, but also in the prospect which it might offer for adopting the co-operative farming system. The experiment was carried out in the village of Nawag where there was an acute state of land fragmentation. The purpose of the experiment was to induce the fellaheen to apply a controlled rotation system which has been discussed before. The success of this pilot experiment for controlling agricultural rotation in Nawag justifies the hope for a rapid increase in the agricultural production in the country. Such a programme would provide an increase in land return of not less than 30% Also over 2.5 million feddans of new land could be cultivated on the available water. The amount of water that could be saved by contolled irrigation is estimated at 30% of what is actually being used in uncontrolled areas.

The first step in the implementation of this experiment was to induce the inhabitants of the village to join the co-operative society which planned to provide every farmer in the village with fertilizers on credit at official cost prices. The amounts of fertilizers were delivered from the Credit Bank Stores

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(1) Marii, S. 'Agrarian Reform in Egypt.' Government Press, Cairo 1958
(2) A village in Gharbiya Province. The experiment was carried out by M. Fawzy, the Director of Agrarian Reform Co-operative Department of the Ministry of Agriculture - Cairo, 1958

at Nawag on the day after being ordered. The farmers were impressed by the effectiveness of the measures taken. Every holder joined the co-operative society and then requested additional goods.

The second step was to spread confidence in the co-operative so that the initiative might come on the fellaheen's part to demand insecticides for controlling the cotton worm. When the subject was raised at a general meeting, the farmers were told that since the insecticide was harmful to livestock, it would be more practical to use it in larger areas of cultivation devoted solely to cotton production rather than on small dispersed plots within areas of mixed production. Moreover the authorities demonstrated to the fellaheen how it was possible to extend credit against the cotton crop.

When the members of the holders' board became convinced of the soundness of the scheme, the Distribution Department of the Agrarian Reform Organization planned an agricultural rotation for Nawag on the basis of combining every three neighbouring blocks (hods) into one rotation. This was then discussed by a committee from among the members of the co-operative who later on took the initiative in implementing the scheme.

After several general meetings - usually held after Friday prayers - and after heated discussions caused usually by the feeling of suspicion and the sense of being interfered with in a private business matter, the argument was cleverly directed from one item to another until it was turned to the question as to which blocks (hods) should be cultivated by cotton , which by wheat and which by clover. Finally a map was drawn up and displayed at the house of the Omda (The Mayor).

Three committees were then established to see to the implementation of the scheme, and to deal with the different difficulties which might arise during the operation. The farmers were left to their own initiative. Thus the experiment began its course.

This experiment could be a half-way step towards co-operative farming. The psychological and the human sides of the problem were the most difficult to overcome. The success of any experiment of this nature depends, to a great extent, on the ways and means employed to induce the farmers to take the initiative themselves in their own interest.

EL-TAHREER PROVINCE

One of the great experiments in desert land reclamation was the Province of El-Tahreer. The shheme envisaged the reclamation of about two million acres of the western desert adjacent to the Delta and bounded on the North by El-Noubaria channel and the Rayah El-Beheri channel on the East (See map No. 4)

The Province is accessible both by the Cairo-Alexandria desert highway and by the Cairo-Etay-el-Baroud railway. It can also be reached by El-Khatatba road or by the water way of the Riyal-El-Beheri channel on the East.

In addition to increasing the area of cultivated land in Egypt the scheme aimed to create a healthy environment for a rural community. The rural agricultural structure is based on collective farming, totally different from that to which the fellah is habituated. The fellah was to be faced with a different way of living, different environment and even different dress.

The settlers were to be chosen from the neighbouring Provinces in the Delta. In one area four hundred families were chosen to cultivate the new land. To qualify, the parents have to be between 23 and 30, have two or three children and pass rigorous tests on health and social habits.(1) They are not allowed to bring any relatives or dependents. On arrival they are provided with a house, a uniform and a dossier. Every month or so, the social workers fill up lengthy forms on the villagers' general behaviour, hygiene and marital relations.

Theoretically the land belongs to the families but since there is far too much work to do, some 10,000 labourers have to be imported from nearby delta villages.

The labourers have no dossiers and can wear that they like, but otherwise do much the same work as the selected few.

The settlers are received in the village of Omar-Shahim for a training period of six months so as to get accustomed to their new environment, way of

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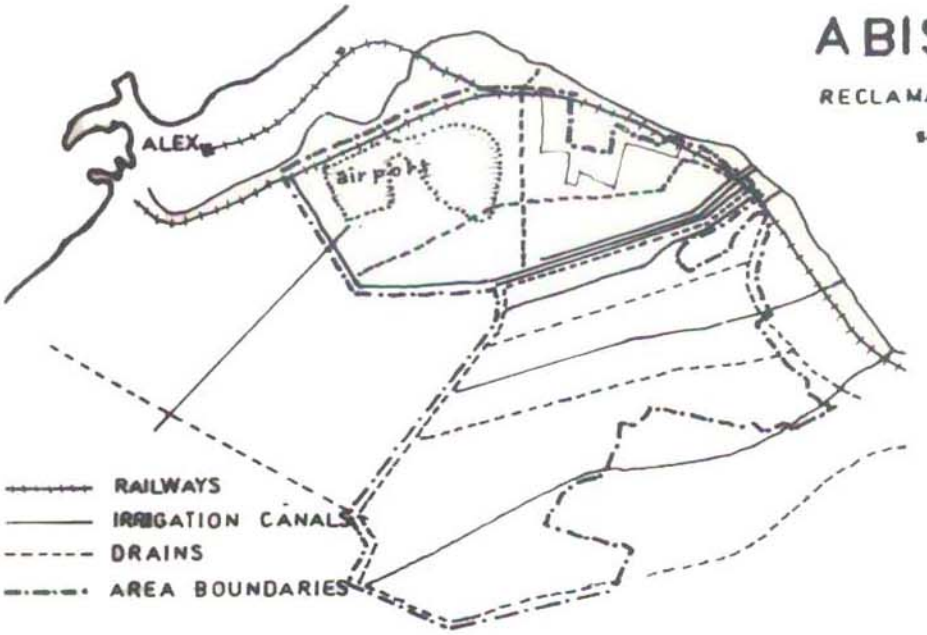
(1) 'The Engineers', Magazine. 'El-Tahreer Province' Article, Cairo July 1956

ABIS AREA

RECLAMATION SCHEME PT.4

scale 1:300,000



EL-TAHREER PROVINCE

scale 1:600,000

MAP NO. 4

living and the new ways of cultivation where mechanization plays a great part. The settlers are then distributed among the different villages of the Province.

From the economic point of view the Province is supposed to be a self-contained unit after a short period from the beginning of the reclamation procedure. The profits in the future are to compensate the capital and expenses of the scheme.

Regional Planning: Within the defined boundaries of Liberation Province lie 600,000 feddans. Around these boundaries are 620,000 more feddans which are due to become part of the Province to bring its ultimate total area to 1,220,000 feddans (See map No. 4)

The Starting point of Liberation Province is an area of 34,000 feddans irrigated by the Liberation Canal which branches off the Rayah El-Beheri and flows into the Nubariah Canal. This area is now being prepared to establish the first of the Liberation Provinces' 18 Markazs (Centres). Each of these Markazs comprises two 'Noktas' (Points) A 'point' is a large village unit which embraces six smaller villages.(1)

The deterimants of the village size were:

1. The village school with 230 children
2. The reasonable distance of the fellah's journey to work.

The Village: It has been estimated that the average family size in rural areas is six persons including one child of the compulsory eduction stage. In this case the size of the school is the main determinant of the size of the village. The number of families will then amount to 230 with a total population of 1,400. If every family is given an area of five feddans with an addition of 10 feddans for the built-up area and other additional areas for roads, canals and drains, the total village area was estimated to be 1,400 feddans.

The Nokta: The 'Nokta' (Point) areas were estimated on the number of population which can be served by one social centre.(2) This number was estimated at

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(1) Sidky. A and El-Sadr. S. 'The Planning of El-Tahreer Province' Report (Arabic Text) Cairo 1953

(2) Sidky. A and El-Sadr. S. 'The Planning of El-Tahreer Province' Report (Arabic Text) Cairo 1953.

10,000 i.e. 1,700 families. This number includes the population of the 'Point' and six villages. The 'Point' area will be about 1,600 feddans plus 8,400 feddans for its 6 villages giving a total area of 10,000 feddans.

In every 'Point' there is a primary school for about 200 children and a rural or industrial school for 20% of the number of children of the compoulsory education period, i.e.

$\frac{20}{100} \times \frac{1}{6} \times 10{,}000$ or 330 students. There is also a Mosque, a social and community centre and a co-operative society.

The Markaz: The Markaz (Centre) size is determined by the number of population which can be served by one health centre[1] This number was estimated at 33,000 i.e. 5,500 families. This number is equal to the number of population of the 'Markaz' itself, in addition to that of two 'Points' and 18 villages. In this case the population of the Markaz itself will be 33,000 (2 x 1800 + 18 x 1400) = 4200, i.e. 700 families. The cultivated area which they need will be 3,500 acres. In this case the area of the 'Markaz' itself will amount to 4,600 acres.

In every 'Markaz' centre there will be three primary schools serving 700 children, one rural or industrial school, two secondary schools serving 1400 students. In addition there are to be religious, communal, commercial, marketing and health buildings and the Markaz centre will also serve as the industrial centre of the area.

A typical village plan from the Province is shown in figure (3) - the plan for the village of Om Saber.

Costs: The rural house which consists of a living-dining room, 2 bedrooms a bathroom, a kitchen, a store and a back yard covers an area of 54 sq. metres. The over-all cost of the house is estimated to be £E 250.

The over-all cost of the village buildings was estimated to be £E 66,000

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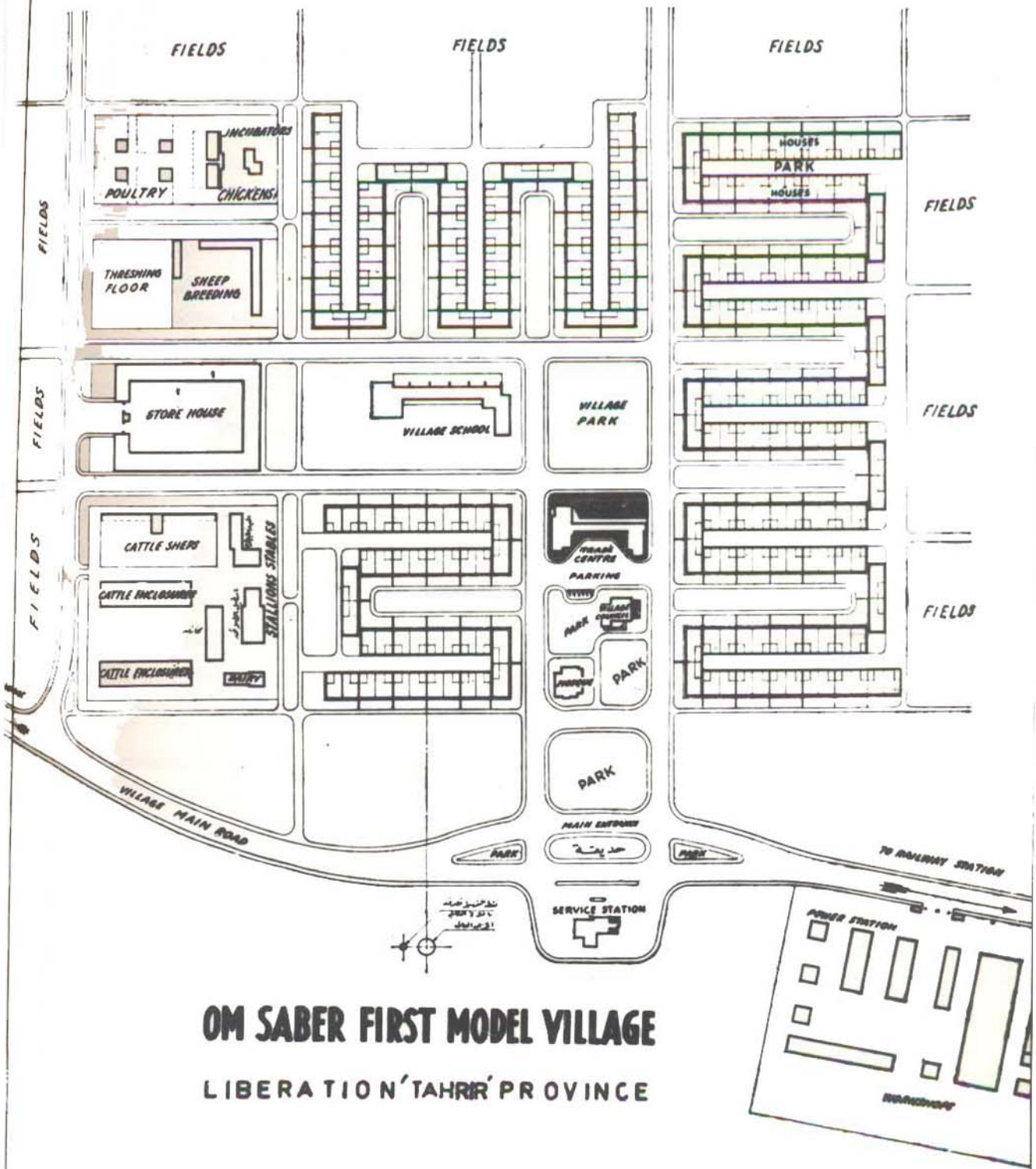
(1) Sidky A. and El-Sadr, S. 'The planning of El-Tahreer Province' Report (Arabic Text) Cairo 1953.



OM SABER FIRST MODEL VILLAGE

LIBERATION 'TAHRIR' PROVINCE

scale 1:1500

FIG. 3

while that of the 'Point' was £100,000 and that of the Markaz £E 370,000. The Markaz district which contains the Markaz i self, two 'Points' and 18 villages will cost about £E 3,000,000 including residential and public buildings. These costs do not include that of road and street construction or any other public services.(1)

Irrigation: The main irrigation canal is the 'Liberation' canal which branches from 'Ryah-El-Menoufi'. This canal is able to irrigate 24,000 feddans by perennial irrigation. The branch canals, can irrigate a further 3,000 feddans each. In summer time pumping machines are used to irrigate most of these areas when the water level lowers by two metres. Every pumping station is able to irrigate about 750 feddans. Other areas in the Province are irrigated by the spray system which saves about 2/3 of the amount of water needed in the case of the ordinary level irrigation.(2)

A series of wells have been dug at depths ranging between 50 and 70 metres. These wells are used to irrigate about 40% of the area of land which is irrigated by level irrigation. Every well can irrigate an area of about 250 acres.

Of the whole cultivated area 20% is kept as orchards, 20% for permanent grass, and 10% for vegetables. The remaining 50% of the area is reserved for other crops.

The Liberation Province is, as the Economist, July 28th 1958, Correspondent puts it, 'Egypt's showpiece oasis'.(3) It was also, before the Ministry of Agriculture recently cut down its size, one of the Government's most expensive miscalculations but, at least, the scheme has had a spectacular success in showing what can be grown on sand: a bleak stretch of desert has blossomed into a garden of oranges, melons, strawberries and roses. It was administered by a more or less autonomous organization in Cairo whose directors made some serious blunders, including the building of a citrus canning plant long before there was a chance of the orange trees bearing fruit, and the creation of factories

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(1) Sidky. A. and El-Sadr. S. 'The Planning of El-Tahreer Province' Report (Arabic Text) Cairo 1953
(2) The Engineers' Magazine. El-Tahreer Province, Article, Cairo July 1955.
(3) The Economist 'Brave Egyptian World', Article, July 28, 1958.

ning out retail goods which no one in the area could possibly afford to buy. A new village was built beyond the limits of the irrigated land without regard to the absence of local water supplies. These extravagances are now being lopped off one by one. The Cairo office has been disbanded, the factories closed down, and all agricultural luxuries severly pruned by the Ministry of Agriculture. But its experts find the involved plan for social welfare rather more difficult to deal with. In the words of the Economist the 'Liberation Province provides an egregious example of social planning run wild'. On the other hand, there is no denying that it has been a successful experiment in desert reclamation.

Point Four Land Reclamation Schemes(1)

The Permanent Council of National Production gave the Egyptian American Land Reclamation Department authority to work in 'Abis' in El-Behera Province and in Kom-Oshim in El-Fayoum Province. The P.C.N.P. contributed a sum of £E 5,450,000 and the Point Four (American Technical Assistance) a sum of $ 10,000,000 (i.e. £E 3,469,700)(2)

'Abis' area is about 2400 feddans, all belonging to the Government in Markaz Kafr-el-Dawwar, about 3 miles south-east of Alexandria. This area was originally a part of the lake of 'Maryout' where all the drains of El-Bahera Province end (See map No. 4) This fact created a great problem due to the great quantities of salts which were mixed with the soil. A great system of irrigation and drainage was essential in that area. A belt of 15 draining pumps were temporarily erected, to be replaced later by two pumping stations in El-Kalaa and El-Beshoudi.

The work began in the area in February 1954 when 5300 acres were flooded and washed and cultivation begun on 2400 acres. The first village was built for the first settlers in the area. The village contains 192 one-storey houses, 70 two-storey houses, 24 houses for employees in public services and 12 houses for

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(1) American - Aided Schemes
(2) Permanent Council of National Production, Report 1955 (Arabic Text) Government Press, page 73

the technical officials. A mosque, a rural school, a social centre, a clinic, public baths and washing places, an administrative building, five shops a co-operative society and a store for manures have also been built. Other public services have also been provided.

The village construction cost £E135,000 while the cost of public services amounted to £E 92,000.(1)

The new settlers who came from the neighbouring areas were considered as tenants for a period of one year after which they were eligible to own their lands if they proved to be efficient.

The agricultural structure was based on co-operative farming in which every family invests its five acres - the same system as has been adoped in El-Tahreer Province and the Land Reform Areas.

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(1) Permanent Council of National Production, Report 1955 (Arabic Text) Government Press page 73

P A R T I I

T H E N I L E D E L T A

CHAPTER III

CHAPTER III

PHYSICAL FACTORS AFFECTING RURAL LAND USES

The area to be dealt with comprises not only the land lying between the two branches of the Nile, but also includes all the alluvial lands on both sides of the delta as far as the Suez Canal region in the east and the Western Desert in the West with the whole area forming an inverted triangle with its apex near Cairo and its base stretching along the Mediterranean coast.

Topography:

The Delta is a flat fan of land occupying what would otherwise be a nearly triangular bay of the Mediterranean, extending over 200 kilometres along the coast. The level of the land-surface of the Delta falls by some 17 metres between Cairo and the sea, with an average slope of about 1 metre in 10 kilometres. On either side of the Delta, the deserts rise gradually as rolling tracts of gravel and sand (See map No. 5)

A feature which will at once strike the eye on glancing at the Delta on Map (No. 5) is the large area of alluvial land still unreclaimed along its northern border. This land lies at so slight an elevation above the sea that its drainage by free flow is impracticable; it will ultimately be reclaimed by pumping operations on a large scale.

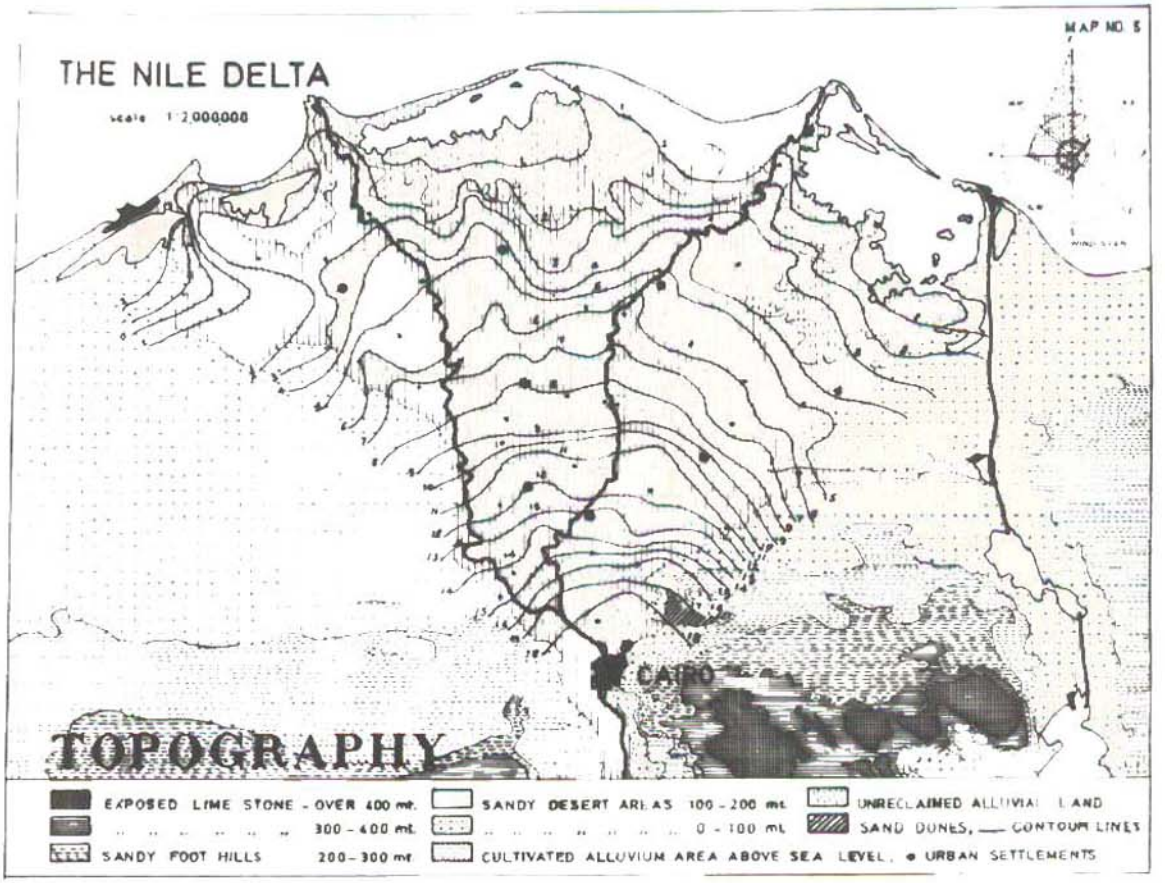
Geology:

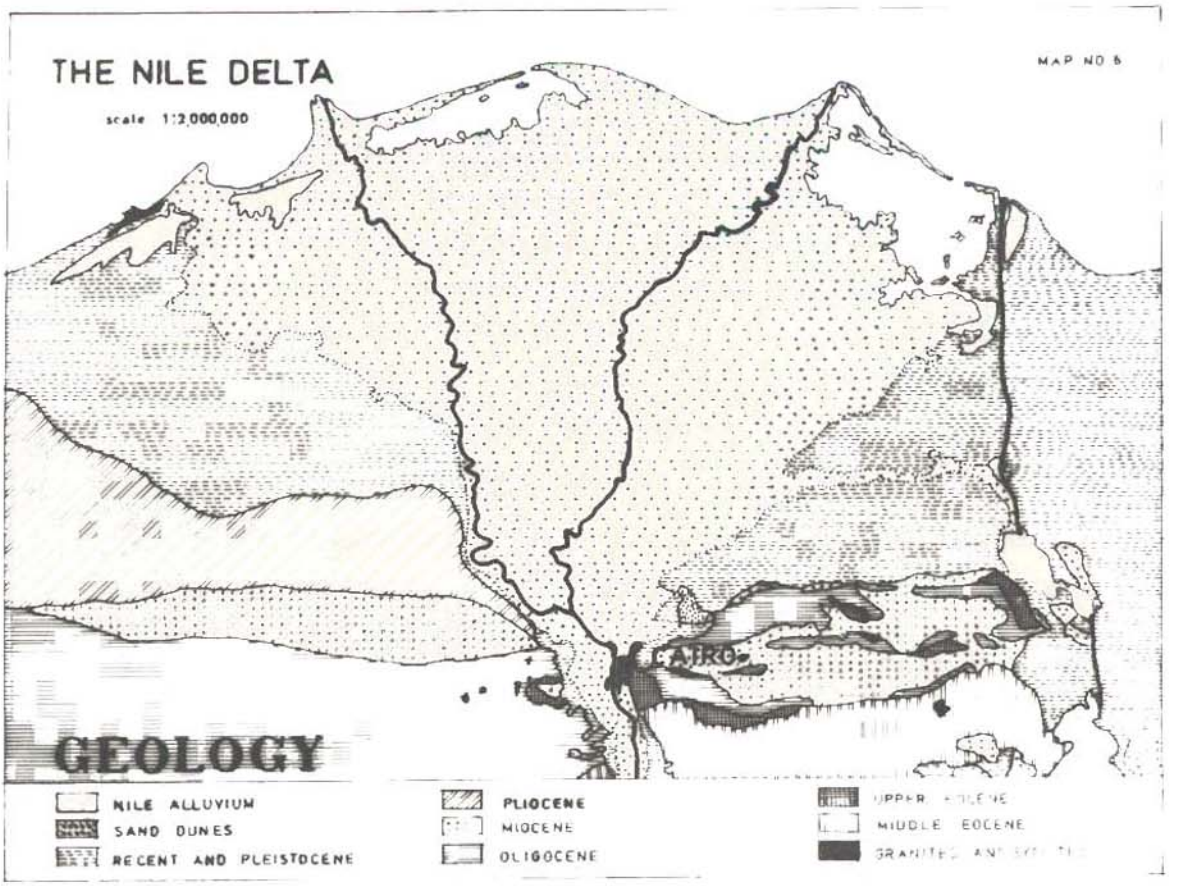
The gradual accumulation of sands and clays brought down by the Nile has resulted in the formation of the Delta, in which the uppermost layers present considerable variations in the surface strata.

From borings made in the river bed at Esna, in Cairo, and near the large towns of the Delta situated on the branches of the Nile, it has been found that the channel is almost entirely composed of sands, and that the Nile mud is either extremely thin or non-existent. Away from the river, on the other hand, the Nile mud attains a considerable thickness, the sands not being reached before a depth of 10 metres (30 feet).(1)

Through the long ages during which river-terraces were being formed in the

(1) Ball, J. 'Contribution to the Geography of Egypt' Government Press Cairo 1939. page 17


MAP NO. 5
THE NILE DELTA
scale 1:2,000,000
CAIRO
TOPOGRAPHY
EXPOSED LIME STONE - OVER 400 mt.
300 - 400 mt.
SANDY FOOT HILLS 200 - 300 mt
SANDY DESERT AREAS 100 - 200 mt.
0 - 100 mt.
CULTIVATED ALLUVIUM AREA ABOVE SEA LEVEL
UNRECLAIMED ALLUVIAL LAND
SAND DUNES, — CONTOUR LINES
URBAN SETTLEMENTS


MAP NO 6
THE NILE DELTA
scale 1:2,000,000
CAIRO
GEOLOGY
NILE ALLUVIUM
SAND DUNES
RECENT AND PLEISTOCENE
PLIOCENE
MIOCENE
OLIGOCENE
MIDDLE EOCENE

Nile Valley, immense quantities of gravel and sand were carried by the Nile into the sea, where they became spread out around the river's mouths in the form of a delta, the surface of which became increasingly uncovered and subjected to erosion by the river as the sea-level fell. For the most part these deltaic gravels and sands are now concealed beneath a later covering of Nile mud, where they are frequently styled 'the Sub-deltaic deposits'; but here and there, especially in the more easterly parts of the Delta, they rise through this later covering of mud, forming the rounded gravelly banks known as the 'turtle-banks.'

The mud that covers the flat floor of the Nile Valley and most of the surface of the Delta and forms the arable land of Egypt has all been deposited by the flood-waters of the river in the course of the recent geological period. (see map no. 6) The Nile mud proper, that is to say the uppermost part of the deposit, averaging some 9 metres in thickness and composed of very finely divided mineral matter with comparatively little admixture of sand, has probably all been laid down within the last 100,000 years or so.(1) Beneath this uppermost accumulation of almost pure Nile mud is a considerable thickness of mixed sand and mud, deposited by the river during the transition-period between Palaeolithic and Neolithic times. In the Delta this mixed sand and mud overlies the sub-deltaic deposits already mentioned.

The process of the present day surface's building was at a yearly rate of 0.9 millimetres.(2) This meant that the building of the Delta lasted for about ten thousand years. Today the amount deposited in the Delta has decreased after the controlling of the river and the introduction of perennial irrigation. The present Delta is said to receive only one third of the amount deposited on lands still under basin irrigation and flooded every year. This amount will be effected markedly after the building of the High Dam south of Aswan.

In the Delta there is considerable variation in the relation between sands and clays. In the south near Cairo the relations are similar to those of the Nile Valley where coarse gravels appear at depths of from 30 to 50 metres,(3) but

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(1) Ball. J. 'Contribution to the Geography of Egypt' Government Press Cairo 1939 page 17.

(2) The Rate of Advance of the Delta was calculated at 7 metres per annum. These changes usually take place at the mouths of the two branches of the Nile.

(3) Willcocks, Sir W and J Craig. 'Egyptian Irrigation' 1st vol. London 1913

pockets of clay are more frequently present in the lower sands. In the north of the Delta, on the other hand, pockets of sand are intercalated in the clays, or in some cases alternate with them.

In many parts of the Delta very stiff black clays are intercalated in the sands at varying depths. Stiff black clays of a similar nature are widely distributed in the extreme north of the Delta on the borders of the line of the great lakes fringing the Mediterranean.

Soil Types:

The soil of the Delta down to a contour of 7 metres above the Mediterranean is practically free from any excess of salt.(1) Below the 7 metres contour, however, bad drainage is always accompanied by salt efflorescence. Below the 3 metres contour, salt is everywhere in excess, and land needs very careful drainage and frequent washings. Below the 1.50 metres contour, very little land has been reclaimed. When it is considered that the bottom deposits of the Nile alluvium have always been in sea water, and that up to 1.50 metres above sea-level they are frequently washed by the sea, it is not to be wondered that capillary attraction brings salt easily to the surface in the northern parts of the Delta. Above the 6 metre contour, wells are frequently used for irrigation and draw their water from 3 to 6 metres below the surface. The wells in the Delta depend for their water supplies as much on the main canals as on the Nile itself.

Sir W. Willcocks in his book 'Egyptian Irrigation' recognized four classes of soil, noting:

1. The well-known dense black clay soil of a depth of over 6 or 7 metres, which is very rich and especially suitable for cotton.
2. The next class of soil is a dense black clay of 1 to 3 metres in depth, overlying sand.
3. The third class of soil is a sandy clay, especially suitable for maize and root crops.
4. The fourth class is almost pure sandy or gravelly soil.

The Delta soil is very unfform in its general composition; it is very rich in potash, somewhat less rich in phosphoric acid; and poor in nitrogenous compounds.

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(1) Willcocks, Sir. W. and J. Craig. 'Egyptian Irrigation' vol.1, London 1913

Mr. Roche,[1] has classified the soil types according to the percentage of clay present, as follows:

1. Very light 'safra' - yellow - 20%
2. 'Safra' - 20% to 30%
3. Intermediate medium - 30% to 40%
4. Strong 'soda' - black - 40% to 60%
5. Very strong 'soda' - 50% to 60%

The physical constitution of the soil is of more importance than the chemical. The chief effects of the physical character are those on the quantity of water which can be held in the different seasons of the year with respect to the Nile flooding.

Natural Resources:

Apart from the cultivated land of the Nile Delta, it is hard to find any other natural resources; except fishing in the shallow lakes of Maryout, Edko, El-Burellus and El-Manzala in the north. Minerals are unknown in the Delta; consequently agriculture is the dominant feature of the economy of the area.

Climate:

Temperature: On the Mediterranean coast the range of temperature during the day is small and fairly constant throughout the year. It is least in the summer when its value is 7°C. (40°- 33°), and greatest in April and May when it is 9°C. in Cairo the diurnal range is 10°C. in the winter and amounts to 15°C. in May and June. (30°- 15°)

The wet-bulb temperature in Alexandria and Cairo is lowest (10°- 12°) in January, and increases to a maximum of 23°C in August.

The grass minimum temperature at Giza near Cairo fell to freezing point on 23 nights in January and February 1987, and on 21 nights in the same period in 1929, while in 1924 it fell to zero on one occasion only. In the seven years 1924 - 1930 the lowest grass-minimum temperature recorded was 4° below freezing point.[2]

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(1) Roche, J. 'Agricole d'Egypt - Cairo 1923.
(2) Atlas of Egypt. Survey Department - Cairo 1928

Humidity: The climate of the Mediterranean coast is damper in summer than in winter, the relative humidity increasing from a little below 70% in winter to 75% in July and August. The air is more humid in the Delta in winter (relative humidity 80%) than elsewhere in Egypt. As the weather becomes warmer the humidity at all inland places in the Delta rapidly diminishes, reaching a minimum in May and June, the annual range amounting to between 20 and 25%. Near Cairo, the humidity falls from 70% in December to below 50% in May. In April, May and June during the passage of 'Khamasin' depression across the Libyan Desert the easterly winds which then traverse Lower Egypt are extremely dry, and humidities well below 10% are not infrequent.

At Alexandria the diurnal range is small, being between 15 and 20% throughout the year. In Cairo there is a large diurnal range, amounting to 25% in winter and 50% in the middle of the summer. Towards the end of the 'Khamasin' period the increase in humidity when the hot southerly wind is replaced by the west or northwest wind following the passage of a desert depression is rapid and very pronounced. A change in the mean-of-day value from 14% to 55% on successive days has been registered.(1)

Winds: The average mean-of-day velocity a few metres above the ground of the northerly current which prevails in the Delta in summer is about 9 kilometres per hour. Strong winds, sometimes reaching gale force, are not uncommon in the Delta during the passage of depressions along the Mediterranean sea in winter or across the Libyan desert in spring. Velocities of 120 kilometres per hour at Alexandria and 103 kilometres per hour at Helwan have been recorded. Gales usually blow from a southerly or westerly quarter.(2) These gales have helped in many cases the spreading of fires from one village to another. Although the prevailing northerly winds do not as a rule rise beyond moderate strength, nevertheless, they sometimes increase from almost calm in the morning to strong in the afternoon, dying away again in the night.

There is a large variation of direction during the day at Alexandria in winter; the mean direction is 20° south west at 8h., while twelve hours later it

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(1) Atlas of Egypt - Survey Department - Cairo 1928.
(2) Ibid.

is 50° north west. At Helwan (south of Cairo) the resultant wind in January veers completely round the compass, being east at 4h., south at 11h., west at 13h., and north at 19h.(1) The wind is steadier in direction in summer when the northerly current is established. (See Winstar on Map No. 5).

Rainfall: Rainfall in the Delta is in few places of economic value though its importance is by no means negligible. The rainiest locality, viz. the vicinity of Alexandria, receives only an average of 200 millimetres per annum. The amount recorded there in individual years has varied between 387 and 59 millimetres. December and January are the rainiest months; there is a long period of summer drought. Rainfall decreases so rapidly with increasing distance from the coast that its value for agricultural purposes soon disappears. In the middle of the Delta the yearly amount is about 75 millimetres, while in Cairo although in one year 90 millimetres was recorded, the normal quantity is only about 30 millimetres.

Land Utilization:

The Nile Delta has an area of about 22,000 square kilometres, Of this total area, however, only a little more than half is at present cultivated, the remainder which includes most of the northern portion, being in part occupied by extensive shallow lakes and marshes and in part consisting of low-lying salty ground that has not yet been wholly reclaimed.

The rich agricultural lands of the Delta have been entirely formed by the deposition of suspended matter on the flood plains of the river in the course of a long succession of annual inundations; and although the Nile is no longer allowed to overflow its banks in the Delta, the soil still receives annually a minute addition to its thickness, by deposition from the irrigation-water that is led over it by canals from the river.

The cultivated area of the country now stands at 5,500,000 feddans, but as a result of the change over from basin to perennial irrigation, leaving less

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(1) Atlas of Egypt, Survey Department - Cairo 1928

than one million feddans under basin irrigation, the crop area rose from 7,717,000 feddans in 1912 to 9,165,000 feddans in 1948. It should be added that owing to the fact that Egypt now relies on a steady water-supply, its total cultivated and crop areas show practically no variation from year to year, though the proportion under different crops fluctuate in response to the prices.

The following table shows a schedule of the provincial areas in feddans including cultivated and arable lands in 1952.(1)

Table (6) Provincial areas - Cultivated by Arable Land.

Province	Total Area	Cultivated Area	Arable Land
1 - Beheriya	1,098,459	787,050	311,409
2 - Daqahliya	625,830	554,020	71,810
3 - Gharbiya	797,647	629,520	168,117
4 - Kafr El-Scheikh	861,340	487,791	373,549
5 - Sharqiya	1,371,830	661,577	710,253
6 - Qalubiya	234,387	355,119	29,611
7 - Menufiya	377,319	347,151	30,168
Total	5,364,223	3,669,106	1,695,117

In the Delta there are about 60,000 feddans under orchards and 186,000 feddans under vegetables.

The principal tress found inthe Delta are : 'Sant' (Acacia arabica) which flourishes wherever it can find water, the Lebbeck (Albizzia Lebbeck), much used for shading roads, the Sycamore (Ficus sycamorus), Tamarisk, Willow, Poplar Eucalyptus, and Bamboo. Many other ornamental and timber trees have been introduced and thrive well. There are about two million palm trees in the Delta.

Practically all the towns and villages of Egypt are situated in the Nile Valley and Delta. Cairo, the capital, situated on the river at the point where the valley begins to open out to the Delta has a population of about 2.5 million Alexandria and Port Said, the two principal seaports, are situated at the western

(1)

and eastern corners respectively of the Delta; Alexandria (population about 1 million) is the enterport for import and export trade of the country, while Port Said (population about 189,000) derives its importance from being a place of call for all ships trading between Europe and The East by way of the Suez Canal. In addition to the large towns already mentioned there are in the Delta area, some twenty two towns with populations of more than 10,000 persons, ranging from Baltim with a population of 14,000 to Tanta with a population of approximately 141,000, situated on the centre of the Delta (See appendix no. 3)

Administrative Divisions:

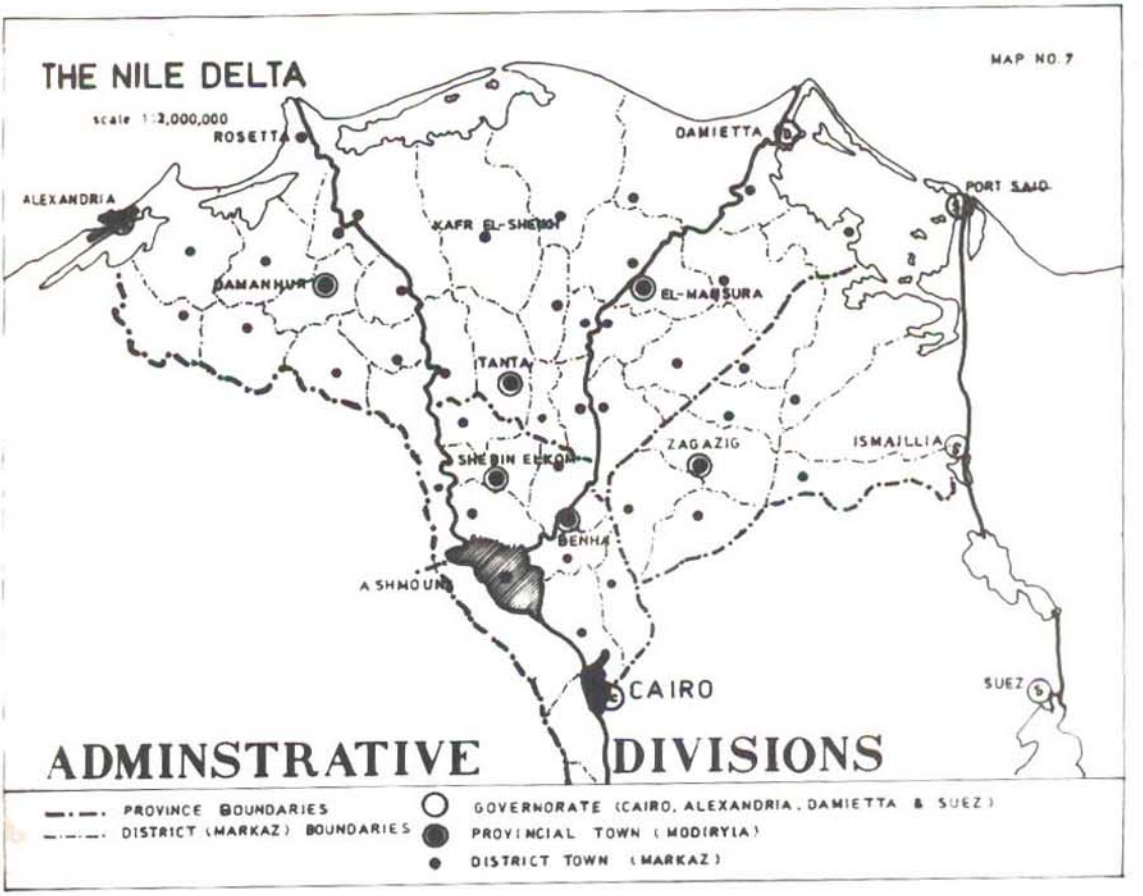
The Delta is administered through seven Provinces (Mudiriya) excluding that of El-Tahreer (the new Liberation Province) and the Governorates of Cairo and Alexandria and Damietta. (See map no. 7) These provinces are: El-Behera, Kafre El-Sheikh, El-Gharbyia, El-Menufyia, El-Daqahlyia, El-Sharqyia and El-Qualubyia. The Provinces are divided into towns (banders) and districts (markazs) which are subdivided again into villages (nahyas). It may be well, however, to guard against a misconception to which the use of the word 'village' may give rise. The adiministrative area of the 'nahya' may, and frequently does, comprise several agglomerations of houses, to each of which the name of village is more apt, or again where only one such agglomeration is included in the circumscription, it may be of a size that warrants the appellation of town rather than village. The village is governed by the 'Omda' (mayor) assisted by the Sheikhs of the different clans of the village and a number of Ghafars (policemen). The 'Omda' is appointed by the government or in some cases elected by the villagers themselves.

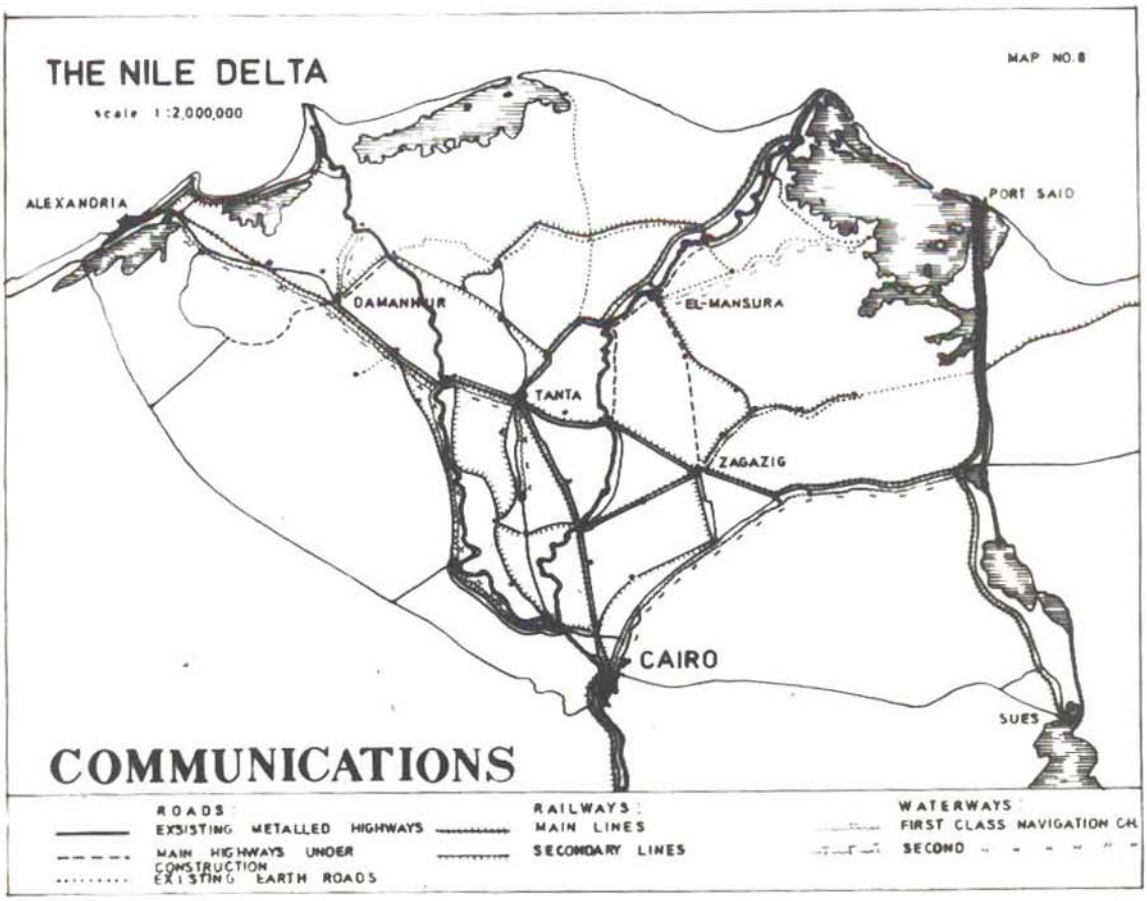
Communications:

Railways: Egypt was one of the first countries to have railways, the oldest line being that which connects Alexandria and Cairo via Tanta and Benha.(1) The second was that which connects Cairo with Ismalia via Zagazig. From these other two main lines branch the other railway lines of the Delta, forming a network spreading out fan-wise from Cairo and connecting the main cities, towns and larger villages of the cultivated lands of the region. (See map no. 8)

There is marked absence of direct East-West routes across the Delta which is particularly noticeable in the northern part of the Delta where the lateral distances are greatest and where the distances between the radial routes also increase

(1) Constructed in 1851


THE NILE DELTA
MAP NO. 7
scale 1:2,000,000
ROSETTA
DAMIETTA
ALEXANDRIA
PORT SAID
KAFR EL-SHEIKH
DAMANHUR
EL-MANSURA
TANTA
ZAGAZIG
ISMAILLIA
SHEBIN EL-KOM
BENHA
ASHMOUN
CAIRO
SUEZ
ADMINSTRATIVE DIVISIONS
PROVINCE BOUNDARIES
DISTRICT (MARKAZ) BOUNDARIES
GOVERNORATE (CAIRO, ALEXANDRIA, DAMIETTA & SUEZ)
PROVINCIAL TOWN (MODIRYIA)
DISTRICT TOWN (MARKAZ)


THE NILE DELTA
MAP NO. 8
scale 1:2,000,000
ALEXANDRIA
PORT SAID
DAMANHUR
EL-MANSURA
TANTA
ZAGAZIG
CAIRO
SUES
COMMUNICATIONS
ROADS
EXSISTING METALLED HIGHWAYS
MAIN HIGHWAYS UNDER CONSTRUCTION
EXISTING EARTH ROADS
RAILWAYS
MAIN LINES
SECONDARY LINES
WATERWAYS
FIRST CLASS NAVIGATION CH.
SECOND

There are about 3,000 kilometres of the State Railways carrying more than 40 million passengers every year. The 977 kilometres of the Delta Light Railways (narrow guage) carry about 19 million passengers every year in the northern parts of the Delta. (Fouwa-Rosetta, Abu-Qir - Rosetta, El-Mahalla El-Kubra- Baltim and Fouwa - Kafr-El-Sheikl). The Low Egypt Light Railway has 252 kilometres and carries 3 million passengers every year between Benha - Mit Ghamr, Mit-Ghamr-Mansoura, and Mit-Ghamr - Zagazig).

Roads: The different cities, towns and villages of the Delta are also served by a network of roads and tracks. Although the majority of these roads are not well constructed, their earthy surface makes them, in a way, passable for vehicles of all kinds. Most of the main rodds which connect the different settlements of the Delta occupy the banks of the canals running northward. It is also to be noted as in the case of railways, that there is a lack of main motor roads across the Delta from East to West.

The average length of roads per person in the habitable areas in Egypt is still very low compared with other advanced countries. While we find that one kilometre of roads in the U.S.A. serves 30 persons, we find the same length serves about 1500 persons in Egypt.(1) The roads in the northern areas of the Delta become inadequate during the rainy season in winter, and speaking generally the roads throughout the country are unable to cope with its economic and social needs.

The Council of National Production has initiated a scheme to pave 2500 kilometres of roads in the Delta, in addition to improving the condition of another 10,000 kilometres.

Densities of traffic and categories of roads will be studied in detail in the defined rural area (Markaz Ashoun) which will be dealt with later in Part III. Map No. (8) shows the constructed roads together with those which are under construction.

In 1947 there ~~have been~~ were 1,191 kilometres of first class roads and 5,737 kilometres of second class roads serving the different parts of the Delta, excluding the desert roads.

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(1) Council of National Production Report of its Programme-Cairo 1955

Water-Ways: A considerable amount of internal communications and commerce between towns and villages situated on the river and the main canals are carried by sailing craft, which make use of the prevalent northerly wind to ascent the river, and the current to float downstream. Motor vessels are also used on the river Nile and the main canals especially the Ismailia Canal (connecting Cairo with Ismailia) and El-Mahmoudiya Canal which branches from the Rosetta branch of the Nile at El-Mahmoudiya and runs as far as Alexandria.

The Internal Navigation Authority has at present 450 marine units (vessels and boats) of a capacity of 100,000 tons. These units can carry more than two million tons of goods per year. This emphasizes the great importance of the water-ways to the national production and the national economy.

One of the main schemesunder construction for improving the internal navigation , is the co pletion of the water-way connecting Cairo and Alexandria through the Rosetta Branch, Rayah El-Behery, El-Khandak Canal and then El-Mahmoudiya Canal.

Another scheme, now under way, is to connect Shebin El-Kom, Tanta and Kafre El-Zayat with an efficient water-way through Bahre (canal) Shebin then El-Qased Canal up to Tanta and then the construction of a new navigation canal from Tanta to connect El-Bajouriya Canal at Kafre El-Zayat and then to the Rosetta Branch. The existing water-way network and these two new schemes are shown on Map No.(8)

Throughout the Delta run 1,112 kilometres of canals and 433 kilometres of drains suitable for light navigation.

CHAPTER IV

RURAL HABITAT IN THE NILE DELTA

Before discussing the factors affecting the rural habitat we should differentiate between the two main types of rural settlement: the village and the 'ezba' or hamlet. It must be appreciated that although the English terms 'village' and 'hamlet' are used in this thesis as being the nearest equivalents to the arabic terms 'qarya' and 'ezba' the connotations of the latter are somewhat different to their English counterparts in terms of size and function.

According to the Report of the Committee on Land Utilization in Rural Areas published in 1942, 'any grouping of over 1,500 people' is defined ad a town, 'any grouping of less than about 20 houses makes a hamlet rather than a village'. 'A village then is a compact grouping of anything between 100 and 1,500 people.

This basis cannot be strictly applied in the Nile Delta. A village may contain anything from a few hundred to several thousand inhabitant. Some, in fact, such as Shatanouf which is specially examined in this thesis, might perhaps be better termed 'country towns' wherever the 'village' population exceeds, 5,000 and a main market is associated with it. The 'ezba' contain anything from five persons to 500 inhabitants. In the 'ezba' the houses are usually occupied, by permanent farm workers and are in the form of 'tied' houses whereas in the village almost all the houses are owner-occupied.

Historical Background:

In the pre-dynastic period, Egyptian society was learning to live in unity along the borders of the Nile. In striving to harness the Nile the early communities which established themselves along its banks soon developed the art of communal living in a closely knit form which still characterizes Egyptian rural society down to the present day.

The seasonal flood of the river was a source of common danger, because it meant irregular inundation of all the land. To be able to settle in a village above the flooded plains, it was necessary for those early settlers to build up a large artificial mound of earth in order to set up the houses on its crest.

It was impossible for any small group or family to content itself with a small isolated mound on which to erect its house; for such a small mound would have been easily swept away by the flood. Thus it was essential for the early settlers to live in large village communities where numbers of families had to co-operate and live together.(1)

The same danger helped the erection of large and high banks all along the sides of the river. Neighbouring villages had to co-operate in the erection of these high banks as well as in guarding them during the flood season. This meant not only the initiation of co-operative efforts, but also the organization of the work and the growth of a system of regional as well as local administration.

Another factor in the development of community life in early Egypt was the necessity to regulate the flow of water from the Nile for irrigation. This meant the control of the waters of the river and the division of the plain land of the Delta into what is called irrigation basins. It was necessary to build large banks round each of these basins and to dig large canals to lead the water from the river to the basins. The development of basins and the digging of canals were in themselves a great unifying factor.

The Egyptian village, in general, has long been considered as a reflection of its surroundings. The village location, its architecture and building materials are dictated mainly by the water, transport and relation/ to cultivated land.

It is often difficult to follow the history of the development of an Egyptian village. The past is still buried underneath the present. The building material is responsible for this fact. It was always an easy task to pull down an old building of mud bricks and to rebuild a new one on the same site. That is why the site of most of the villages is now at a higher level than that of the village when it was first built.

There is a great probability that the present plan does not differ much from that which existed thousands of years ago, except in the outskirts. The

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(1) Dr. Huzain, S., Egypt: A historical Synopsis - Ministry of Education, Cairo 1956. page 7.

...on occurred as a result of increase in population and the deterioration of the social structure of the families as well as an inclination on the part of the individual to seek a more independent life. This has caused a movement from the inside to the outside of the village either along its ring road or even further out.

Every village has its own history which is only enshrined in the traditions of the existing families, and is embodied in tales of their origins and other traditions, their speech, dress and beliefs. It is almost impossible to get written documents or material evidence except in a few cases where some archaeological or architectural discoveries have been found in the vicinity of the settlement.

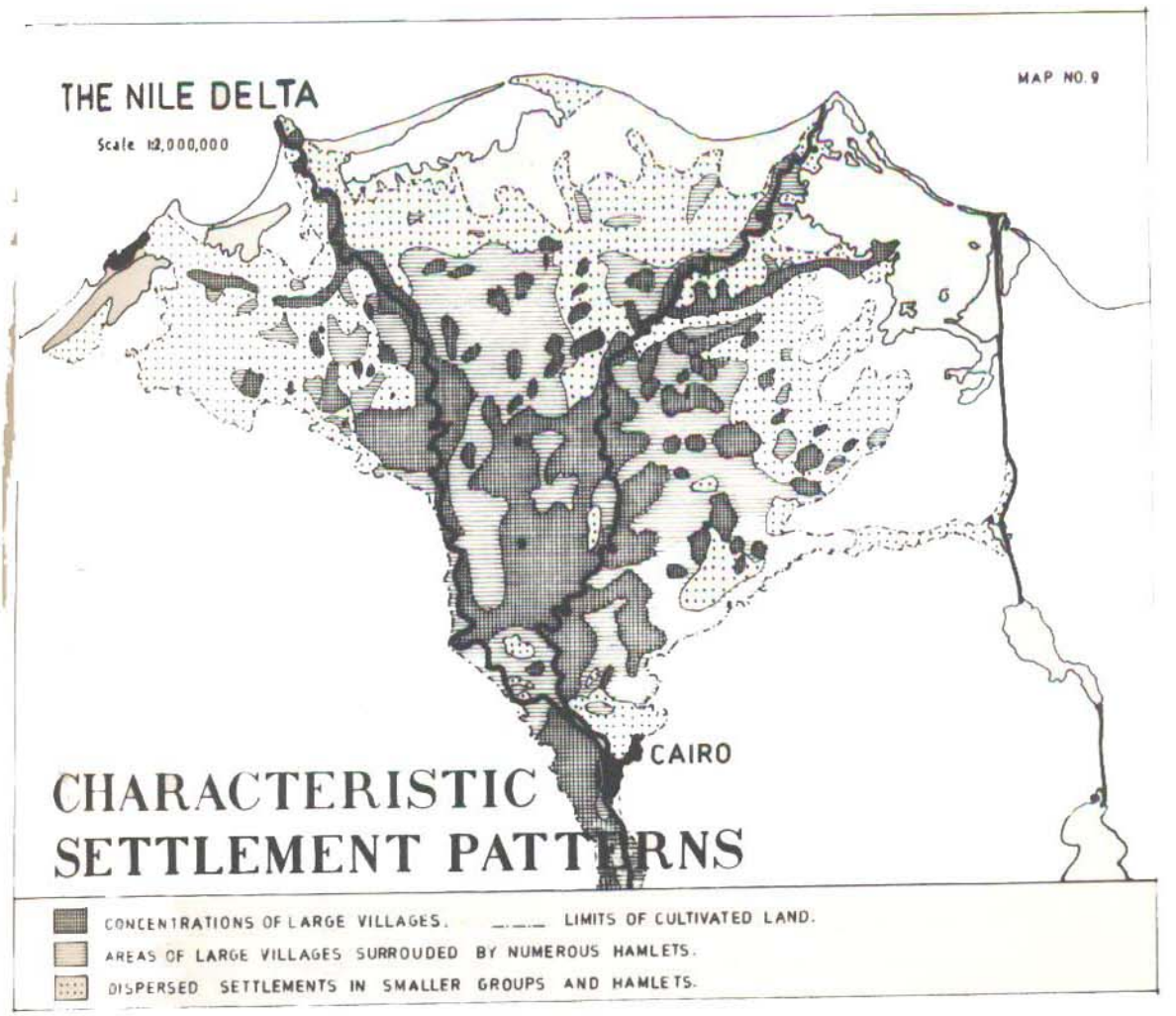
In Ancient Egypt villages were built on the edge of the desert to save every inch of the land for cultivation. They were also built on the banks of the river, canal, or lakes. In other cases they were built in a central position with respect to the cultivated land. It is now sometimes difficult to regognize these factors at the present time due to increases in the extent of the cultivated area and changes in the land holding system.

The yearly flooding of the Nile during the ages and the precipitation of the water's silt which caused a considerable raising of the level of the land, has covered the remains of the past. Excavations could only be carried on by destroying the present villages which are built on the top of the old ones.

Rural Settlment Pattern in the Delta:

The physical character of the surface of the Nile Delta has had a great effect on the distribution of rural settlements. In the southern and central parts of the Delta the villages are close together and many are large in size in terms of population, whereas they become more widely scattered and generally smaller in population as one moves into the northern sector of the Delta where the number of hamlets rather than villages characterizes the settlment pattern. (See mpp no. 9)

The type of settlement in every ~~ear~~ area is affected, to a large extent by the form of social and economic life dictated by the type and fertility of the land in each area. In the middle and the south of the Delta we find larger settlements


THE NILE DELTA
Scale 1:2,000,000
MAP NO. 9
CAIRO
CHARACTERISTIC SETTLEMENT PATTERNS
CONCENTRATIONS OF LARGE VILLAGES.
AREAS OF LARGE VILLAGES SURROUDED BY NUMEROUS HAMLETS.
DISPERSED SETTLEMENTS IN SMALLER GROUPS AND HAMLETS.
LIMITS OF CULTIVATED LAND.

with houses of more than one storey, very fertile fields, and comparatively more enlightened peasants. (See map no. 10) In the north, east and west we find the fortress type of settlement more widely dispersed on the cultivated land. The houses are mostly of one floor and the peasants are less enlightened as they have not much contact with the large towns because of the poor communications. (See map no. 11 and 12) In these areas the fellah is very much attached to his land even in the physical sense and as a result there is a larger proportion of hamlets than exists in the middle or south of the Delta.(1) In the extreme north, east and west, the rural settlements are more dispersed and the houses are more separated into small groups or even single houses. (See map no. 13) Another phenomenon is that the size of the house itself gets smaller, perhaps because the fellah does not live a stable life in these remote areas as he is always exposed to severe climatic disasters, and handicapped by the lack of irrigation water and the low fertility of the land. Even the building materials vary slightly as more bricks are used in the northern part because of the excessive demand in the low lands.

The rural settlements in the Nile Delta have been given different names according to their size, siting system of administration or management. They begin with the Kafre (a larger village), Qariya (village), Tell (a village built on a raised site), Mehallet (place), and Ezba (hamlet).

On the borders of the cultivated land of the Delta the nomads and the bedouins live in tents and straw huts.

The attached map no. (9) (2) shows the distribution of the different types of rural settlement pattern to be found in different parts of the Nile Delta. The other maps illustrate the typical rural settlement patterns in four different areas in the Delta, differentiating the towns, large villages, villages and hamlets. Plans of the different types of rural settlement are shown later on (figures 4,5,6,7 and 8)

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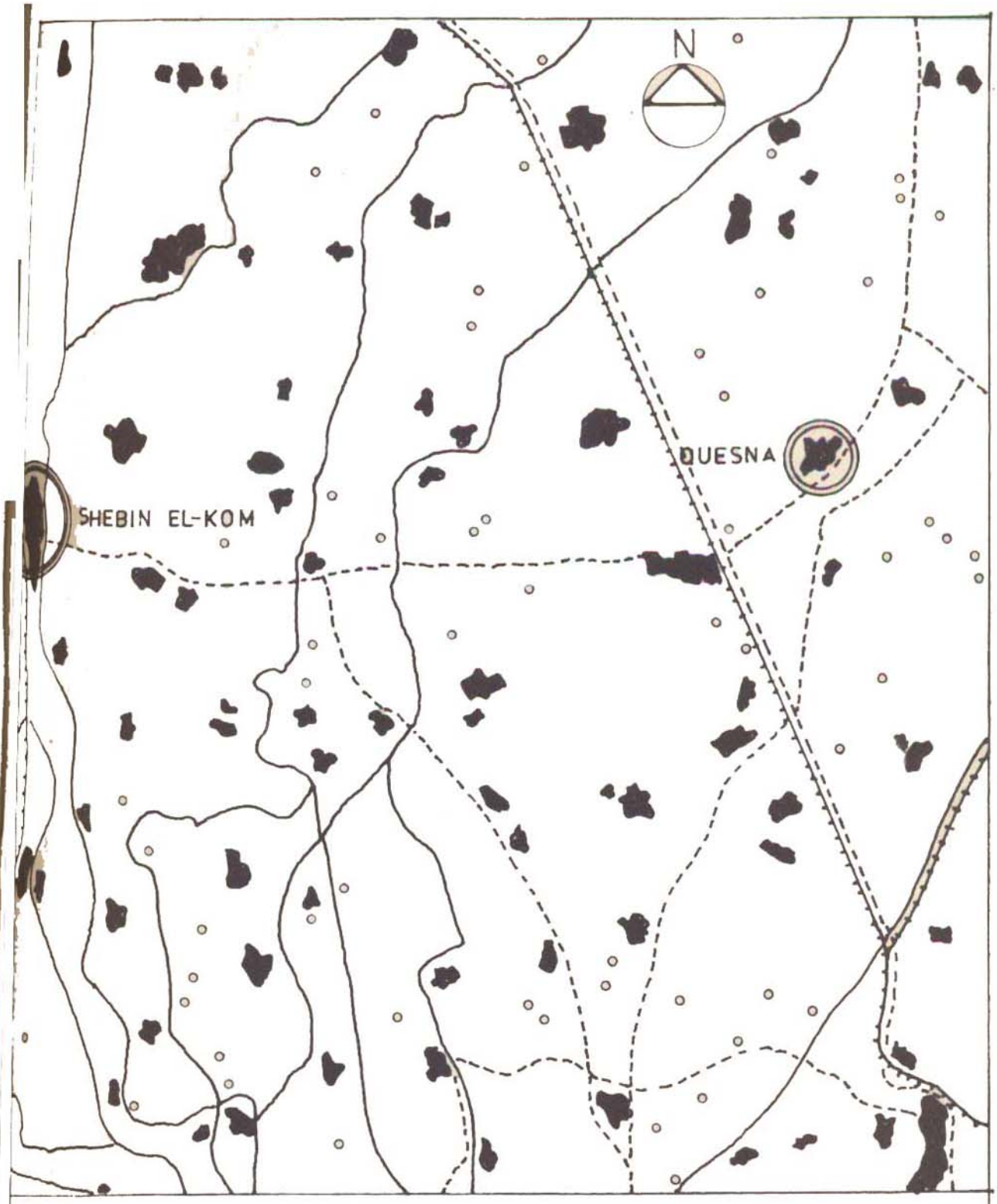
(1) Luzach, J.K. 'L'Habitat Rural en Egypt', E. Schindler, Cairo 1935.
(2) Luzach, J.K. 'L'Habitat Rural en Egypt', E. Schindler, Cairo 1935.



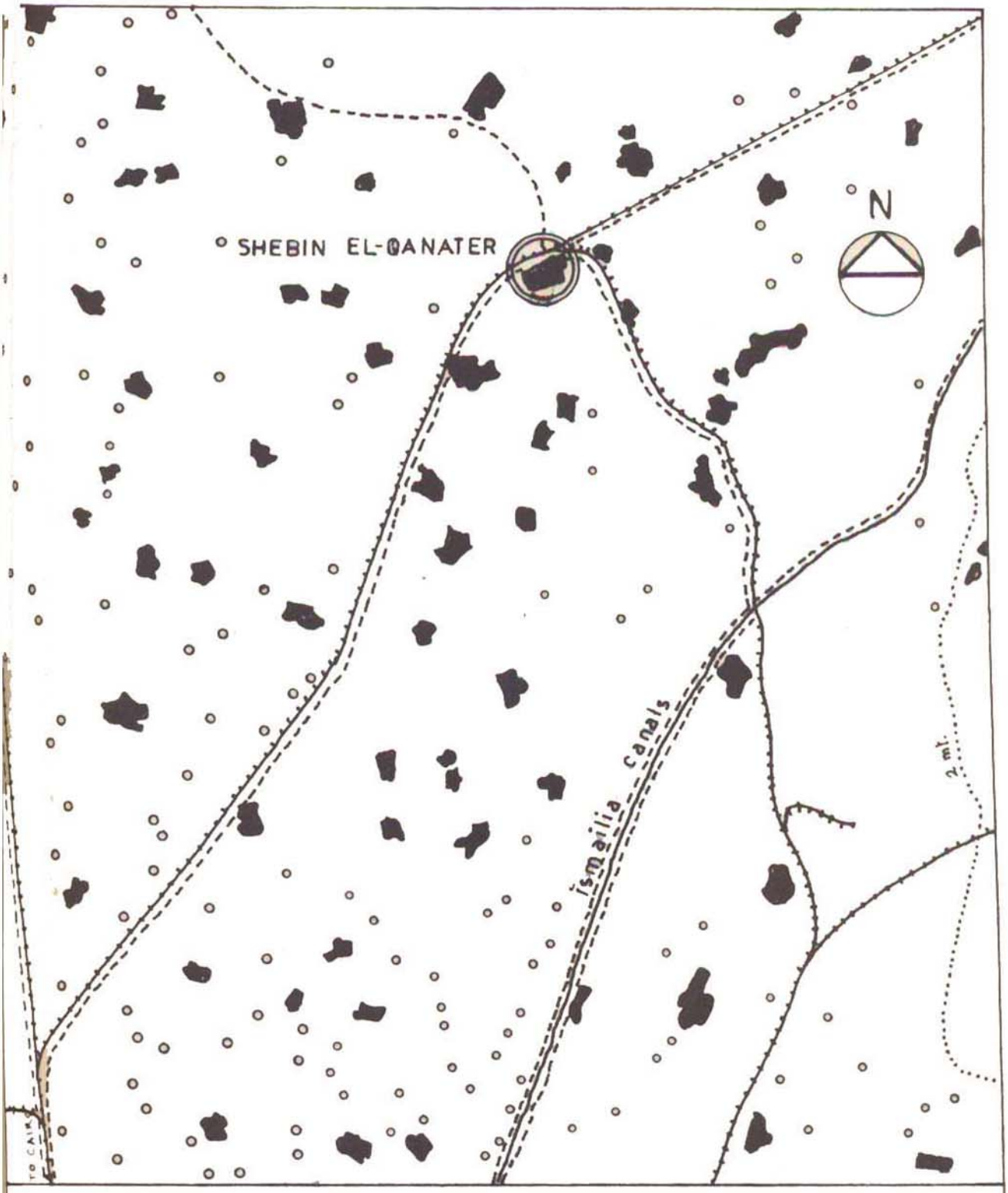
A SETTLEMENT PATTERN: CENTRE OF THE DELTA

KEY

- Main Roads
- Main Canals
- Railways
- Large Villages
- Hamlets

MENUFIYA Scale 1:100,000

MAP NO. 10



B SETTLEMENT PATTERN: S-EAST OF THE DELTA

KEY

---- Main Roads

——— Main Canals

—•—•— Railways

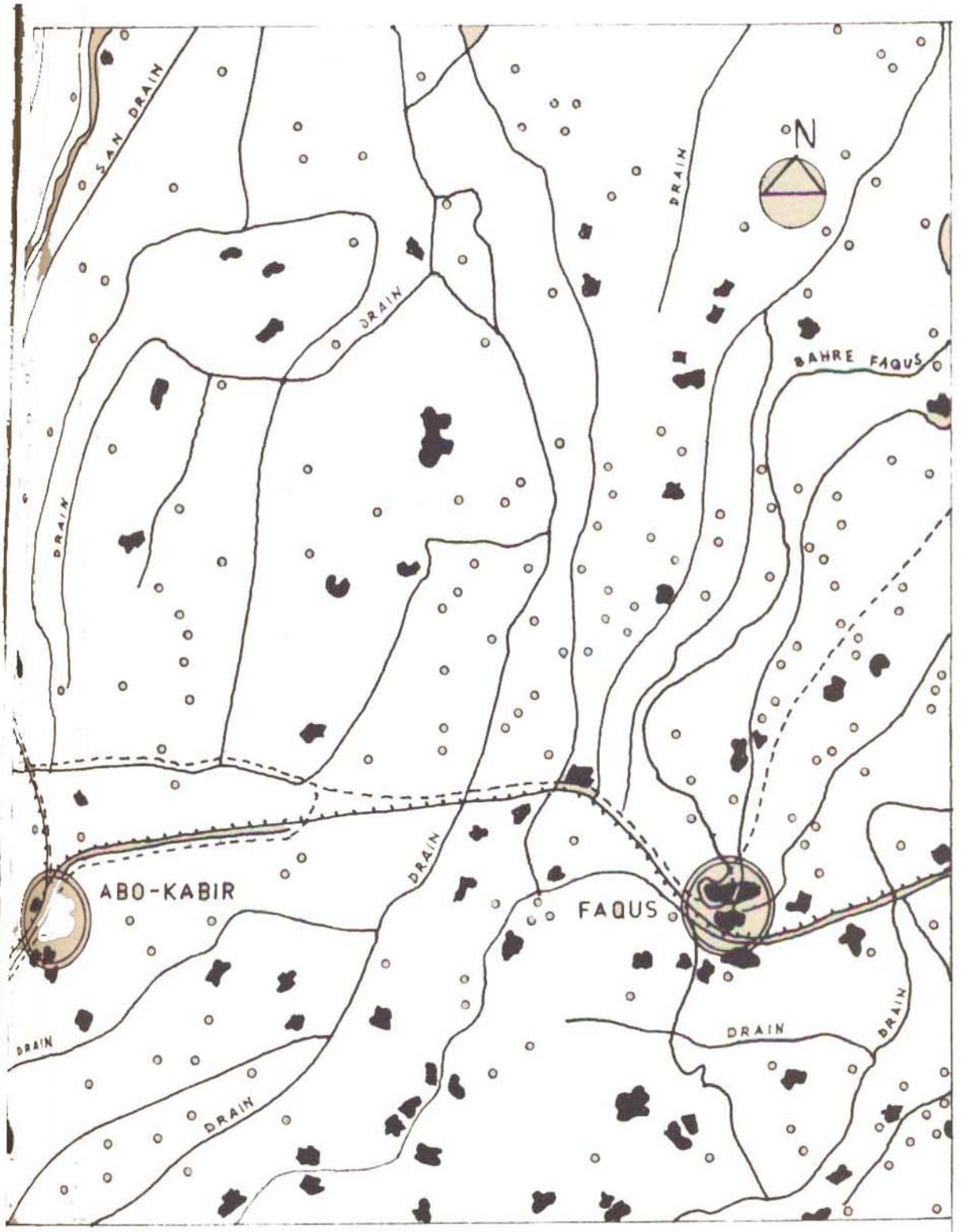
NORTH OF CAIRO Scale 1:100,000

..... Contour Lines

Large Villags

o Hamlets

MAP NO.11



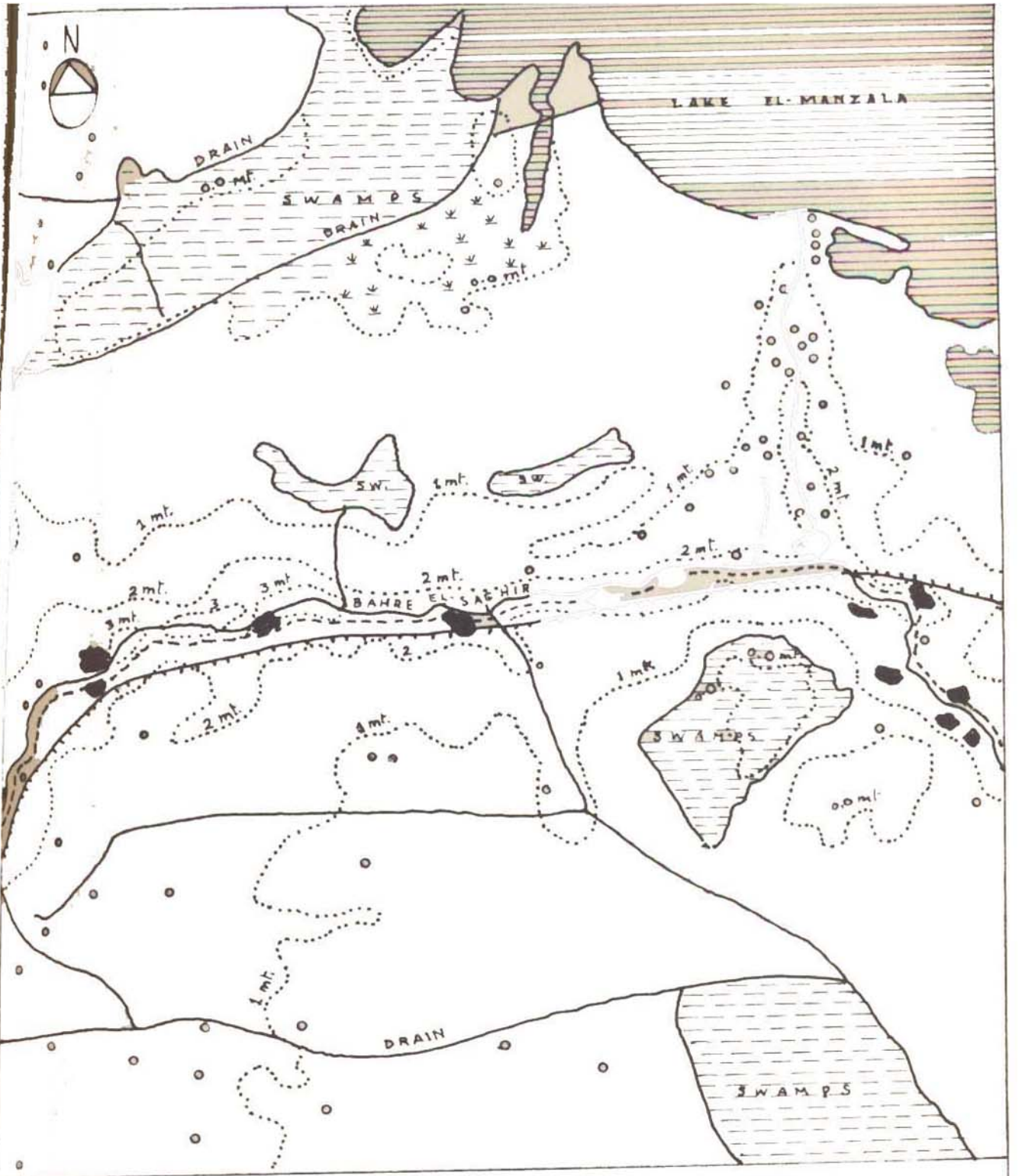
SETTLEMENT PATTERN : N-EAST OF THE DELTA

KEY

FAQUS, SHARQIYA, Scale 1:100,000

- Main Roads
- Main Canals & Drains
- Railways
- Large Villages
- Hamlets

MAP NO. 12



D SETTLEMENT PATTERN : NORTH OF THE DELTA

KEY

Main Roads

Main Canals & Drains

Railways

DAQAHLIYA Scale 1:100,000

Contour Lines

Large Villages

Hamlets

MAP NO. 13

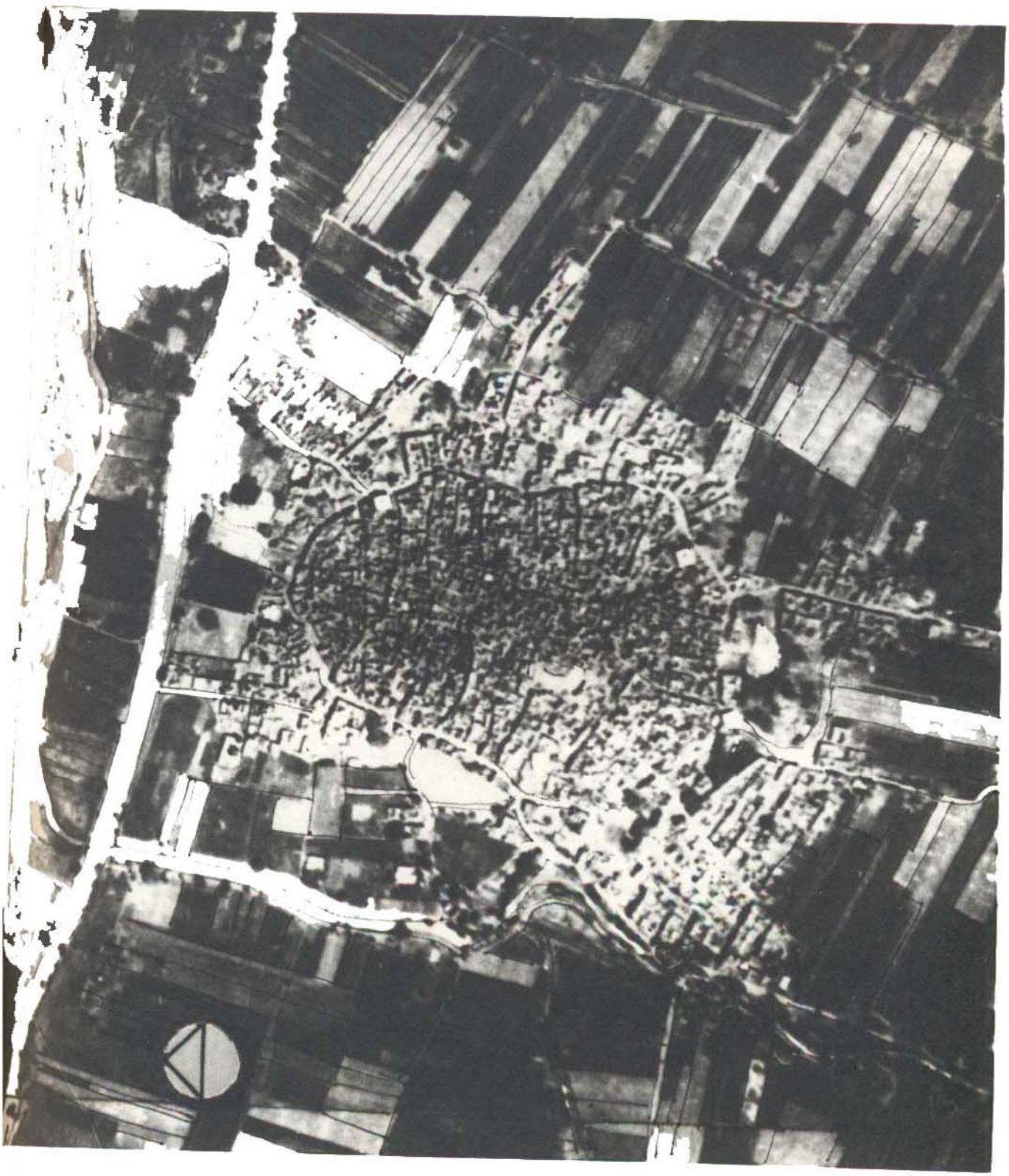


FIG. 4 A circular type Country Town

TAHAWAI

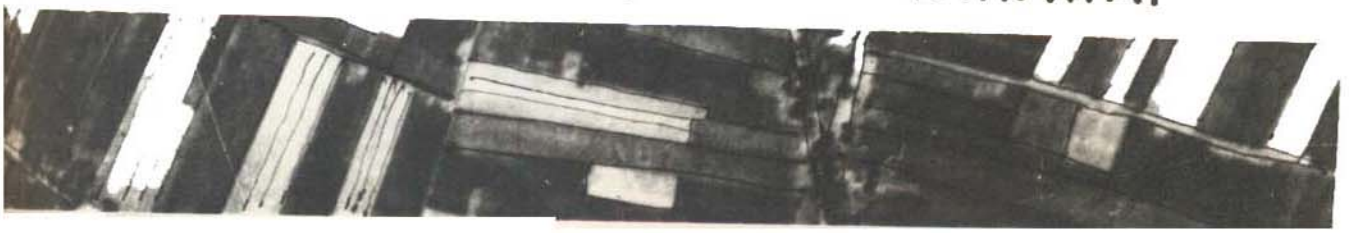
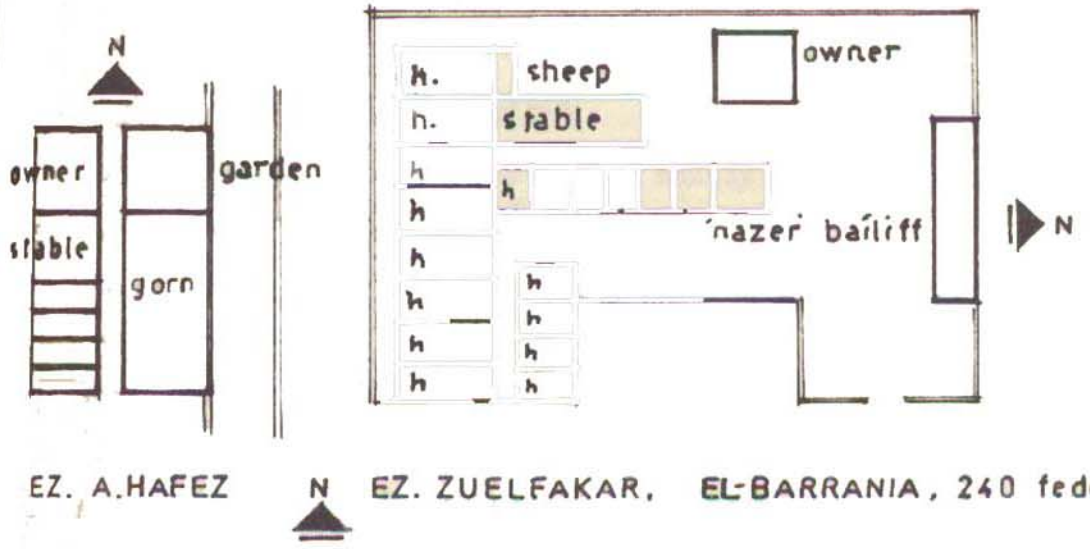


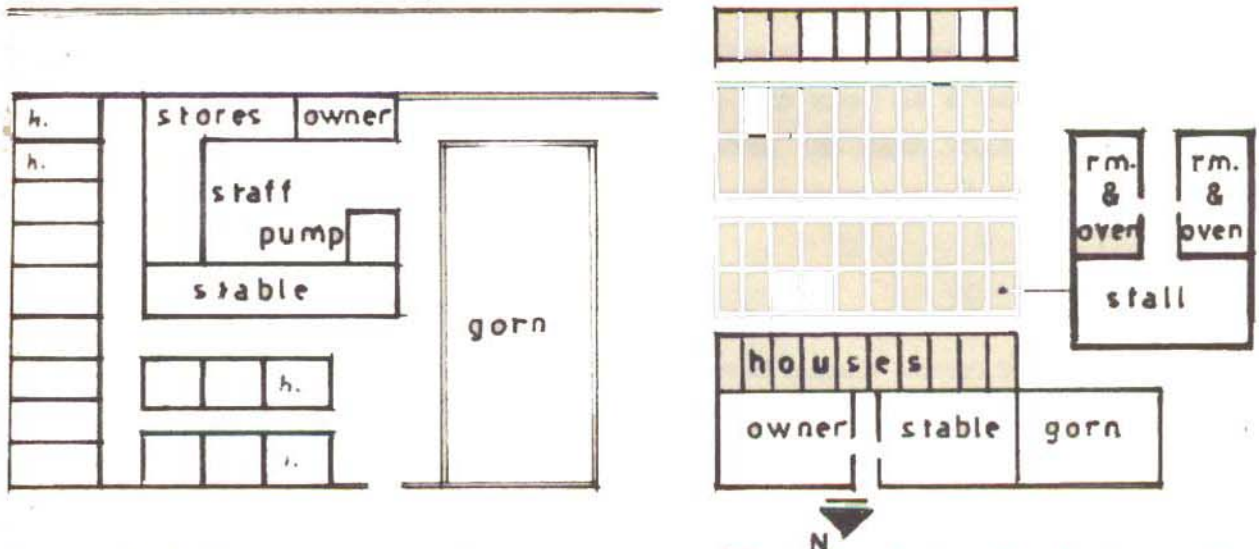
FIG. 5 A road-side linear Country Town GIREIS

FIG 6 A small village KAFR EL-GHAREIB

Two seperatly developed but adjoining villages **EL-INGIB** FIG. 7

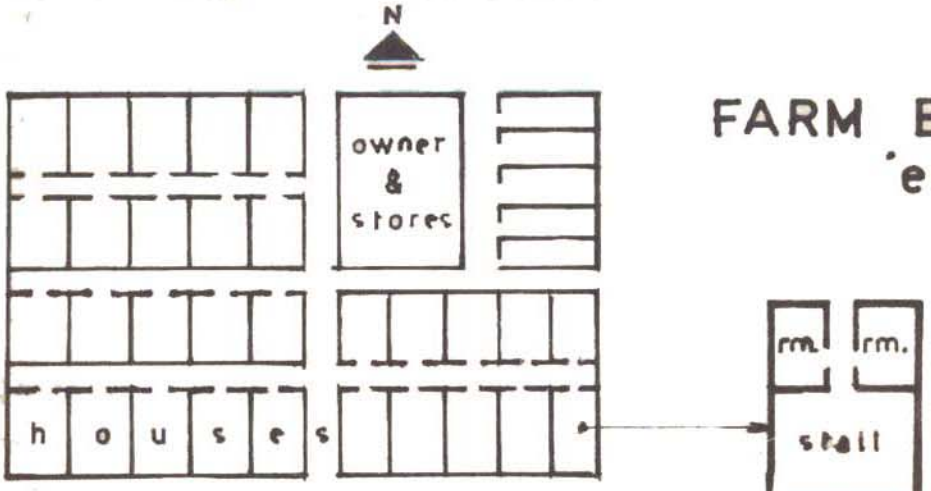


EZ. A.HAFEZ N EZ. ZUELFAKAR, EL-BARRANIA, 240 feddan



EZ. M. FARID, SHATANOUF, 215 f.

EZ. A EL-ELA, EL-GHANNAMIA 328 feddan



FARM BUILDINGS 'ezabs'

mosque

EZ. TALAAT EL-BAHARIA, GREIS, 450 feddan

FIG. 8

b. Factors affecting the Rural Habitat

Luzach[1] put the following factors as mainly responsible for the physical, social and economic structure of the village:-

a. The physical or natural factors including water, relief and soil
b. The historical and social factors.
c. The influence of the prevailing agrarian economy.

a. Physical Factors

For drinking purposes canal water is generally preferred and so the irrigation channels have always been the focus of settlement.

Irrigation and domestic purposes are still important elements in rural life. Moreover, water channels, though by no means all, are used as a means of transport. Indirectly, the main canals or drains, together with the main roads which quite often run parallel to them, have always been strong attraction to settlers by virtue of their convenience.

b. Historical and Social Factors

The historical factor is reffected in the traditional inherited agglomeration pattern of settlement. But is must be noted here that this inherited pattern has remained as it was, although some of the main factors which were responsible for its initial creation may have either disappeared or ceased to be operative factors: for example many of the former entrance gates to the old villages are preserved only as place names.

The social conditions are, on the one hand, the outcome of the economic conditions, and on the other hand they spring from the strong family bonds and the strong sense of clan preservation which encourages families in the one clan to cling together in their own sector of the village. Married sons usually live in the family house or not far from it. This tendancy is responsible for the family quarters which exist almost in every village.

c. Economic Factors

The main economic factor is concerned with the land holding system where

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(1) Luzach, J.K. 'L'Habitat Rural en Egypt', E. Schindler, Cairo 1935.

The great majority of holdings are less than one feddan and only a negligible minority can be described as large holders. Consequently agglomeration is the main feature of the pattern of settlement.

A second factor is the form of land use. The needs of a small farmer are very limited and his small house usually provides adequate space. A larger farmer on the other hand, needs more space for himself and his farm labour. An 'Esba' (hamlet) is essential for a large farm.

The area of the village is reduced to a minimum in order to keep the cultivated area as large as possible.

Some distinction may be made between villages according to their relative importance as market places or their relation to the big towns and lines of communication.

d. Security Factors

The security factor is of considerable importance in determining the pattern of settlement. Protection against flood-water, thefts, arson and cattle poisoning is of great importance. In a community where maldistribution of wealth prevails, temptation is very great. This was responsible for the government's action forbidding isolated settlements unless security is provided by nominating special guards (ghafir)

The Security factor is also one which was and still is responsible for the present compact plan of the central part of the village with its narrow lanes and its old district gates which were once closed after 'El-Esha' (evening) when all the animals had been brought back from the fields and the Fellaheen had said their last prayers of the day at the mosques. In spite of the increasing security measures in the countryside, we still hear of many dreadful murders and robberies. The rural social life also compels all women in the village at home after sunset except on special occasions, and on these occasions a woman must be accompanied by a male member of the family. Even though there are now no gates to close there is still a similar change in the social life of the village after the last prayers at 'El-Esha'. Street lighting also had its bearing on security. This problem has been partially solved by hanging kerosene lamps at the corners of

main street, but these are not efficient. The feeling of fear of the darkness exists in rural areas, especially near the open fields when the maize or other crops is high and offers cover to the wrong-doer.

In any replanning scheme these factors, as well as the more obvious ones, require consideration, particularly when contemplating any partial dispersal of the village community in connection with any proposed consolidation of land holdings. However, it is to be hoped that education and economic progress will help to ease this problem.

The Village Plan

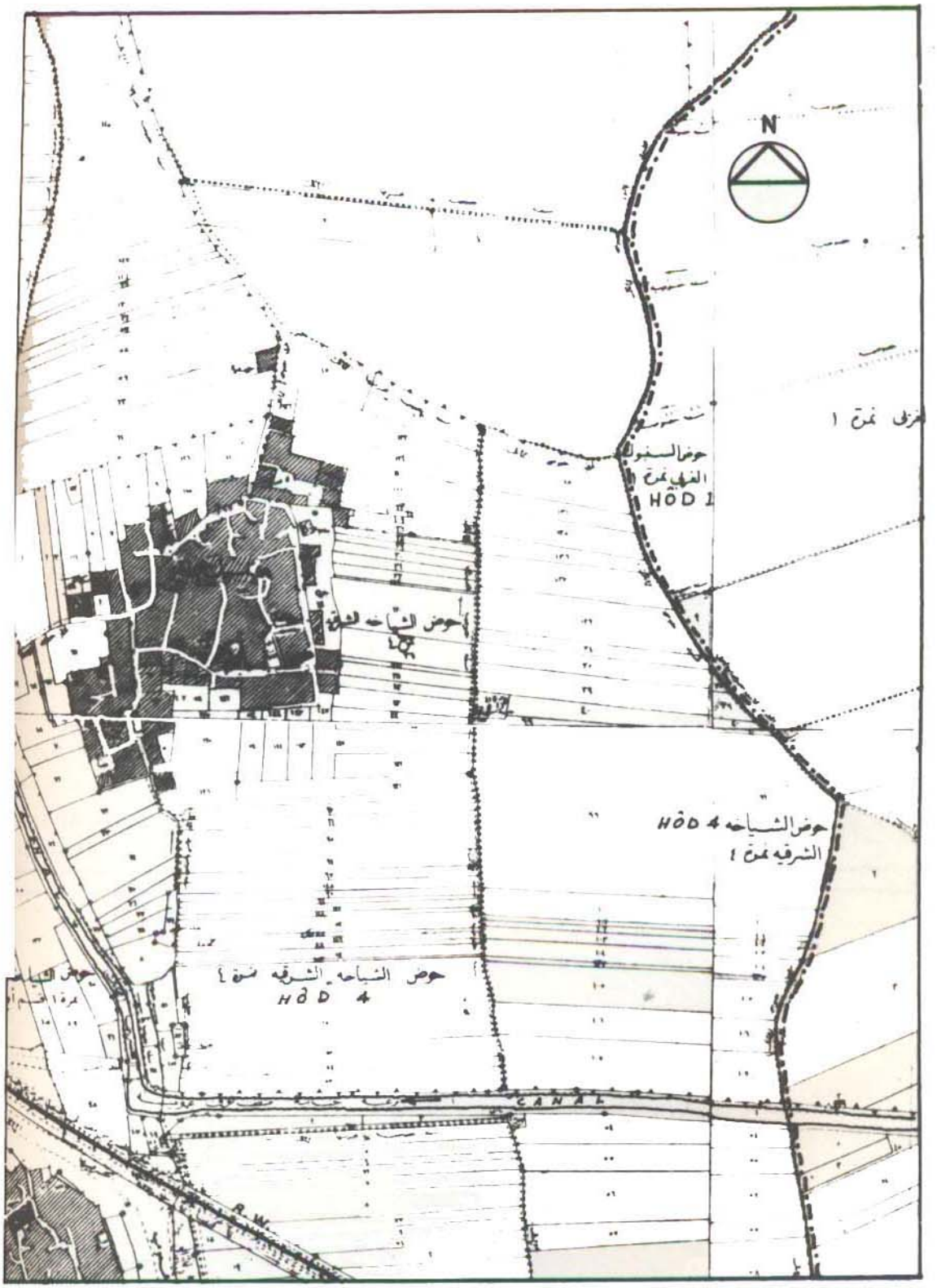
There are two types of village plan:-

a. The 'fort-like plan of the circular village where the ring road controls the features of the plan and serves as the main thoroughfare of the village. Along the ring road most of the shops and the cafés are situated. The ring road also differentiates between the past and the present development of the village plan. (See fig. 4 of the Country Town of Tahawai in the Markaz Ashmoun)

b. The road or canal-side village. In this case the village plan grows along the road or the canal sides. The road is the main thoroughfare of this type of village along which all the shops and other activities are found. (See fig. 5 of Gireis village in Markaz Ashmoun)

The 'fort-like' plan is the most common. The reflects the lack of security in times more dangerous than the present. The main characteristics of the village plan can best be seen from the air. The main features are the irregularity of the plan, the compactness of its older parts within the ring road, the narrowness and tortuous nature of the streets and lanes, the lack of open space within the village, apart from the 'gorns' or threshing floors, and the haphazard setting of the uncontrolled building which has occurred in the newer parts, outside the ring road. (See map no. 14, fig no. 10).

The similarity between the villages is striking. The only differences are in some few details. All the villages were built for the same purpose and all



M. GUWEDA A TYPICAL SMALL VILLAGE OF 865 inhabitants
scale 1:5000 AND TYPICAL LAND FRAGMENTATION.

MAP NO. 14

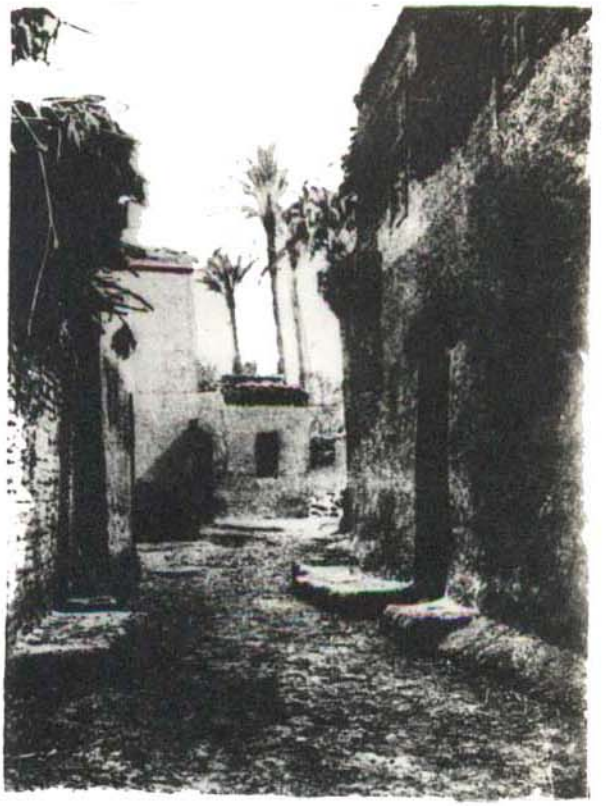
A hamlet near Kafr El-Sheikh

House in a hamlet in Beheira Prov.

Nomad settlement in Sharqiya Prov.

FIG. 9

typical village lane



A typical village street

typical country town street

affected by the same environment. (See figures 6 and 7)

connected with the plan of the village is its division into a number of quarters according to the number of big families in the village. This division is reflected in the village governing body of the 'Omda' (the mayor) and his assistants (Meshaiekh-el-Balad) who generally come from the quarters of the largest families in the village.

The 'Ezba' or Hamlet Plan:

The 'ezba' which takes the form of a hamlet, is separated from the village and belonging to the estate owner and provides living quarters for the estate workers. This arrangement which is less than a century old was legally recognised in 1913 and the legislation regarding this form of development was modified slightly in 1933. Under this legislation no 'ezba' can be established on any estate without the consent and the approval of the Provincial Council, for the law is still valid which forbids, 'the building by whosoever it may be, of any manner of dwelling upon cultivated land outside the recognised village area'.

There are now more than 15,000 'ezbas' in Egypt, most of them depend, administratively, on the village from which they sprang. There are 4,000 villages distributed all over the country; about 3,000 of them are in the Nile Delta.

The 'ezba' generally includes labourers' houses, the landlords' house, stables and stores. It also includes a mosque, a 'mandara' or a common hall and a 'gorn' (See figure 8 and map no. 15)

Dr. N.S. Nasr(1) classified the 'ezba' into two types:-

1. The main type is the 'defensive type' In this type, stores and stables are surrounded by labourers' houses. This feature is seen not only in the main form of the plan of the ezba, but also in the plan of the house of the farm worker. If the workers have their own animals, their stables must never be located at the back

(1) Nasr, N.S. Agricultural Geography in the Delta, Cairo 1953

[illegible] back is on the outside road or faces a field.

The second type of 'ezba' is the economical type where lack of space is mainly responsible for the form of the plan.

The owner's house always occupies the northern end of the 'ezba' The 'ezba' in many cases is surrounded by a high wall for security and easy control of the labourers exactly as in the case of the Ancient Egyptian village at Amarna. The built-up area covered by the 'ezba' ranges between one and three feddans. The total area allotted to the 'ezba' ranges between 50 and 500 feddans or more. In the siting of these hamlets more account appears to have been taken of the means of communication and transport than in the case of the villages.

Model Villages

Model villages have been built but their number is very small. Mohammed Ali over a century ago established some model villages each containing 180 houses, 169 of which were for the Fellaheen. Each dwelling consisted of two rooms and a yard. The experiment failed as the tenants modified the houses to suit their needs.

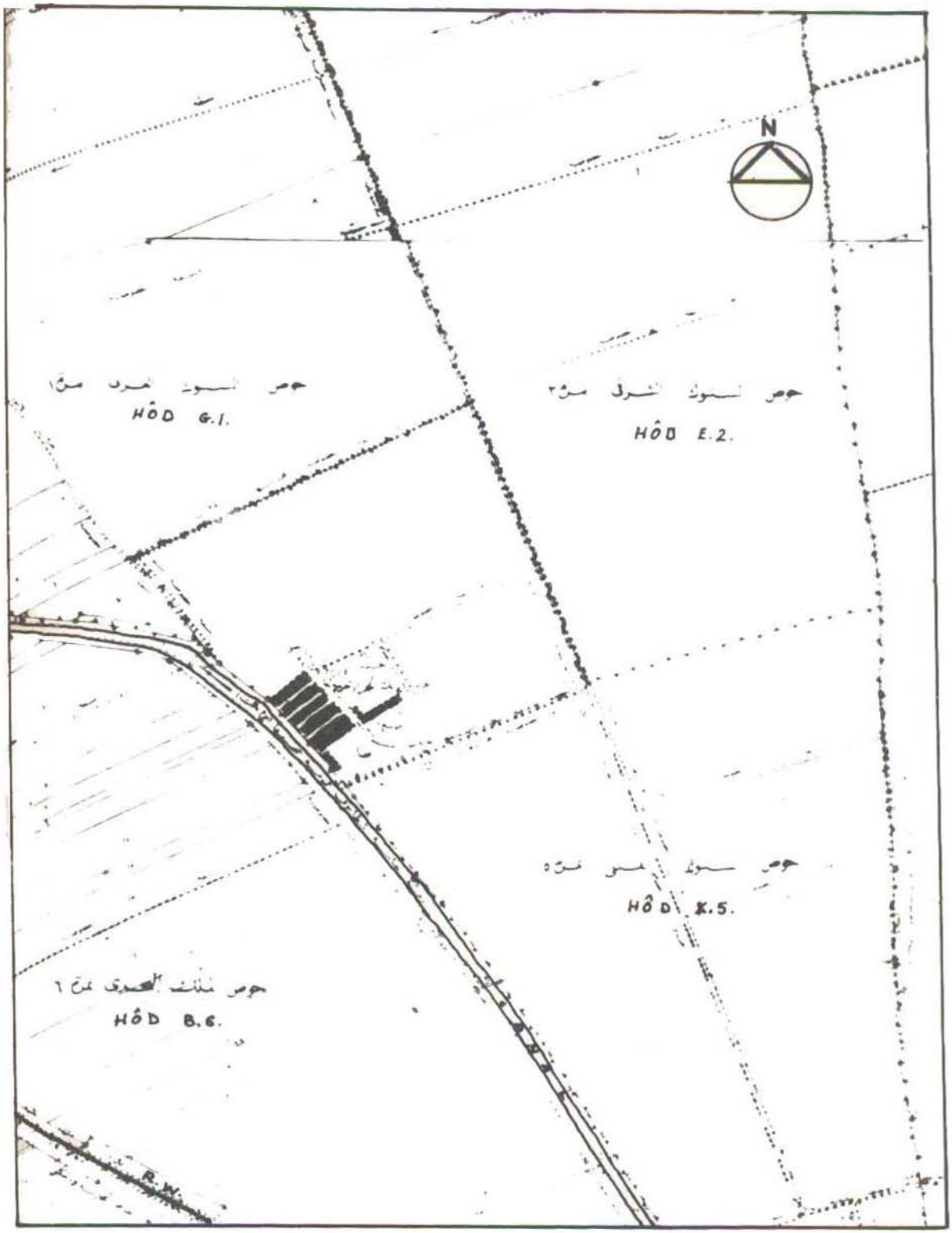
Nevertheless, after a twenty-year interval, a fair number of landowners built some villages of cell-like dwellings of burnt bricks for the Fellaheen of their 'ezbas'.

The most interesting achievement, however, is that of Bahteem, built by the National Agricultural Society in 1934 and in which full attention was given to the fellah's needs and his mode of life. This was an expensive experiment costing about £E 10,000.

In 1935 the Society laid a new experiment before the landowners, by building twenty houses of different kinds in blocks of four. In this case a house measured 30' x 35' made of mud bricks and cost £E 35 was used, as compared with the type of house used in the earlier scheme which cost £E 125.

Sometime later the Government, for its part, proposed to build a model village in each province, but the plan never materialised.

Other 'model' villages were built such as Kafre-Saad, El-Faroniya on the



EZ. EL-GAZZAR A TYPICAL HAMLET OF 107 inhabitants

scale 1:5000 AND LARGE HOLDINGS' DIVISIONS.

MAP NO. 15

King's Estates and another completely new was built at Quorna near Luxor as a replacement for an existing village which had to be removed for excavation. Most of these villages were built in the form of 'ezbas' for housing labourers. But altogether the number of 'model' villages was insignificant when compared with the vast number, about 4,000 of the old decrepit villages.

A five-year plan was suggested for rebuilding the 4,000 villages of Egypt at an estimated cost of £E 30,000,000 This sum appears both moderate and feasible. The plan, however, was abandoned because of the heavy liabilities incurred under the London Treaty of 1936.

Housing Conditions:

From the extensive housing research carried out by the Village Planning Section of the Architectural Department of the Ministry of Social Affairs in the year 1953 for three different types of villages, one can gain a reasonable idea of housing conditions prevailing in the average Egyptian village.

This research was carried out in three villages, different in size and different in locations. The first is Sangarg in the province of Menoufia, in the middle of the Delta, with a population of 7,500 inhabitants, 1,085 houses and built on 35.98 acres with 1,915 acres of agricultural land holdings.

The second is Nagua-el-Karrah in the province of Aswan in the extreme south of Egypt. It has a population of 1,846 inhabitants and 378 houses built on 7.25 acres. The whole area of the village holdings is 900 acres. feddans.

The third is Al-Rubamaia in theprovince of Sharkia in the east of the Delta. It has a population of 901 persons and 205 houses built on 5.79 acres. The whole area of the village holdings if 401 acres. feddans.

The range of the development of housing is nearly the same for the three villages. About 75% of the village houses are of one floor except in the third village where the ratio is nearer 50%

About 50% of the houses of the two villages of the Delta are of two-rooms or less, while this percentage rises to more than 80% in the village of Upper Egypt. Those houses which have six rooms or more form about 15% of the whole number of houses in the villages of the Delta, while those in Upper Egypt form

ext 46.

The statistics also show that less than 20% of the population are living ...er conditions allowing a ratio of 1 person per room while some 30% are accom-...ted on the ratio of 2 persons per room. The largest proportion of the people ...packed at ratios of three, four, five or even six persons to one room. These ... represent the poor standard of housing in which the Fellaheen live and re-...l the great need for their rehabilitation and for providing them with adequate ...tion.

From the accomodation point of view, the statistics show that over 70 to ... of the houses have got a 'forn' - earth stove, and about 60% have got a ...le or 'zeriba', while houses with sanitary accomodation, i.e. W.C., bath or a ... form an insignificant percentage of the total.

The annual income of the person, which more or less determines or affects the housing conditions of the family, varies from one district to another. 60 to 75% or even more of the Fellaheen of the Delta have an annual income of less than £E 20 per person, while this percentage rises to 95% in the province of ....

From these figures and from personal observation village houses can be ...ssified into three categories.

1. Houses of markedly sub-standard which should really be classified as uninhabitable - they form the great bulk of the village houses and should certainly be demolished as quickly as possible. These houses are mostly occupied by a very low income group (less than £E 20 a year), and it is these people who are most severely affected by the miserable living conditions (See figures 4 and 11)

   The removal of this group to new sites or to new houses in the development process could be a relatively easy task. The occupants can make us of official 'self-help' schemes with the technical aid and financial help of the Government or the other financial institutions and co-operative societies.

2. Houses of a larger size, occupied by large families with a stable way of life, and a long tradition concerning the occupation of a particular site and associated social and family connections, causing related families to cluster close to each other. These houses are mostly of two floors, built of mud bricks, wooden beams, reed and mortar for roofing, and perhaps burnt bricks for

oor farmer's house
min – Fayoum

A middle class farmer's house
(Adlan village – B.Suef)

A typical village scene

FIG.11

the foundations. Most of them have primitive sanitary equipment including a pump and an earth-closet. Some of these houses are built inside the core of the village enclosed by the ring road. Others arenewly built outside the ring road. (See figure 11.)

The removal of these families to new houses is open to question, especially if the new site is away from the old one or outside the relatives' district. These people cannot be forced to move to new houses, if we care about the villagers' feelings and their co-operation in the development plan, which is a matter of basic importance. Some rehabilitation of the areas which these houses now occupy might however be given consideration in the second stage of any redevelopment scheme.

3. Houses of reasonable standard, built of burnt bricks with cement or earth mortar. These houses are usually built outside the ring road or even on the fringes of the village, forming extensions to the village proper. Some of these houses are occupied and owned by large families of a moderate annual income, who have left their old and large houses, influenced by grown-up and educated sons who often are married and living with the family in the same house. Some of the sons may work in the village or nearby town as teachers or merchants - but not as farmers. This is often the case where the village is only a short travelling distance from a town. In other cases where the town is well away from the village the son may use his family house at week-ends and in the summer holidays.

These houses are very few in number. Their numbers vary according to the situation of the village with respect to the town, the nearer the village to the town the more we find of these houses; but generally speaking, their number is limited. These houses should be given careful consideration when arranging any new extension of the village, since they could well form the nucleus of rsited family groupings designed to return the traditional atmosphere of the large family quarter.

They should not be left isolated but should g adually be joined by new houses occupied by relatives.

This will need very careful study when putting a new village plan into action. Since the occupants of these houses fall within the group of 'family-farm' owners consequently if they are to be affected by any consolidation scheme

[illegible] should be taken to ensure that any new consolidated holding allotted to any [illegible] these owners should be conveniently sited in relation to the house he [illegible].

In the case of the 'ezba' we usually have two categories of houses. The first comprises of the land-lords' houses, stores and stables. The second comprises the houses owned by the land-lord but occupied by the Fellaheen as labourers or tenants of his land. The latter houses in most cases are sub-standard.

The reconstruction of the 'ezba' housing is of a less difficult nature [illegible] of the village, both from the planning and the economic points of view.

CHAPTER V

CHAPTER V

SOCIAL FACTORS AFFECTING RURAL LAND USES

a. Population

Egypt is one of the many countries which, in the nineteenth century, entered a period of demographic transition. Briefly put, the population of these countries was growing rapidly because the former balance between births and deaths had been upset.

In pre-industrial societies the death rate is usually high owing to inadequate nutrition, defective hygiene, the spread of epidemics and the loss in lives resulting from disorders and wars. In order to compensate for this high wastage, the community would tend to favour those customs and institutions that promote a high birth-rate, such as stigmatizing celibacy, encouraging marriage at an early age, honouring parenthood, and so forth. When, as a result of the spreading of industrial civilization, order and security become available, the first effect is a decline in the death-rate. The birth-rate, however, which is determined mainly by social and religious factors, remains for a long time at its previous high level. It is only when an industrial civilization has prevailed sufficiently long to change the whol customs and outlook of the population that the birth-rate begins to decline, as it has been doing in Western Europe and North America. Egypt is at present in the first stage, the stage of a declining death-rate unaccompanied by a falling birth-rate.

Birth and Death Rates:

Both birth and death rates in Egypt are among the highest in the world. Published birth rates have, in both the pre-war and the post-war years, averaged about 42 per 1000 while death rates averaged 27 per 1000 in the pre-war period and about 23 in the post-war period, whilst the infant mortality rate has declined from 160 to 140 per 1000 live births.(1)

A study of health conditions in five villages near Cairo, made by the

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(1) Issawi, C. 'Egypt at Mid-Century' Oxford Press, London 1954, page 55-57

Rockefeller Foundation in 1948 - 51 showed that the reporting of both death rates and birth rates was very inaccurate. Thus the true infant mortality rate in one village, Sindbis, was 326 per 1,000 against reported rates of 80 to 161 in the other four villages, while the real crude death rate was 32 per 1,000, against reported rates of 12 to 23. Similarly, the true birth rates ranged from 56 to 61 per 1,000 against reported rates of 44 to 50.

Annual Rate of Population Increase

It must be noticed that the annual rate of increase in the population is in fact a geometrical progression while we measure the increas in production as an arithmetical progression. The following table shows the rate of increase in population together with birth and death rates between 1920 and 1951.

Table (7) Rate of Increase in Population and Birth and Death Rates (1920 - 51)

Year	Birth Rate	Death Rate	Rate of Increase in population
1920	4.22%	2.8%	1.43%
1930	4.54%	2.49%	2.06%
1940	4.13%	2.63%	1.50%
1950	4.44%	1.91%	2.53%
1951	4.47%	1.93%	2.55%

One of the reasons of this great rate of increase is that a large percentage of the population are in the fertility age (between 15 and 45 years). The percentage of the population in this age group has also increased from 48.6% in 1927 to 51% in 1947. The official statistics of 1927, 1937, 1947 show that more than 87% of the population are under the ageeof 50 years which indicates that the population structure is concentrated in the young ages which make a continuing increase in the number of population most probable in the future.

There are other causes which contribute to the high birth rate. First, the poverty, ignorance, and general wretchedness of the Fellah make procreation one of the few pleasures left to him, and give rise to a slum psychology in the con-

...ed villages. Secondly, there is the influence of the cotton cultivation, which ...vides employment for children and turns the child into a financial asset at the ...y age of four or five.

The population has increased from 3 million to 23 million over the last hundred and ten years. This sixfold increase is probably unparalleled in any other ...icultural country. The second fact is that Egypt, in terms of cultivated ...a is perhaps the most densely population country in the world, with a density ...550 inhabitants per square kilometre.

The increase in Egypt's population was made possible by two sets of circumstances; the order and security introduced by Mohammed Ali and the growth of Egypt's ...th arising out of the extension of the cultivated area, the replacement of basin by perennial irrigation and improvement in the yield of crops, and the extension of ...tton cultivation.

Map No. 16 shows the existing density of population in both urban and rural ...as. This Map shows the intensity of human concentration in the Nile Delta.

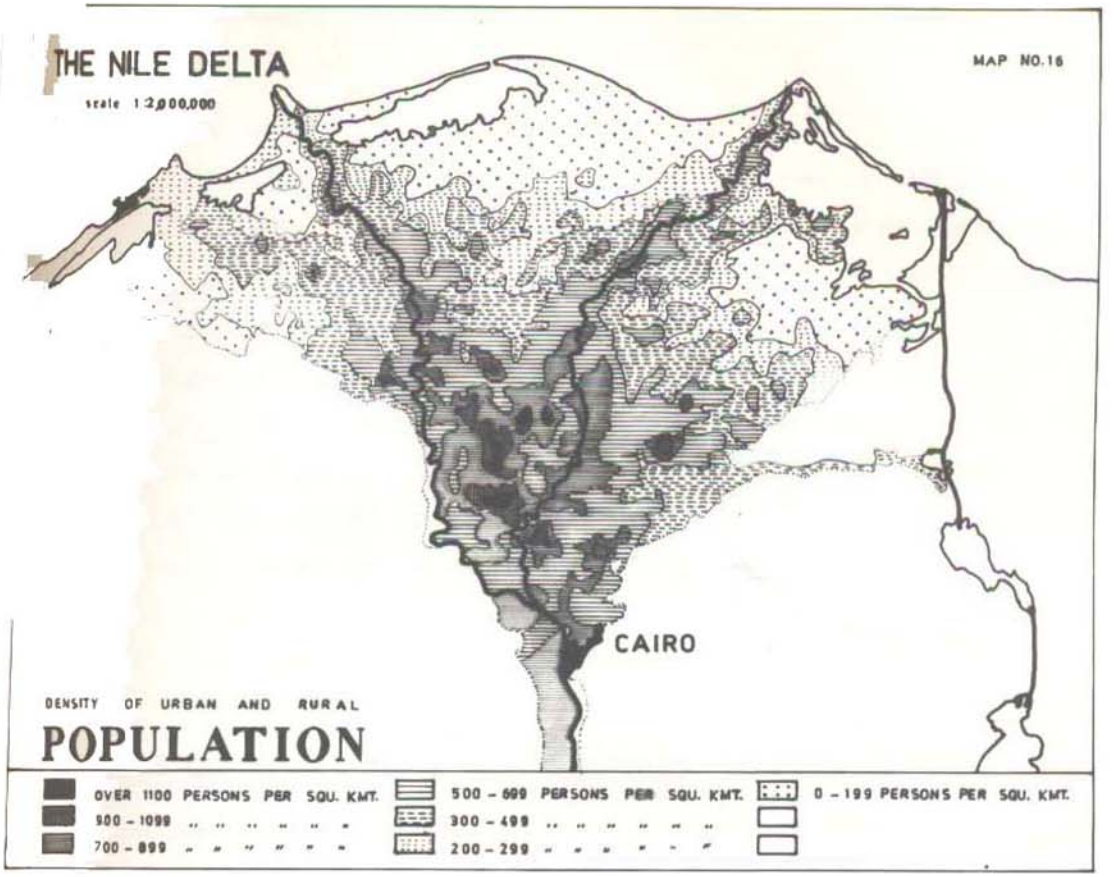
Population by Age and Sex Groups

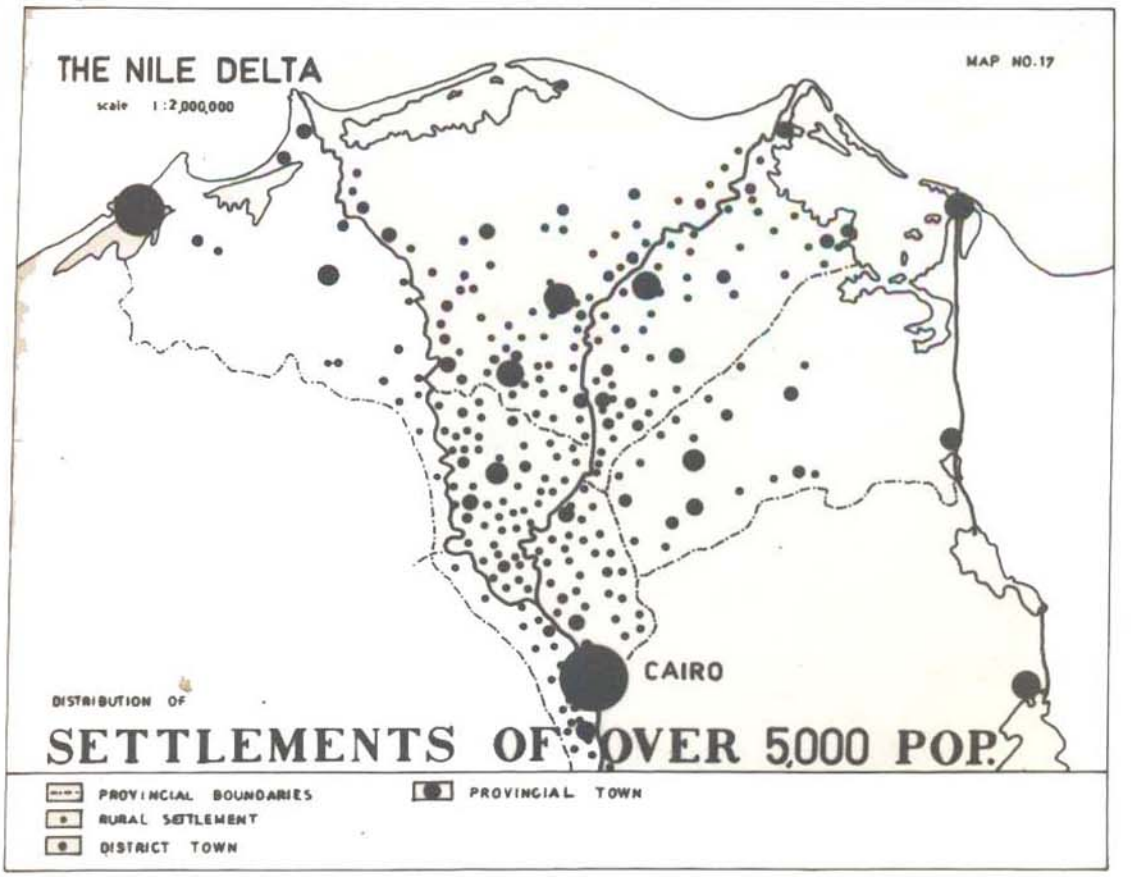
Although the people of the Delta are old in historical and psychological terms it will be seen from the population pyramid (see fig.12) that the inhabitants of the Delta are very young, biologically, nearly two-thirds of the population being under thirty. At the same time there is a significant change now manifesting itself in the population structure due to the improvement in the hygienic and the educational conditions in the country as a whole. As will be seen from the following table, the age group under nine years of age has decreased by about 1.3% and the age group over fifty years of age increased by about 3% over the 40 year period 1907-47. At the same time there has been a significant decrease in the working age group between 20 and 50 years.

Table (16) Changes in the Structure and Distribution of Age Groups of the Population between 1907 and 1947.(1)

Age Group	1907	1917	1927	1937	1947
0 - 9	30.1%	28.0%	27.5%	27.5%	26.4%
10 - 19	18.5%	20.3%	20.3%	20.5%	21.7%
20 - 29	18.1%	15.5%	16.4%	15.2%	15.1%
30 - 39	14.7%	13.5%	14.1%	14.7%	13.8%
40 - 49	9.0%	9.0%	9 .2%	10.1%	10.4%
Over 50	9.7%	13.7%	12.5%	12.3%	12.4%
	100.0	100.0	100.0	100.0	100.0

(1) General Census of 1947 Ministry of Finance Cairo 1949


THE NILE DELTA
scale 1:2,000,000
MAP NO.16
CAIRO
DENSITY OF URBAN AND RURAL
POPULATION
OVER 1100 PERSONS PER SQU. KMT.
900 - 1099
700 - 899
500 - 699 PERSONS PER SQU. KMT.
300 - 499
200 - 299
0 - 199 PERSONS PER SQU. KMT.


THE NILE DELTA
scale 1:2,000,000
MAP NO.17
CAIRO
DISTRIBUTION OF
SETTLEMENTS OF OVER 5,000 POP.
PROVINCIAL BOUNDARIES
RURAL SETTLEMENT
DISTRICT TOWN
PROVINCIAL TOWN

tion and Occupation

It is clear from the tables showing the distribution of the population in different occupations in the Delta (See appendix No. 5) that most of the engaged in the manufacturing industries, transport, commerce and services concentrated in the cities and the big towns leaving a very small fraction in areas. Diagram No. 12 reveals the great differences between the distrib- of the population in the different occupations in Cairo as compared with rural province of Menufiya and the Delta as a whole. It is interesting to e that 66.2% of the population in the province of Menufiya are engaged in culture whereas 47% of the population of both Cairo and Alexandria are eng- in personal services, most of these having been drawn from the countryside. question of rural population and occupation will be studied in detail later Chapter VI.

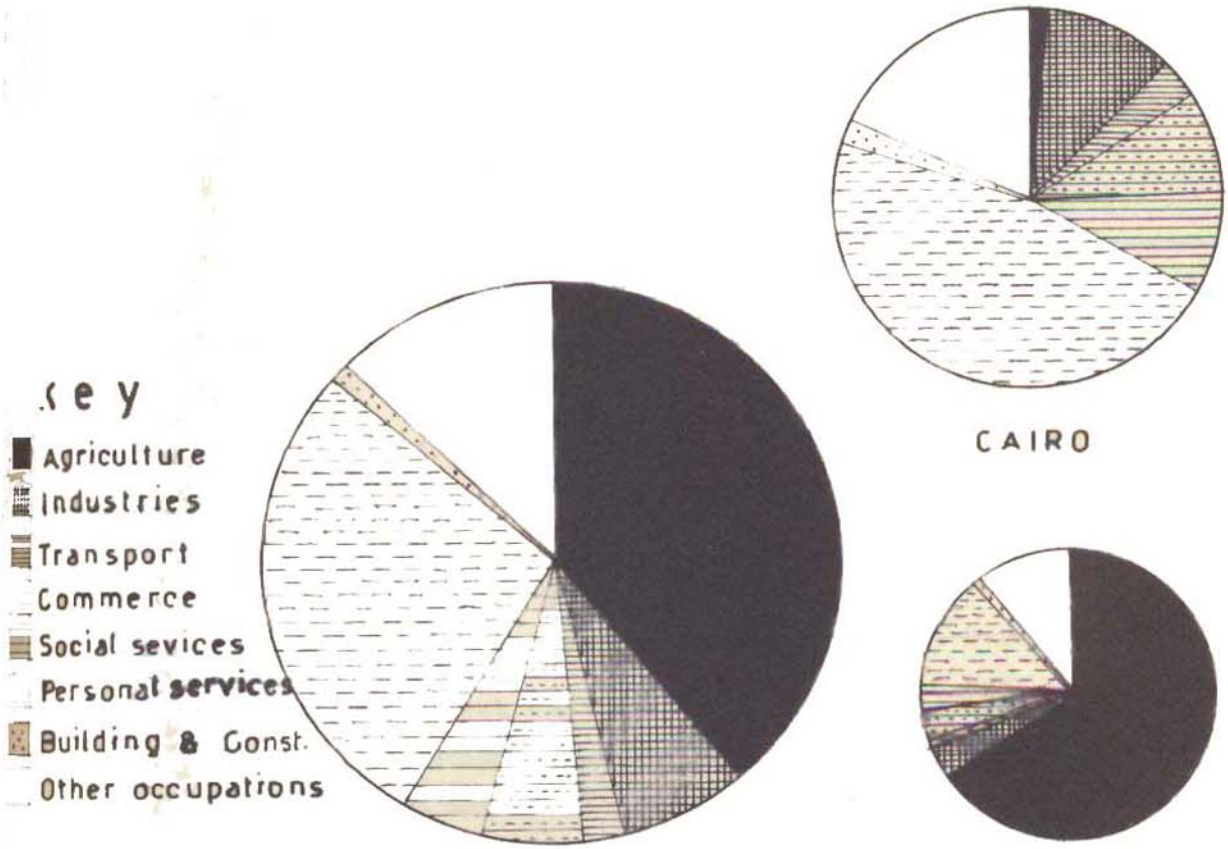
banization and the Distribution of Agricultural Population

Popula tion censuses have been taken in Egypt since 1882 and since 1897 at gular intervals of ten years. The number of inhabitants register d by the nsuses at different dates is given below for Cairo, Alexandria, other govern- rates and for Lower and Upper Egypt.

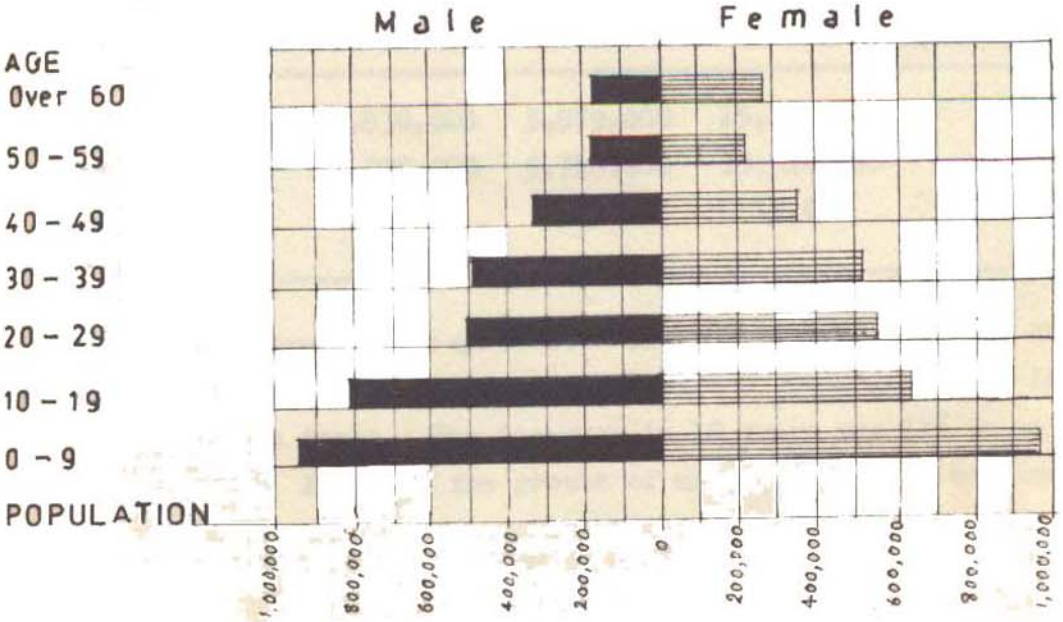
Table 8. Population Growth During 1882 - 1947 (000's) (1)

Year	Cairo	Alexandria	Canal, Suez and Damietta	Lower Egypt	Upper Egypt	Total
1882	399	233	65	3,279	2,693	6,669
1897	590	316	99	4,655	3,932	9,591
1907	678	354	109	5,417	4,578	11,136
1917	791	445	153	6,095	5,187	22,670
1927	1,065	573	205	6,531	5,710	14,083
1937	1,312	686	251	7,139	6,423	15,811
1947	2,041	919	407	8,190	7,199	18,806
1957	-	-	-	-	-	23,000

(1) National Bank of Egypt; Economic Bulletin, vol VIII No.3 Cairo 1955 page 171



POPULATION & OCCUPATION IN THE DELTA, CAIRO & EL-MENUFIYA



POPULATION PYRAMID IN THE NILE DELTA

FIG. 12

Table (9) Average Annual Increases (%) (1)

Year	Cairo	Alexandria	Canal, Suez and Damietta	Lower Egypt	Upper Egypt	Total
1882/1897	2.6	2.1	2.8	2.4	2.6	2.5
1897/1907	1.4	1.1	1.0	1.5	1.5	1.5
1907/1917	1.6	2.3	3.5	1.2	1.3	1.3
1917/1927	3.0	2.6	3.0	0.7	1.0	1.1
1927/1937	2.1	1.8	2.0	0.9	1.2	1.2
1937/1947	4.8	3.0	4.9	1.4	1.2	1.8
1947/1957						

Limited the study to the last two censuses of 1937 and 1947, the first feature that strikes the investigator is the intensive urbanization which took place during the decade which saw World War II. The distribution of population between towns and villages changed during the period as follows:-

Table (10) Changes in Distribution of Population between Towns and Villages (1937 - 47)

	Villages	Towns	Total	% of town population to total
1937	11,830,000	3,979,000	15,809,000	25.2
1947	13,098,000	5,718,000	18,816,000	30.4
Growth during decade	+ 10.7%	+43.7%	19.0%	

Thus the urban population represented in 1947 already 30.4% of the total against 25.2% in 1937, and the rural population was growing at a much lower rate than the population in towns. The increase in 10 years was 11% in villages against 44% in towns. Assuming the growth of urban population continued at the

(1) National Bank of Egypt 'Economic Bulletin' - Cairo 1955. volVIII. No. 3 page 172

same rate it probably reached 8 million in 1957

A more detailed analysis of population growth in the provinces discloses the same picture: the town population has been growing faster than the population in the villages and there are two provinces where the village population actually was falling, thus giving a clear indication of the general tendencies of the exodus from the countryside towards the towns, not only within the individual provinces but also from them towards the big centres of industry like Cairo and Alexandria. (See map no. 18)

In the Menoufiya province which includes Markaz Ashmoun there was an increase of 20.7% in the town's population against a decrease of 1.5% in the villages' population.

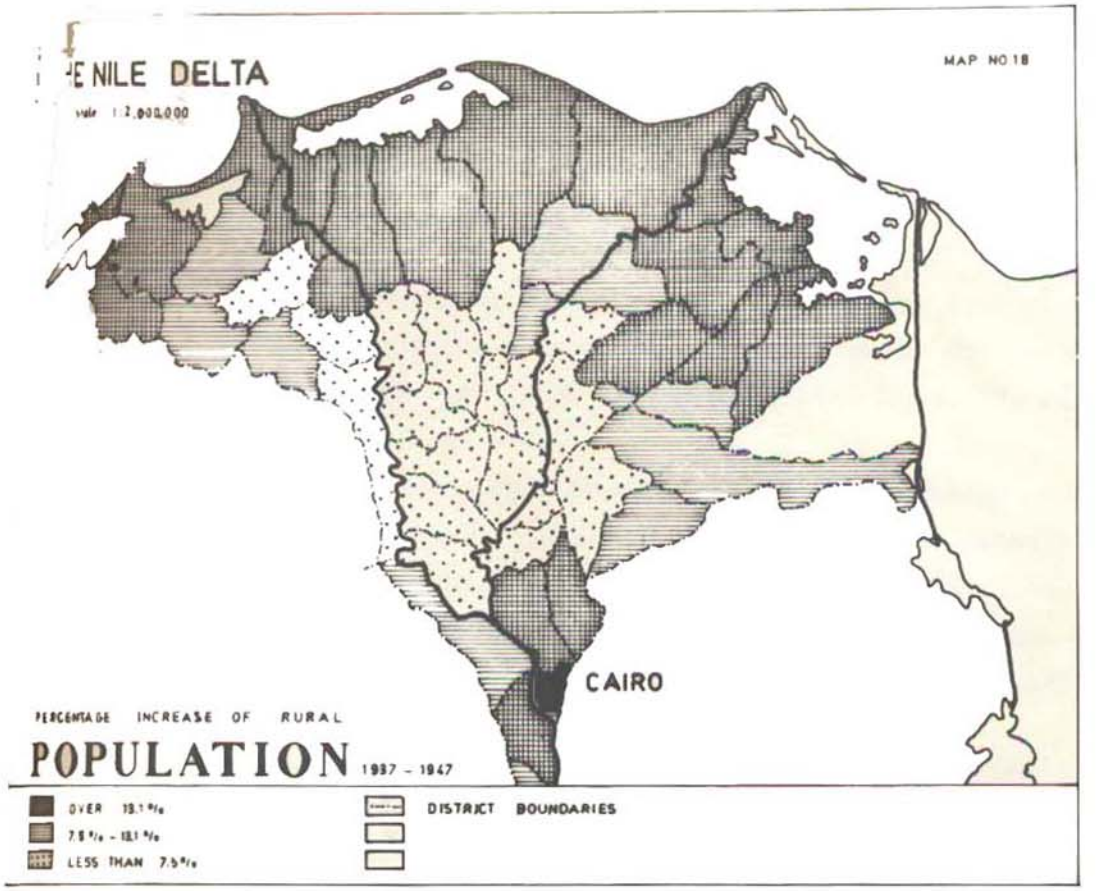
The following table shows these changes in villages and towns of the Nile Delta.(1)

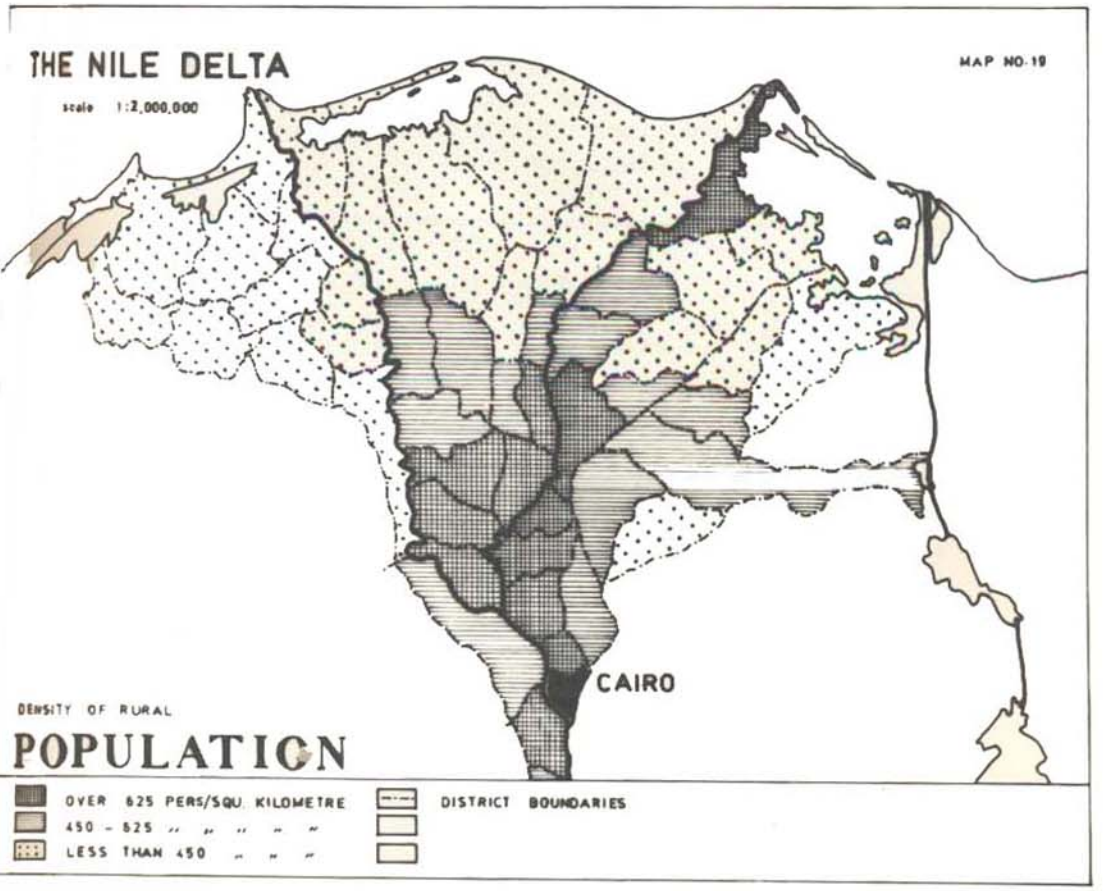
Table (11) Changes:in Population of Villages and Towns in the Nile Delta (1937-1947)

000's

	Town		Village		Total	
Province.	Population.	% increase	Population.	% increase	Population.	% increase
1937	145.4		916.2		1,061.6	
Behera		+ 28.2		+ 15.4		+ 17.2
1947	186.4		1,058.1		1,244.5	
1937	296.5		1,671.4		1,967.9	
Gharbia		+ 45.5		+ 13.4		+ 18.3
1947	431.3		1,895.7		2,327.0	
1937	103.4		1,056.3		1,159.7	
Menoufia		+ 20.7		- 1.5		+ 0.5
1947	124.8		1,064.4		1,218.5	
1937	154.1		1,064.4		1,218.5	
Dakahlia		+ 42.0		+ 12.3		+ 16.0
1947	218.7		1,195.2		1,413.9	
1937	114.3		1,006.5		1,220.8	
Sharkia		+ 45.2		+ 17.2		+ 20.1
1947	165.9		1,179.9		1,345.8	
1937	77.5		532.6		610.2	
Kaliubia		+ 33.3		+ 10.9		+ 13.7
1947	103.4		590.5		693.9	

(1) National Bank of Egypt Economic Bulletin. vol VIII.No.3.Cairo 1955.p.


E NILE DELTA
MAP NO 18
CAIRO
PERCENTAGE INCREASE OF RURAL
POPULATION 1937 - 1947
OVER 13.1 %
7.5 % - 13.1 %
LESS THAN 7.5 %
DISTRICT BOUNDARIES


THE NILE DELTA
scale 1:2,000,000
MAP NO. 19
CAIRO
DENSITY OF RURAL
POPULATION
OVER 625 PERS/SQU. KILOMETRE
450 - 625 " " " " "
LESS THAN 450 " " "
DISTRICT BOUNDARIES

The previous table shows that the highest percentage increase took place in the more sparsely populated northern part of the Delta, while the parts of higher population density show lower increases. (See Map. No. 12)

The above, therefore offers proof that the less densely populated provinces have a higher rate of population growth than the densely populated provinces. To a certain extent this may be due to migration, which is difficult to prove by census figures however, since the migration between villages of different provinces is overlapped by the movement into towns.

The following table shows the percentage of emigrants and immigrants in the Delta.(1)

Table 12 The Percentage of Emigrants and Immigrants in the Delta

	Percentage of population born in a town or province residing elsewhere in 1947(emigrants)	Percentage of resident population born elswhere (immigrants)
Cairo	4.5	36.6
Alexandria	7.5	30.6
Canal	9.2	41.2
Suez	12.2	56.4
Dametta	41.4	9.8
Lower Egypt		
Behera	10.6	5.1
Gharbia	6.9	3.7
Menoufia	22.1	1.4
Dakahlia	8.3	2.4
Sharkia	6.8	9.6
Kaliubia	12.1	6.3

It will be observed that all provinces show losses of population and the governorates, where big towns are concentrated are the centres of immigration.

(1) National Bank of Egypt. Economic Bulletin. Vo. VIII no. 3. Cairo 1955. page 175

For Cairo the immigrant residents born elsewhere are shown by their birthplace on map no. (20) which demonstrates first of all the normal attraction of a big centre falling with the distance, and secondly the repulsive forces acting in the densely populated area (Menoufia and Kaliubia)

Table (13) The Distribution of the Towns in the Country[1] (1947)

		Number	Inhabitants
Country Towns	(2,000 - 5,000)	1,417	4,689,000
Small Towns	(5,000 - 20,000)	413	3,233,000
Medium Towns	(20,000 -100,000)	36	1,420,000
Large Towns	(over 100,000)	7	3,720,000
		1,873	13,062,000

Thus more than 13 million of the total population of 19 million were living in towns of which the majority were simply gigantic agglomerations of agricultural population (See map no. 17)

Proof of this is supplied by the observation that 50.6% of the total active population are engaged in agriculture, while ac cording to the above compilation only 32% of the population would appear to live in the countryside.

Some further light on the problem of the distribution of population on the agricultural territory of the country is shed by the fact that there is a comparatively high negative correlation between the density of agricultural population and agricultural income per head.

The figures by provinces are as follows: [2]

Table (14) Correlation between Agricultural income and Density of Population in the Delta

Lower Egypt	Agricultural income 1947/48 £E per head	Density of population (head per feddan)
Behera	29.9	2.4
Gharbia	26.5	5.0
Menoufia	19.3	6.8
Dakahlia	24.3	4.8
Sharkia	23.5	4.0
Kailiubia	20.9	5.7

(1) National Bank of Egypt 'Economic Bulletin' Vol VIII No.3 Cairo 1955 p.175

(2) p.176

There are other factors in play, such as the fertility of the land, the distance from big towns, etc., but the correlation obviously is significant and the result may be formulated to be that the denser the village population, the smaller is the per capita income. There is also a very significant correlation between the per capita agricultural income and the ratio under cotton of the total cropped area.

The Ministry of Agriculture gives the agricultural income per head (for 1953/54) of the active agricultural population and not for the total village population as given in the previous table. From the data given in the same compilation it is very easy to find the density of the active population per feddan of cultivated land. These figures are given in the following table.(1)

Table (15) Income per head in £E of active agricultural population and the density of this population per feddan in 1953/54

Province (in the Delta)	Income	Density
Behera	44	0.97
Ghabiya	42	1.18
Kafre-El-Sheikh	46	1.17
Menoufiya	36	1.95
Dakahliya	43	1.27
Qualubiya	39	1.64

This is a proof of the fact that the low standard of living (which of course is a function of income) in the Delta is not attributed primarily to the backwardness of the country's agriculture, but to overpopulation. Even within the countryside itself the less densely populated areas enjoy a higher standard of living than those more densely populated.

It is therefore quite natural that, after allowing the pull of big cities, the population tends to grow faster in the less densely populated provinces. (See map no. 17)

It is unfortunate, however, that even the less densely populated areas are in actual fact heavily overpopulated. The problem of surplus population and

(1) National Bank of Egypt 'Economic Bulletin' Vol. VIII No. 3. Cairo 1955 page 176.

the problem of its rapid growth, is as it has been stated recently in an official publication,(1) 'an obstacle to economic development which prevents the majority of the people from getting an income ensuring a standard of living comparable with the hopes that they had fostered with the coming of the new Regime'. It appears that this problem needs its own solution quite independently of what is being done in the domains of expanding the cultivated area, intensifying agricultural production, of fostering the development of industry.

Should the present trend continue, Egypt will be facing a situation at about the end of the century in the year 2000 when she must feed 10 people per feddan of cultivated area instead of the present 3.5 per feddan even after taking into account the present schemes for expanding the cultivable area. This appears to be quite impossible to attain, even taking into account any foreseeable improvements in agricultural methods, and thus a turn in the population trends has to take place long before that time, or it will be enforced by the cruel ways of nature, through starvation.

Migration

There is practically no immigration from Egypt and very little emigration into it. Within the country two main directional flows may be observed: one from Upper to Lower Egypt, and the other of a general nature from the countryside into the towns as already explained.

It was found in 1947 that over 32,000 persons then living in the Delta were born in Upper Egypt as compared with a figure of 12,000 in Upper Egypt born in the Delta but living in Upper Egypt.

The first reason for the flow of immigration from Upper Egypt to Lower Egypt is the relatively poor conditions of life in the former. Although the average crop area per inhabitant is the same in both parts(2), the output per feddan is higher in the Delta due to the higher fertility of the cultivated land.(3)

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(1) 'The Population Problem in Egypt' the permanent Council of Public Services, National Population Commission, Cairo 1955.
(2) 0.64 feddan per inhabitant.
(3) Agricultural return is £E 6.775 per inhabitant in the Delta and £E 5.012 per inhabitant in Upper Egypt.

Another reason for the flow of immigrants is that the basin irrigation system still persists in the rural areas of Upper Egypt, while the perennial system of continuous production is dominent in the Delta. This fact gives the fellah of Upper Egypt more spare of wasted time than his comrade in the Delta. Moreover, most of the Egyptian industry is concentrated in the Delta which also contains practically all the big cities. This fact provides strong economic inducements to emigration from south to north. In addition, there is the fact that the men of Upper Egypt, even though many suffer from bilharzia[1] and ankylostoma[2] are generally stronger than those of the Delta and consequently can usually find employment in the more arduous forms of manual labour for which the people of the Delta are less well-fitted. Most of the labour engaged in the seasonal work of canal dredging and road construction is derived from immigrants from Upper Egypt. A great part of these immigrants usually settle in the large cities and towns of the Delta where they find subsidiary work in the building industry or in other public works.

Although the excess of labour inthe rural Delta could be absorbed in the different jobs taken over by people from Upper Egypt, the people of the Delta seem to be more attached to the soil than those of Upper Egypt. This is born out by the fact that in the widening of the Suez Canal now being undertaken, the majority of the labour is drawn from Upper Egypt althoughthe Delta is close at hand and is the nearest possible source of labour supply.

On the other hand, the current migration from the countryside into the town as mentioned before, is a much more important factor. Between 1917 and 1937 the population of Cairo rose from 791,000 to 1,312,000 and that of Alexandria from 445,000 to 686,000, increases of 66% and 55% respectively, compared with 25% for the country as a whole. During the same period the population of the twenty largest towns rose from 1,883,000 to 2,944,000, an increase of 54%. In other words, every year some 30,000 were drifting from the countryside to the towns. In 1947 there were 201,528 persons living in Cairo who had been born in

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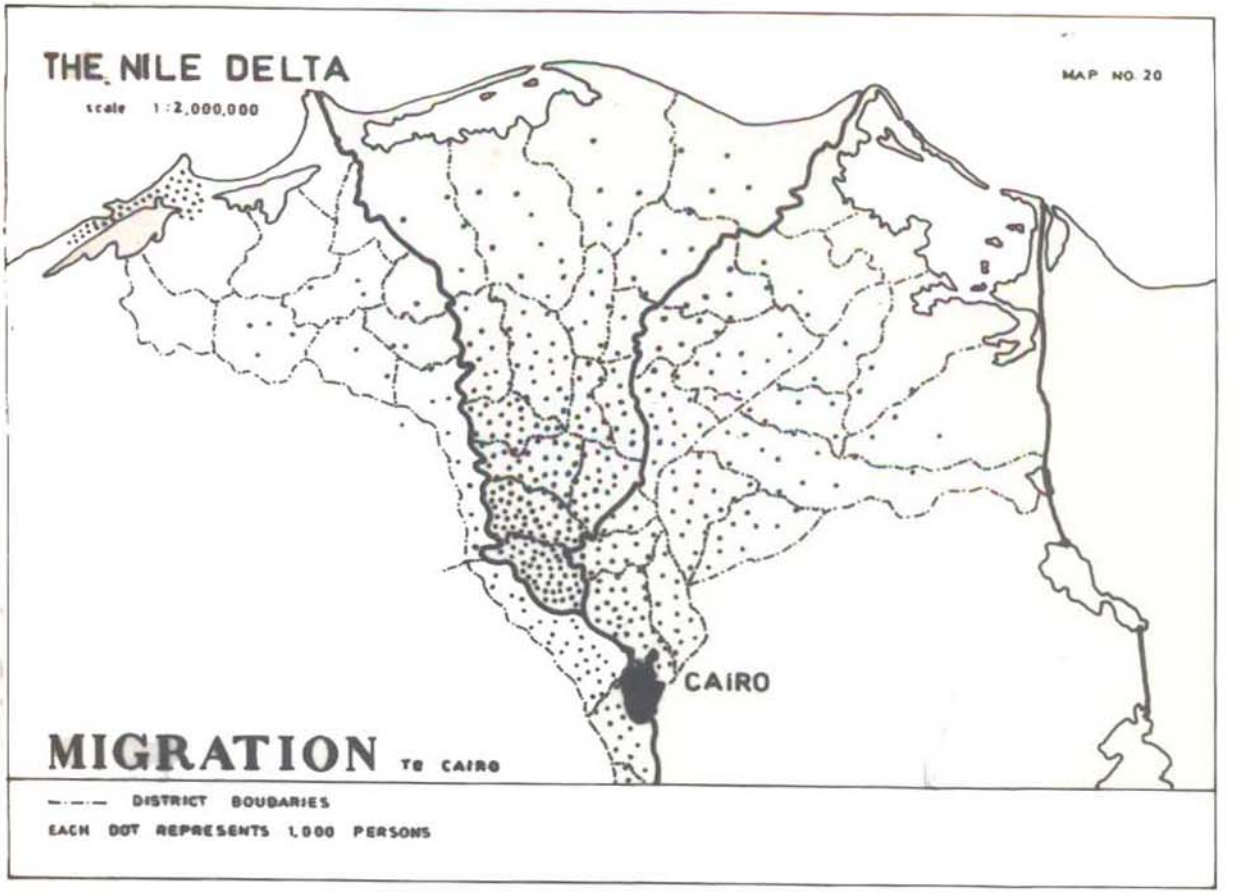
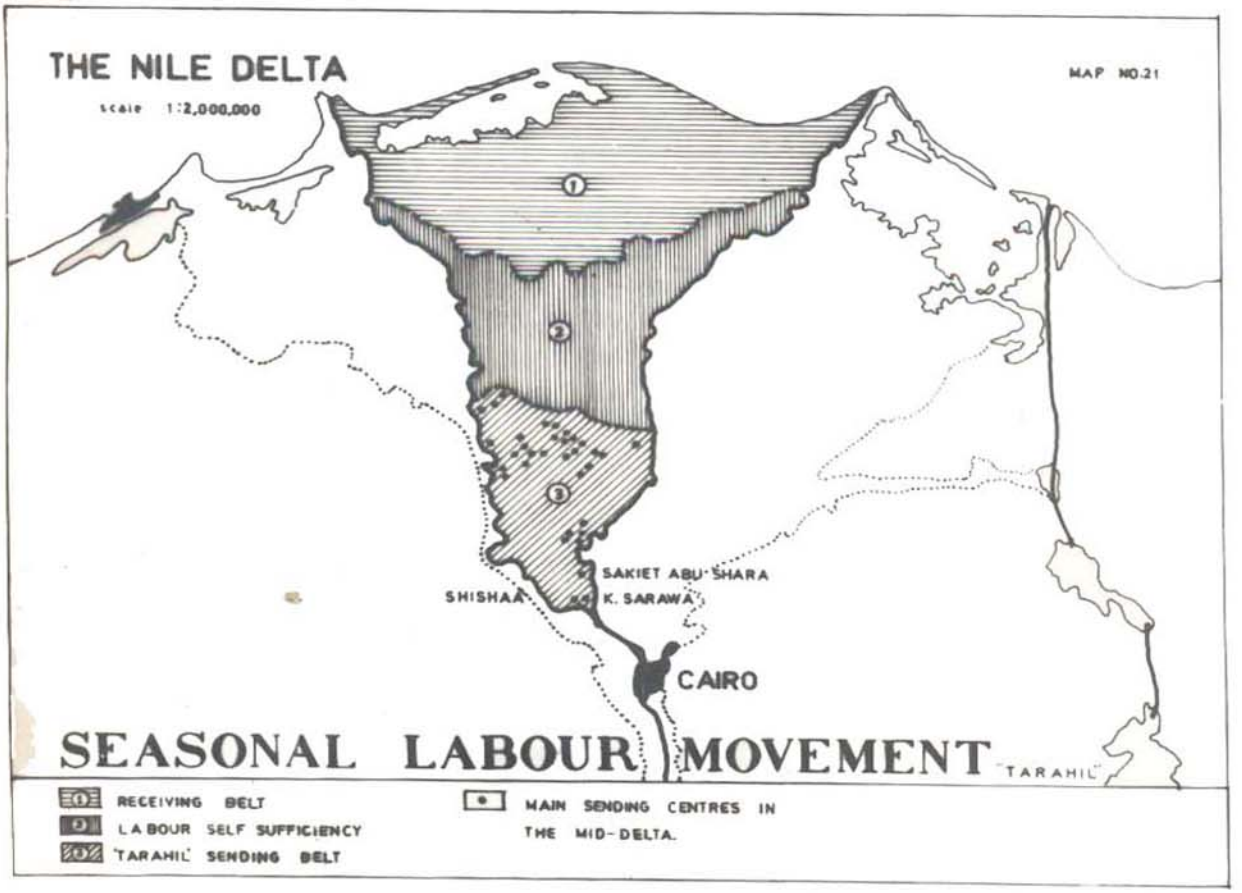
(1) Epidemic caused by Mosquitos
(2) Epidemic caused by germs carried in canal water.


THE NILE DELTA
scale 1:2,000,000
MAP NO. 20
CAIRO
MIGRATION TO CAIRO
DISTRICT BOUDARIES
EACH DOT REPRESENTS 1,000 PERSONS


THE NILE DELTA
scale 1:2,000,000
MAP NO.21
1
2
3
SAKIET ABU SHARA
SHISHAA
K. SARAWA
CAIRO
SEASONAL LABOUR MOVEMENT "TARAHIL"
RECEIVING BELT
LABOUR SELF SUFFICIENCY
"TARAHIL" SENDING BELT
MAIN SENDING CENTRES IN THE MID-DELTA.

the Delta and of these 70,505 had come from the Province of Menufiya.

Internal migration, has not, however, succeeded in balancing density of population and resources. For whereas certain provinces like Menufiya and Giza are over-populated there is an actual shortage of labour in the north of the Delta. (See map no. 21)

b. The Fellaheen

The peasant of a country have been likened to the strips in a stained-glass window. They bind the nation together, giving it stability and character and provide the humble but indispensible support on which both the economic and social systems rely. By producing more than they consume, the peasantry maintain society in health and ensure a sound regularity to the finances of the State. This is certainly true of Egypt where the Fellaheen, who constitute three-quarters of the population, have survived b persistence through fifty centuries; they have changed their masters, their language and their crops, but not their manner of life. This has been evident throughout the long history of the country and during the different stages through which it has passed.

In the case of the town-dweller and the industrial worker, the bond between nature and man is looser, the impress of the physical environment is weakened or neutralized by the stronger social, civic and political influences. This makes these classes less stable, but more progressive. The countryman on the other hand is moulded directly by the soil and the climate. He is virtually enslaved by them and in comparison with the town dweller, appears slow, over cautious, hide-bound and unprogressive; but possessed of a long-suffering patience from which he derives emotional strength, stability and great powers of persistence.

In Egypt the monotonous uniformity of the Nile Valley has its exact counter-part in the characteristics of the Fellah community. The water and mud of the Nile seem to enter into and explain the whole life of the Fellah, his work, and his home, his soul and his body. To Egypt, the gift of the Nile is no less a gift of the Fellah. It is because this soil has incarnated itself in the Fellah that he himself is not only so enduring, but also so material and so stagnant.

Progress then, if it is to be achieved, must come from some form of release, of emergence, from education in the original sense of drawing out potentialities. The Fellah's spirit must then be liberated from its stifling enevelope of mud, to free him from the defects of the soil, whilst leaving him its good qualities.

The Psychology of the Fellah

In his book, 'The Expansion of Environment', E.S. Gutkind wrote:.(1)

> 'It is not only the rhythm of nature in which the life and work of the peasant are inseparably interwoven but also the way in which he looks at the phenomenal worlds that erects a barrier, with a few exceptions, between him and the townsman. The peasant tends to reason from the concrete, from what can be experienced directly, He is inclined to take events in their simple succession.
>
> For him the simplification of problems is more essential than their mutual relationship. He does not ask why and for what purpose a problem arises. He keeps his life free from abstract and speculative thinking. In reality the peasant loves his piece of land and hates the State which is for him the great 'interferer'.

It is worth mentioning here that this attitude has greatly changed since the present regime came to power and adopted the policy of improving the social and economic status of the Fellaheen. Nevertheless, it must be appreciated that the Fellah instinctively clings to the ~~starting~~ Status quo and is reluctant to make any change unless he can see at once that it is in his immediate interest. Since the Fellah is so tied to his land by virtue of necessity and so dependent on it to save himself from complete destitution he automatically developes an outlook which helps him to accept philosophically almost any vicissitude and to convince himself that almost any misfortune has within it an ultimate good. In this, as in so much of his life, he reacts almost like an automaton both spiritually and physically. This lack of individuality and initiative furnishes in its turn, an explanation for the want of sensibility and the absence of art among the Fellaheen.

It is the social environment which limits the intelligence of the young Fellah, that is to say the ignorance which surrounds him from his first entry into the community, and the routine of a life which bows to the soil and cond-

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(1) Gutkind, E.S. 'The Expansion of Environment' Free Press, London 1953.

as him to everleasting repetition. The Fellah does not think outside the immediate present - he is fettered to the actual moment. He is like a primitive man or a child: his intellect is controlled by his senses, and remains close to things felt and done.

The Fellah is neither hurried, nor curious, nor ambitious. He is mild and peaceable and patient. He feels no need for constant activity. His mind is passive and fatalistic and he takes things as they come, except that in matters of personal or honour, he is extremely touchy and resentful of any affront.

In so far as he is preoccupied, by necessity, in securing at least a medium of this world's goods, the fellah may be accused of having a 'material' outlook on life, but philosophically he cannot be described as being 'Materialistic' since he is all too conscious of his dependence on powers outside his control including many which he regards as the Will of God, and which cause him to qualify any of his avowed intentions by the condition 'In-Shaa-Allah' (If it is God's Will).

The Fellah at Work

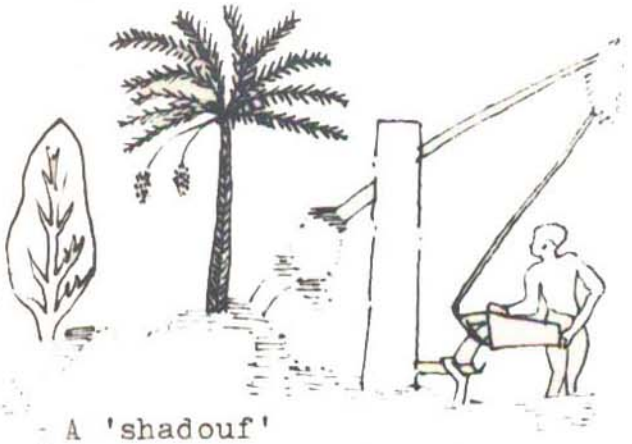
The Arabic word 'Fellah' is the intensive adjective of the verb 'Falaha' which means to till the ground.

The Fellah works the whole year round and takes a holiday only on the great festivals. The Fellah spends the greater part of his time in the field exposed to a temperature of 80°F in summer and 53°F in winter. He uses his hands and only a few primitive implements. The chief aids of the Fellah are the buffalo, the donkey and the cow. The Fellah takes greater care of his beasts than he does of himself.

Preparation of soil and irrigation are the main tasks of the Fellah. He is aided by 12,000 miles of canals and 5,000 miles of drains. Five days out of ten in flood time, and six out of eighteen at low Nile, the Fellah stays up night after night in order to lose none of his water ration. He uses the 'Saquia,(1) the 'tabout',(2) the Shadouf (3) or the 'tambour' (4) in special

(1) Water Wheel.
(2) Water Wheel.
(3) A wooden lever for lifting water.
(4) Archimedian screw.

FIG. 13



A 'shadouf'

THE FELLAH AT WORK

Threshing by a 'norag'

A native plough

An Archimedean screw

ases, to bring the canal water up to the crop level. (See fig. 13)

Pigeon droppings, silt cleaned out of canals and mixed with grass, and above all, soil impregnated with stable-dung, are used for manuring as well as chemical manures.

The crops follow a system of rotation, which will be explained later under Irrigation', covering a period of two or three years.

Research was carried out on a village, 'Silwa' in upper Egypt by Dr. H. Ammar[1] who analysed the period of labour required for a crop per feddan as follows:-

Summer	Work	Winter
6 days	Soil preparation and seed sowing	10 days
90 days	Collecting fertilizer	60 days
6 days	Distributing the fertilizer on land	3 days
16 days	Irrigation (2 days each time)	8 days
15 days	Harvesting (i.e. 8 hours per day	
134 days		81 days

This gives a total work period of 215 days per year.

The Fellah's Budget

Food absorbs the bulk of income. In Ammar's sample, in his research on the people of Sharqiya in the Delta[1], 58% of the families devote over half their expenditure to food. For two-thirds of the sample, tea, coffe and cigarettes absorb under 19% of the budget, while clothing absorbs 5 - 15%. The main other item of expenditure is kerosene, for fuel and lighting. No rent is paid by peasants for the mud huts they occupy. It remains to add that comparatively large amounts are spent annually on funerals, weddings, festivals and local cult practices, while only insignificant amounts are devoted to education, medical service and recreation.

It was found that the total expenditure on bread and beans is £E 11.5 per head. The expenditure on manufactured and prepared goods is as follows:

Clothes	£E 4.0
Tea and Sugar	£E 3.0
Soap, kerosene	£E 1.0

(1) Ammar. H. 'The People of Sharqiya' Cairo 1939 Growing-up in an Egyptian Village, R. & K. Kegan Paul Ltd. London 1953.

This means that the total expenditure is £E 19.5, assuming that vegetables is available from the fields and meat could be obtained from the proceeds of selling eggs and milk. This budget can be very easily upset, both by reason of its dependence on these assumptions and also because of its vulnerability of to market fluctuations in the staple crops.

It will thus be seen that the intense poverty of the Egyptian peasant severely limits his purchases of manufactured goods and of services. Poverty has also eliminated any incentive to raise his educational level, but it has not prevented him from responding, although not whole-heartedly, to the efforts made on his behalf by the government.

As regards to the Fellah's annual income, the sample of 219 families in Sharquiya studied by Ammar shows the following facts:-

Over 40% had an annual income of less than £E 30
Over 20% had an annual income of less than £E 150

In the sample of 1,071 families studied by the Rockefeller Foundation in Sendbis, Qalubiya in 1948:

5%	had	an	annual	income	of	about	£E 12
61%	%	"	"	"	"	"	£E 12 - 60
27%	%	"	"	"	"	"	£E 60 - 120
7%	"	"	"	"	"	over	£E 120

b. SOCIAL CHARACTERISTICS

The main problems which face the rural community are of both an economic and social nature, the chief ones being the low standard of living and social inequality which has weakened the social cohesion of the people and distracted them from their social responsibilities. The third main problem is that arising from the cultural and psychological background of the rural dweller and its bearing on the process of improvement. The difficulties in this context are aggravated by the fact that so many of the people hold the belief that improving conditions is a process extraneous to the normal every day life - something imposed arbitrarily from outside.

This is the result of historical circumstances from which the people have come to regard all improvement schemes to be the responsibility of the Government only. In consequence the people have lost their initiative and developed a feeling of fear and suspicion of any intervention from outside bodies, such as the Government.

The rural community has deeply ingrained characteristics, traditions and habits revealing themselves alike in the material, the social and the spiritual aspects of the villager's life. On the material side are his different agricultural implements and the long experience the fellah has had in using them. On the social side we have the fellah's pride in the 'Madiafa' (village hall) of his clan or family group acting as a symbol of the family's position and importance. On the spiritual side there is his religion as well as the persistent beliefs and practices from much earlier times.

The social life of the fellaheen is a series of different work and customs closely connected with his mode of livelihood and his beliefs. The time of leisure is determined by the demands of agriculture, the marriage season is connected to that of the harvesting and so on.

Kinship is a main feature in the rural social structure. This does not only mean the family in the narrowest sense but stretches to the other relatives of the father which might compose a clan or even a neighbourhood.

The village community considers itself one social unit isolated from the other nearby villages. It has been noticed that in the case of any institution

serving three or four villages, the one nearest to the institution gets the whole benefit from it while the others feel and act as though they were divorced from it.

Minor social distinctions form another feature of rural Egypt. The fellah has a great self-respect in spite of his poverty and ignorance. The farmers who cultivate their own land consider handicrafts and cottage industry as inferior to agriculture, regardless of the profit or the income to be gained from them. The craftsmen usually work and live in another village away from that of the farmer.

The village of the Egyptian countryside is an example of a community whose life is characterized by social co-operation and mutual help among its members. Features of social solidarity within the village groups may be seen in the every day life of the fellaheen. Not only do they co-operate and exchange help and assistance in their work on the fields but they also exchange help amongst themselves within the village. When a villager is building a new house, other villagers give him assistance in the form of free work, if not material.

Although the peasant society of rural Egypt is a conservative one in many ways, changes in its pattern have occurred and new ways adopted from time to time. There has been a constant renewal of the plants cultivated in Egypt, as well as on occasion, the introduction of completely new plants. The existing social and agricultural conditions compel the fellaheen to continue to use some of the old implements, along with some modern implements which have been introduced and accepted.

The Social Structure in the Delta Village

Although the biological family is the basic social unit on which the individual is centered there are very few households in the Delta which are limited in size to the basic biological family. Nearly all households shelter other members of the family such as married sons and wives or the householders widowed sister and her children and possibly an orphaned neice or nephew. The reason which keeps the married sons under the paternal roof is the fact that they normally have to await their father's death before they can possess any property of their own, and in consequence are obliged to live and work with him as long as he lives.

rthermore the form of agriculture practised requires many hands, and this is n added incentive for remaining together as a large household.

The extended family can be regarded as an intermediate social unit between the conjugal family and the clan.

The extended families merge into the clan, the village is usually composed of from five to as many as ten clans. These clans can be found grouped in two, three or four, or even more sections of the whole village, each with its own distinctive character and centred on the village hall of the clan which serves serves as its guest house and where the adult members of the clan gather for their social activities.

On the one hand the clans are conscious of their integrated separate identities, but on the other hand, they are aware that they are linked together by a common ancestry which gives a measure of unity to the village.

Farmers form the major part of the population of the village. The village, however, usually contains families of strangers engaged in carpentry, pottery or mat-making. Besides we find the barber, the tailor, the grocer or others who have a specialized job like oil-pressing, corn milling, sugar can pressing, weaving and various service trades. This kind of work is carried on by generation after generation of the same family.

In his book 'Growing up in an Egyptian Village', Dr. H. Ammer wrote:(1)

> 'The impact of urban life with its increasing pressure on the village has resulted in more and more strains in social living. The traditional social structure based on the solidarity of family and clan is losing some of its cohesive forces. It is obvious that villagers are keen to accept and imitate the material symbols of city life. On the other hand, social structure and organisation and values have not changed very much'.

The village with its surrounding land forms a closed system outside which everyone and everything is foreign. It leads to a secluded and individual life, which originated within the habits and customs handed down from the distant past. Immemorial laws rule absolutely the acts and the pleasure of every inhabitant.

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(1) Ammar, H. 'Growing up in an Egyptian Village', P. & Kegan Paul, London 1953, page 17.

To the Fellah his village is all in all. It is his country and the limit of his activities. Ayrout,(2) has noticed that,

> 'Between the members of the peasant group trust and mistrust persist side by side. The main source of both is the soil, which unites the Fellaheen if it is threatened, but divides them if they own or covet it. The Egyptian village is not a community inthe social sense, it is not an organism but a mass. The Fellah absorbed in the soil for a long period of oppression, lives collectively but not socially.'

Standard of Living.

The average annual income per person in the country as a whole was about £ 39 in 1953. But if we consider the national income of the year we recognise that the annual income of the farmer is much less than the average. The value of the income from agriculture was estimated at £E 3555 million and it is known that 70% of the population which is about 16,000,000 live on that income with an average annual income of £E 22 which is extremely low when compared with that in Britain which is about £290 per year.(2)

From a table prepared by Issawi(3) in 1952 comparing the different indices of economic and social activities of eleven other countries than Egypt one can recognise the stage of economic and social development reached by Egypt at that time and consequently the standard of living of the Egyptian population. It is found from Issawi's table that the per capita income of the Egyptian population is far below the world's average. ut, on the other hand, the standard of living of the population, low as it is, is higher than the level of that half of the human race which inhabits Southern and Eastern Asia, most of Africa and much of Central America.

The national income per capita in Egypt was 100 U.S. Dollars compared with 57 dollars in India, 100 dollars in Japan and 482 dollars in France. In Egypt the life expectancy is 38.6 compared with 26.7 in India, 57.6 in Japan and 58.8 in France. While the number of calories per capita per day (1948-9) was found to be 2,480 in Egypt, that found in Inda was 1,620, in Japan 2,100 and in France

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(1) Ayrout, H. 'The Fellaheen' Schindler, Cairo 1945
(2) Marii, S. 'Agrarian Reform in Egypt', Government Press, Cairo 1958. page 276
(3) Issawi, C. 'Egypt at Mid-Century', Oxford Press, London 1954, page 78

1950. The average textile consumption in kilogrammes per capita in Egypt was 3.2 compared with that of Greece which was 4.0 and that of India which was 2.6 kilogrammes per capita.

From the cultural point of view we find that the literacy rate percentage of inhabitants of 10 years or over (pre way) was 15% while that in India was 9% in Japan 95% and in France 96%. The number of newspaper circulation in Egypt was 18 per thousand inhabitants in 1950, compared with 6 in India, 219 in Japan and 284 in France. The number of radio sets per thousand inhabitants was 11 in 1950 compared with one in India, 91 in Japan and 172 in France.

These figures, although not up-to-date, still give a fair picture of the living standard of the people in Egypt as compared with other different countries. But one should not neglect the fact that the standard of living of the Fellaheen is still much lower than the above mentioned figures bearing in mind the fact that the income per capita in the rural areas is £E 22 while that of the whole country is £E 39. Conditions must have been improved since 1950 when these figures were collected, but on the other hand, we must not neglect the effect of the increase in the population since that date on the living standard of the population as a whole. In spite of the considerable number of calories which the fellah gets everyday from his food, his vital status is upset by the number of diseases from which he suffers. Moreover, the unhygenic condition and the low housing conditions where the fellah lives, put his standard of living, yet on a lower level.

Community Welfare Centres

The establishment of rural social centres became the official policy in 1939 after successful pioneering experiments conducted by different insitutions and individuals. Unfortunately there had been a lack of continuity in the policy of the Ministry of Social Affairs and other ministries concerned with social welfare. There had been a gap between theory and practice. There were other defects due to over-centralization and lack of co-operation at headquarters level in carrying out essentially desirable reforms.(1)

In 1953 the Permanent Council for the Public Services(1) was established as an independent body attached to the Council of Ministers. Its functions cover

(1) Permanent Council of Public Services. Government Press, Cairo 1955

following spheres:

1. To plan and supervise all aspects of social development
2. To investigate the main plans and lay the broad lines of reform in education, public health and rehabilitation.
3. To study the budget of the different Ministries concerned
4. To supervise the execution of projects.

Collective Centres:

In 1954 a scheme was drawn up and put into execution for the provision of pure drinkable water supplies for the people in rural areas. Another scheme was initiated for the construction of 'Collective Centres,'(1) for public services in rural areas, each centre catering for the needs of 15,000 people and comprising a school, a social and agricultural guidance centre, a medical clinic and dwellings for officials employed by the Centre (See fig. 14) The 'Collective Centre' is built on an average of 5 acres provided that the people participate in providing the land and a sum of £E1,500. Each 'Collective Centre' is directed by a board consisting of the different experts employed together with representatives of the people. The board is divided into different committees:

a. The Economic and Agricultural Committee
b. The Charity Committee
c. The Education and Recreation Committee
d. The Health and Cleanliness Committee.

The 'Collective Centre' serves the following functions:-

1. Economic. This includes cottage industries, live stock selection, dairying, poultry-raising, keeping of bees and silkworms, the cultivation of vegetables, fruits and trees, spinning, weaving and other handicrafts. This is besides providing demonstration plots and encouraging co-operative farming.

2. Public Services: This includes adult education, rural centre programmes libraries, combating illiteracy, cultural excursions, sporting activities and summer camps.

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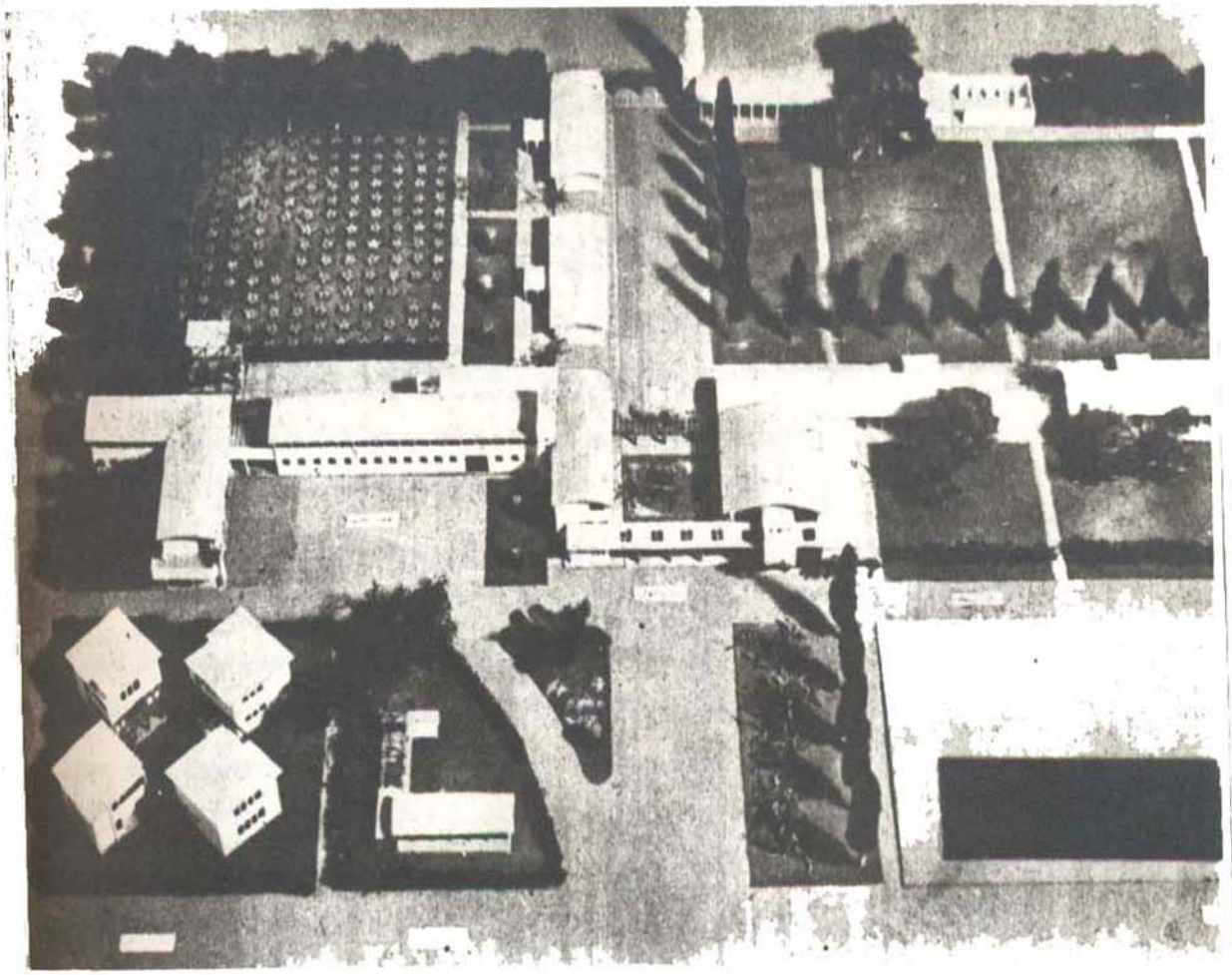
(1) 'The Collective Units', Government Press, Cairo 1954. (Arabic Text)



A COLLECTIVE UNIT

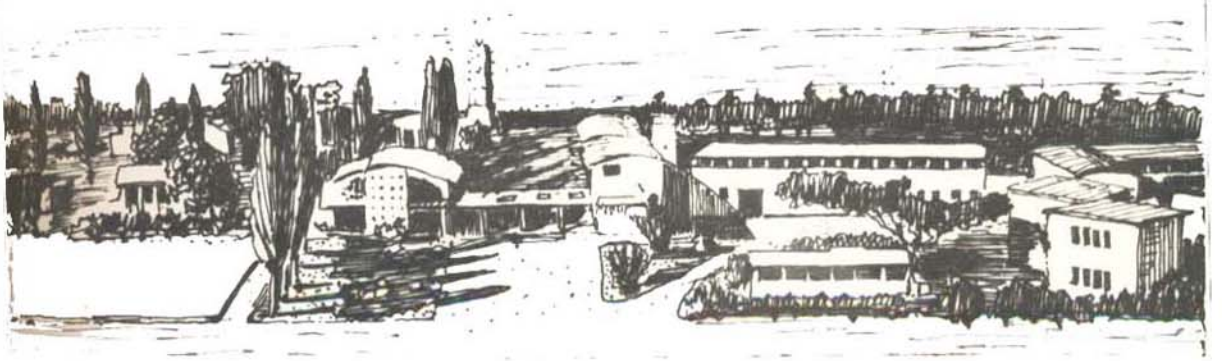


FIG. 14

3. Social Services: This includes social studies and research in addition to the ordinary social activities.

4. Sanitation: This includes combating the different diseases, providing medicines, studying the different hygenic conditions and hygenic research.

Every 'Collective Centre' includes the following elements:-

1. A Social centre including an assembly hall, a library, social guidance office, agricultural guidance office, and a nursery and rural club.

2. A medical centre including a clinic, an out-patient's clinic, a dispensary, a children's clinic and a medical laboratory.

3. A school of 12 classrooms, playing grounds, out-door classes and demonstration plots.

4. Rural Industries units for weaving, spinning, dairying, poultry-raising, palm-tree production and agricultural industries.

5. Four residential units for married employees, ten units for male bachelors and ten for female.

The social workers must live in the village, in a manner differing as little as possible from that of the community. These workers consist of an agricultural-social worker, and a health and welfare nurse, both of whom are carefully selected and trained. They are assisted by a young club leader, chosen from the local community and sent to Cairo for training, and wherever possible, a Doctor and Laboratory Assistant.

The following table shows the distribution of the 'Collective Units' in the different provinces of the Delta.(1)

Table (17) The Distribution of the Collective Units in the Delta

Province	No. of Markazs	No. of division units.	Units with existing services.		Collective Units Built in 1953.
			No.	%	
El-Beheira	11	71	33	47	13
Kafr El-Sheikh	7	40	13	33	12
El-Daqualiya	8	77	31	40	15
El-Menufiya	7	70	39	56	9
El-Qalubiya	5	41	15	37	12
El-Gharbiya	11	90	42	47	14
El-Sharqiya	9	81	45	56	10

This system will guarantee the stability and consolidation of public services rendered in rural areas. Thus, public services in these areas will be integrated and co-ordinated in one frame. There will be in this case one self-governing body in each area, which will be responsible for sanitation and education as well as social, agricultural and industrial activities. To this may be added the moral and material contribution of the people in the management and development of their local affairs. Village interest and self-government are stimulated by the holding of an annual Assembly, which elects a Council to carry on the business of the community.

Social Centres:

In most of the Egyptian villages the old social centres are still discharging their functions. They were designed to provide health, economic and cultural services. These centres occupy premises provided by the local inhabitants. They are now under supervision of the Ministry of Social Affairs which gives them grants according to the amount of services and activities they perform.

So far, only a fraction of the rural population makes use of the services

(1) Permanent Council of Public Services, an Article by A. Khattab, The Engineers (magazine, Arabic Text) Cairo, June and July 1956.

provided at the centres. It is estimated that at most not more than 10% of the families take advantage of the facilities provided.(1) It would thus be seen that the principle of self-help which is the very basis of the philosophy of the movement has so far failed to establish itself very deeply. This is, in a way due to the ignorance as well as to shortage of personnel. The village leadership which at present comes from the semi-educated will take long to build from its present elements and a considerable time will be required for the community organization to strike deep roots. Few villages contain representatives of the professional and educated classes from which the first signs of leadership has often come, to be followed later by wider participation by other members of the community. The unattractiveness of village life to those not accustomed to it, with its limited opportunities for educated men and women to satisfy their material and cultural aspirations, is a serious obstacle to progress. Shortage of funds, in some cases, leads to frustration and continuity of work is sometimes lacking. Besides these disadvantages there were that of over-centralization and lack of co-ordination between the different departments concerned for health, education or social services. These were the main reasons behind the establishment of the 'Collective Centres' all over the country, although the existing social centres still practice their functions. They are the bases which gave the Fellaheen the first light of stimulation for self-help.

Results achieved vary considerably. Much has been done to make the life of the Fellah healthier, pleasanter and more peaceful, and to remove the fog of ignorance which surrounds him. It has been noticed that the service which attracts peasants most is medicine; using this service as a basis it is possible to get them to the other activities fostered by the Community Centres.

In the economic field less success has been registered. Auxiliary activities such as bee-keeping, have made a small but welcome addition to farmers' incomes, and the introduction of new crops, or use of better varieties, has sometimes raised output appreciably, but, so far, the attempt to develop cottage and agricultural industries has made very little headway. Yet it represents one of the most promising ways of increasing incomes.

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(1) Issawi, C. 'Egypt at Mid-Century' Oxford Press, London 1954. page 74

The Collective Units and Social Centres can be the centres of any reform in rural areas. They are the starting points where the Fellaheen and the officials meet and work for the well-being of all.

d. HEALTH

The village population is one with an extremely low economic status, with a low but improving literacy rate, and with a pressing need for social and community development. The burden of disease carried by the population is heavy. Nutritional deficiencies, epidemic and chronic eye diseases, enteric fevers and dysenteries, tuberculosis, syphilis, and bilharzia are all found at extremely high levels in the village population. All would seem to have equal priority in any attempt to control or abate disease in the rural Delta.

Improving the sanitary conditions in a village, without parallel improvement in housing, social and economic status does not appear to have a marked effect upon the hygienic status of the village.

A survey of the public health institutions and conditions will be studied later when dealing with the rural area of Markaz Ashmoun in Chapter IX.

In his report of 'An Evaluation of Health and Sanitation in Egyptian Villages', (1) Dr. J.M. Weir says that,

> ' the success of any health programme in an economically distressed and illiterate population will depend upon close co-operation of the health worker with the social worker, the educator and the agricultural engineer and teacher. Such co-ordination of effort can only come through a local direction of the efforts of all those agencies at the village level. Decentralization of all Government services with autonomy of action at the village level under village councils must be achieved if improvement is to be accomplished.'

Equally, there must be a radical reconstruction of the physical fabric of the village if healthier conditions are to be achieved.

Rural blight and its devastating effect upon public health, psychological and social status, safety, and economy has become a national problem of public concern. During past years, public attention has been focussed upon the problem and numerous attempts had been undertaken by various organizations to bring about, if possible, an orderly programme of rehabilitation and redevelopment.

Unfortunately most of these studies have been based on qualitative description rather than on quantitative estimation. One of the most extensive surveys

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(1) Weir, S. An Evaluation of Health and Sanitation in Egyptian Villages. The Journal of the E.P.H.A. vol. 77 No. 3 1952

f village conditions was begun in 1942 by the Rural Health Department and covered l ost all the Egyptian vi lages; but, this survey did not approach the farmer's ouse to determine the extend of the blight, considering it at that time a prob- e requiring future studies.(1)

Village Sanitation

A typical Egyptian village is laid out without any sense of planning. The streets are narrow, serpentine and uneven in level. They are filled with manure heaps, garbage may be found everywhere, with human faeces scattered at almost every corner. These ideal fly-breeding places, together with favourable climatic conditions, are the main causes of the very high circulating fly population, and responsible for the high rate of intestinal diseases and high incidence of trachoma causing blindness. The soil is most probably polluted with hookworm and ascaris.

The problem of fly control is probably the most serious one met with in the Delta village. All families keep their animals within their homes and the dirt of the stable floors is utilized as manure for the fields. Thus the manure heaps in the streets, dung cakes, pit latrines in some houses, and damp waste disposal areas in and outside the houses, are responsible for the low standard of hygienic conditions.

During the cool months of January and February relatively little fly-breeding occurs.(2) With the advent of warm weather in March breeding increases and reaches a peak in May and June. The fly population shifts daily from interior to exterior sites with increasing and decreasing heat.

The houses are mere shelters, usually with an open yard and one or two rooms. Mud reinforced with reeds or unburned clay bricks are the material used in the walls, while split palm stems covered with millet stems make the roofs. There are no proper sanitary facilities in most of the houses. The environmental sanitation at present may be compared with the conditions in England or the United States of America in the first half of the nineteenth century when

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(1) Issawi, C. 'Egypt at Mid-Century', Oxford University Press, London 1954.p.72
(2) Weir, J.A. 'Evaluation of Health and Sanitation in Egyptian villages.' The Journal of the E.P.H.A. vol.27., No. 3. 1957

Kinnick was trying to rouse the public conscience by his advocacy of good sanitation.(1)

It has been found that 55% of the population suffer from bilharzia, 30% suffer from ankylstoma, and 15% suffer from malaria. These diseases which are brought about by perennial irrigation and inadequate drainage, affect mainly the villagers; thus it is estimated that 75% of the rural population is stricken with bilharzia. (See fig. 15)

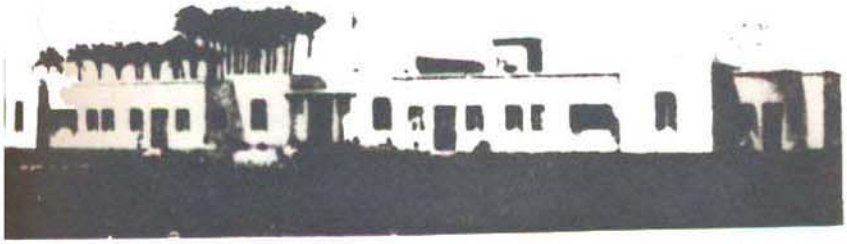
Examples of the sanitary status and physical features of the rural settlement in the Delta are illustrated in the following tables which summarise the findings of a survey carried out by the Rural Research Section in the Ministry of Public Health in five villages in the Nile Delta.(2)

Table 18. Sanitary Status and Physical Features of the Rural Settlements in the Delta.

Village	Occupied Houses Number	Unoccupied Houses Number	Separate Stables Number	Shops Number	Total Buildings Number	Average Sanitary Score	Degrees of Sanitation
Sindbis	759	54	16	10	839	19.8	18.6%
Kamenfil	724	28	1	5	758	19.1	18.0%
Karuda	894	70	9	17	990	21.2	20.0%
Ghour S	753	96	9	6	864	21.8	20.4%
Ghour E	1748	225	34	24	2031	23.8	22.3%

This information was gathered through a system developed by B.R. Dyer.(3) for scoring individual homes on the basis of twelve basic components of environmental sanitation. Sanitary inspectors examined the houses and recorded data pertinent to the presence or absence of sanitary facilities, and the status of other sanitary factors such as overcrowding, lighting and ventilation. ~~The presence of adequate animal requirements for sanitation produced an arbitrary score of 106.5 per house.~~

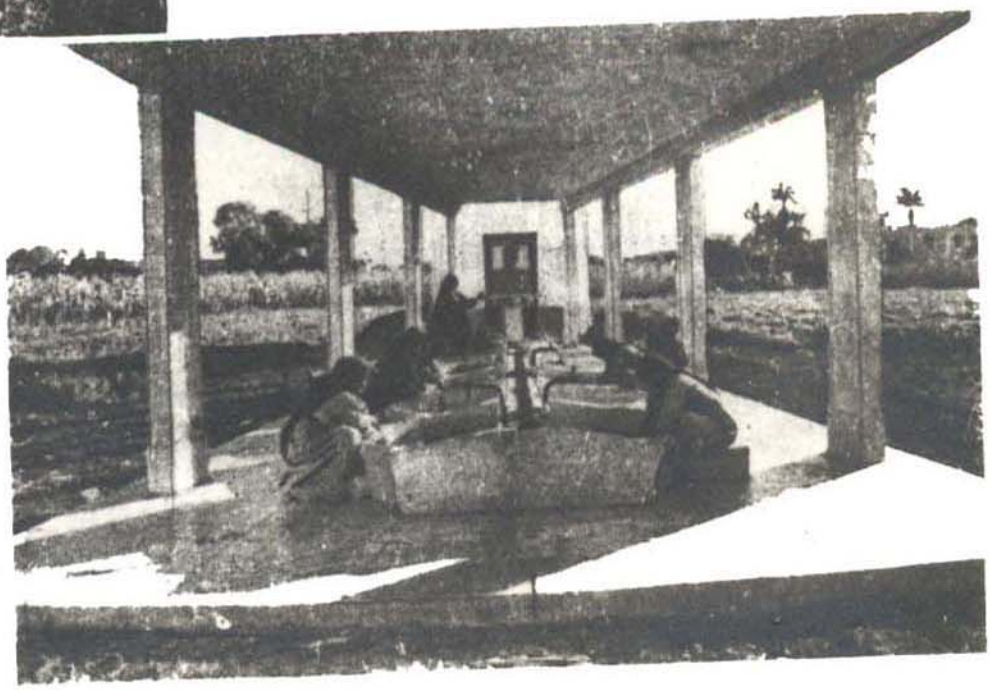
(1) Issawi, C. 'Egypt at Mid-Century' Oxford Press, London 1954. page 62
(2) Weir, J. 'An Evaluation of Health and Sanitation in Egyptian Villages The Journal of the E.P.H.A. vol. 27. no. 3 1957
(3) Ibid.



A health centre

Bathing and washing in a canal

Water carrying from a canal



New washing places

FIG. 15

The Sanitary score of houses by components are shown in the following table

Table 19. Sanitary Status in Rural Delta

Component	Max. score for Component.	Average Score of houses by village.				
		Sindbis	Quaranfil	Baruda	Aghour S	ArgourK
Space around house	11.0	1.4	2.2	1.8	2.4	1.7
Approach to house	1.5	0.7	0.6	0.7	0.8	0.6
Building Condition	8.0	1.3	1.6	1.9	2.1	2.9
Cleanliness	6.0	0.4	1.7	1.2	0.3	1.0
Overcrowding	8.0	1.9	1.6	1.9	1.8	2.3
Ventilation and lighting	15.0	2.9	0.8	1.8	1.9	1.8
Kitchen facilities	13.0	1.9	1.7	2.0	2.7	1.6
Bathing facilities	4.0	0.1	0.0	0.0	1.9	0.2
Garbage and refuse disposal	3.0	0.0	0.9	0.0	0.0	0.1
Latrines	13.0	2.5	1.3	1.5	1.6	2.6
Water supply	22.0	6.6	6.0	7.6	7.4	7.9
Animal facilities	4.0	0.8	1.3	0.5	0.6	1.0
All Components	106.5	19.8	19.1	21.0	21.8	23.8

The low level of sanitation was apparent from the survey. In analysing the results it was clear that it would be possible only to improve the components dealing with water, latrines, fly control, and refuse disposal. Additional improvements could not be attained unless the entire village was reconstructed, a procedure which is not economically feasible at the present time.

Nutritional Status

It is apparent from the following data that the basic diet is one of bread (native type) and defatted cheese made from skimmed milk. The families could be divided roughly into four groups, those who subsisted primarily on bread and cheese, those who took milk and vegetables occasionally in addition to bread and cheese, those who took meat, milk and vegetables occasionally and those who ate meat and

(1) Weir. J.A. 'Evaluation of Health and Sanitation in Egyptian Villages The Journal of the E.P.H.A. vol 27. no. 3 1952

tables regularly. The survey which was carried out in Sindbis in 1948 and h involved 1071 families shows the distribution of the four groups as ustrated in the following table:

Table 20. Nutrition Status in Sindbis. 1948

Type of Diet	No.of families	% of total
Minimum (cheese and bread)	131	12%
Minimum plus milk and vegetables	600	56%
Minimum plus milk, vegetables and meat	271	25%
Fresh vegetables and meat regularly	69	6%

The dietary intake in the Sindbis families was suggested to be just suffident to meet the metabolic needs of growth and in the yea s of 20 and over to atisfy the requirements for work and normal activity. This is a typical example of the nutritional status of the rural Delta.

e. EDUCATION

The problem of education is one of the three main problems which faces the whole country, i.e. poverty, ill-health and ignorance. It has been carefully considered that any achievement in one field must be supported by parallel developments in each of the other two fields.

From the economic stand point, education is essential to a higher standard of production through a more enlightened utilization of natural resources and ability to participate in vocational and technical training. There is always a fundamental interrelation between poverty and ignorance.

The effects of the dissipation of ignorance are not limited to improvement in cultural standards, but have such far-reaching consequences as a better understanding of the need for good habits of personal hygiene, the importance of sanitation and proper utilization of native foodstuffs.

The rate of literacy among the Fellaheen women is very low. The significance of that is that the educational standard of a mother cannot fail to have a considerable effect upon the health and well-being of her children.

Although the school population rose from 324,000 in 1913 to 1,900,000 in 1951, and the number of schools rose from 2,500 in 1913 to 122,000 in 1951, the present regime has given education even greater attention.(1) A School Buildings Authority has been formed to deal with the operation of school building all over the country. This department is responsible for research, design and building operations of the different types of schools, a programme for which was laid down by the Permenent Council of Public Service.

Rural Education

Rural education was based on the village 'kuttab'(2) where the 'Faqih(3) of the village teaches the village children the principles of language and then how to read and write the parts of the Koran. The 'kuttab' itself is a small

(1) Issawi, C. 'Egypt at Mid Century' Oxford Press, London 1954, Page 65
(2) Primitive village school.
(3) Literally - 'A learned man'.

room in the 'Faqih's' house which is used in the winter time, while in summer the children and their teacher sit on the ground in the shadow of a nearby tree. The children's ages range between 5 and 10. Every child had to contribute with an amount of wheat or maize to be given to the 'Faqih' in return for his services in the harvest season. The 'Faqih' on the other hand had to look after the village mosque.

This type of school - the kuttab - is disappearing gradually, giving place to the modern and well-built primary schools of the School Building Authority. These schools are in addition to the rural schools which are attached to the Collective Units which have been mentioned before.

Every village in the Delta is served with one or more schools according to its size and the areas which it serves. Most of the 'ezbas' - small hamlets - still have their 'kuttabs'. The secondary schools, for boys and girls, are found in the capitals of the different districts, or 'Markazes' in addition to the necessary preparatory and primary schools.

Education is compulsory and free in the primary schools for the ages between 6 and 12 years. Education is also free in the preparatory and the secondary schools.

A detailed study of the educational institutions in the rural area of 'Markaz Ashmoun' will be dealt with later in Chapter IX.

Educational Status

A survey was carried out in five villages in the Delta - the province of Qulyub east of Ashmoun - by the Section of Rural Research and the International Health Division of the Rockefeller Foundation in 1948(1). The education status of the population was determined by recording the number of years of school attending population and asking each individual to read from the first primary reader and to write back sentences read to them from this reader. In the age group of 5 years to 9 years 50% of the males and 17% of the females were in school at the time of the survey. In the age group 10 to 14 years 37% of the males and 3%

(1) Weir. 'Journal of Egyptian Public Health Association' 1952. page 67

the females attended school. In the population over 15 years of age 62% of the males and 92% of the females had received no education. Among individuals over 15 years of age, 34% of the males and 6% of the females were able to read and write at the elementary standard of the survey. Loss of literacy after attendance at school was relatively high. Of 702 individuals who had attended school for two years or four, 85 (i.e. 12.15% were unable to read or write at the time of the survey.

These figures might vary slightly from one village to another and the conditions must have improved in the last ten years due to the extensive education programme which has been carried out since 1953. However, these figures give a fair enough picture of the educational status in the rural Delta at the present time.

The causes of this low standard can be summarised in the following points:-

1. Hot weather which reduces the working capacity of the undernourished
2. Frequent changes of educational policy
3. Over-centralization
4. Overcrowding of curriculum
5. Large place allotted to language
6. Rigidity and importance of examinations
7. Poor quality of teachers and the heavy burden on them
8. The absence of intellectual stimulus at home.

In spite of that, a considerable progress has been achieved in both educational system and school buildings.

CHAPTER VI

CHAPTER VI

ECONOMIC FACTORS AFFECTING RURAL LAND USES

a. AGRICULTURE

History of Agriculture

With regard to the earliest stages of the story of Egypt's agriculture, there are various theories.(1) The most logical, attractive and not without reasonably valid support indicate that Egypt in thePaleeolithic Period was blessed with copious rainfall all over the country; what is now desert was then forest and grassland. Discoveries of fossil trees and the like support this. In these forests there were herds of wild animals. Finds of flint implements and weapons suggest the hunter who found his food in the animals he killed. Fish hooks are also found, showing that he had learnt to exploit the River.

In the Neolithic Period that followed, the rainfall gradually diminished the river became narrower, the land at a distance from the valley dried up into desert. The inhabitants were driven by the force of changes nearer to the river banks and to the Faiyoum lake. Their range of hunting and their supply of game became more and more restricted; they came to notice more closely the growth of wheat and barley and to discover the natural and seasonal connection of crop and seed. Anchored to a far narrower area than before, they abandoned hunting and took to agriculture.

The Neolithic Period led through some thousands of years into what is known as the Pre-Dynastic period of Egypt, an epoch of relatively high civilization when metals were known and used, pottery was made in simple and even artistic shapes.

There is evidence of hunting far afield and even of trade by the route from Qift, in Upper Egypt, to Kossir on the Red Sea, with Asia for timber, this is where and how the Asians came to Egypt as already mentioned. There were kindoms and governors and some sort of polytheistic religion. There was a riculture based on wheat, barley and millet, also stock-breeding of goats, cattle and pigs.

(1) Francis, R. 'Agriculture in Egypt' Government Press, Cairo 1949

Then, there was a gradual transition from the earliest recognition of crop ..., sowing and harvesting up to the time when the first serious attention to ...gation was evident in the dykes built by Menes, the first recorded King of ...ited Egypt about 3,200 B.C. Probably, these were chiefly intended to assure ...e site of his capital city Memphis. The ancient papyri inform us of the cycles ...cultivation, guarding the dykes, breaking up the land; sowing then harvesting ... garnering the crops.

Also we have ample records of the actual implements in use. These were ...turally of primitive nature, yet the Fellah still uses the same type of imple...ents to this day.

Egyptian agriculture nowadays is characterized by a highly developed system ...f irrigation; a labour-intensive technique; lavish use of fertilizers; depend...ce on cotton; and markedly unusual distribution of property accompanied by ...ery small-scale tenure and farming.

...and Classification

...e lands on the Delta have been divided by Willcocks[1] as follows:-

a. In the south, the converted basins built at the beginning of the nineteenth century, upstream of an irregular line between Dillingat and Belbeis (see Map no. 22)

b. The deltaic land to the north of this line

These lands may be further sub-divided into the following belts:-

i. South of the line:

1 - 810,000 feddans nearest to the apex of the Delta and not needing drainage. These are the richest land in the Delta.

2 - 970,000 feddans north of the former, and capable of having their ground water maintained at a sufficiently low level by deep irrigation canals, and by free flow drainage in the existing drains.

ii. North of the line:

3 - 1,320,000 feddans of cultivated land needing drainage, generally by pumping

4 - North of the last mentioned area are 1,200,000 feddans without reclamation works.

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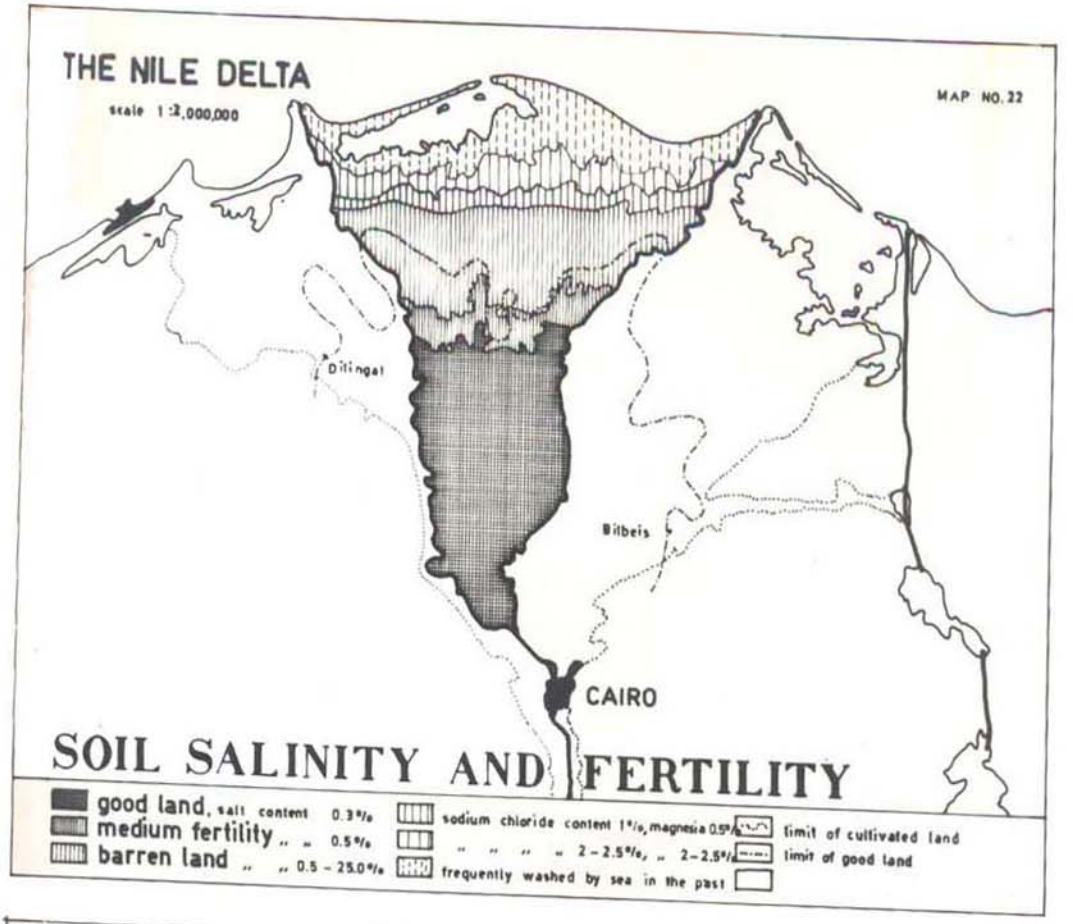
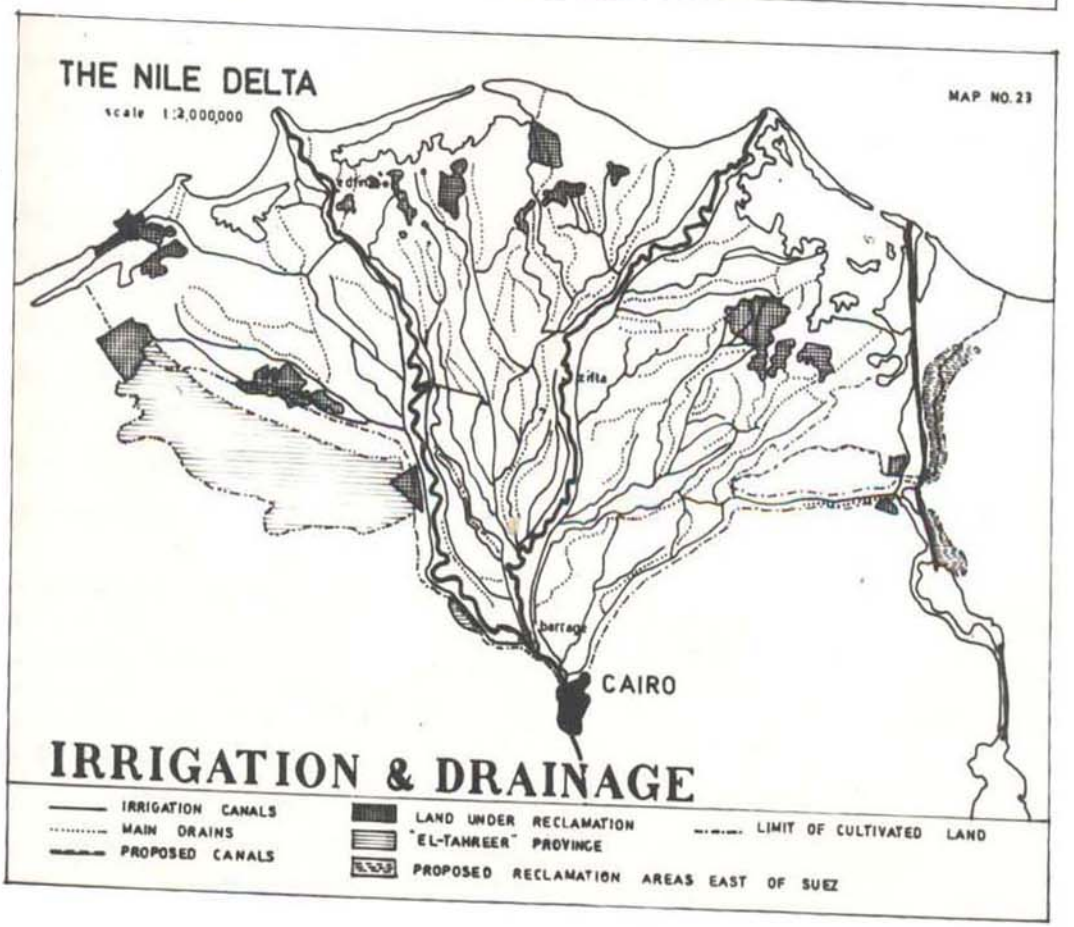
(1) Willcocks, Sir. W. and J.L. Craig. 'Egyptian Irrigation' vol.I London 1915


THE NILE DELTA
scale 1:2,000,000
MAP NO. 22
Damietta
Bilbeis
CAIRO
SOIL SALINITY AND FERTILITY
good land, salt content 0.3%
medium fertility " " 0.5%
barren land " " 0.5 - 25.0%
sodium chloride content 1%, magnesia 0.5%
" " " " 2 - 2.5%, " 2 - 2.5%
frequently washed by sea in the past
limit of cultivated land
limit of good land


THE NILE DELTA
scale 1:2,000,000
MAP NO. 23
Edfina
Zifta
Barrage
CAIRO
IRRIGATION & DRAINAGE
IRRIGATION CANALS
MAIN DRAINS
PROPOSED CANALS
LAND UNDER RECLAMATION "EL-TAHREER" PROVINCE
PROPOSED RECLAMATION AREAS EAST OF SUEZ
LIMIT OF CULTIVATED LAND

5 - There are the lakes, covering 66,000 feddans

6 - Between the lakes and the sea are 240 feddans of sand dunes with valleys and some level stretches of land capable of being perfectly cultivated with such crops as melons, and fruit trees.

The total area comes to 5,190,000 feddans excluding the Tahreer Province now in process of creation west of the Delta and which when completed will add a further one million acres.(1)

Irrigation

There are three storage dams on the Nile at Aswan, in Egypt and at Gabal el-Awlia and Sennar in the Sudan. The Aswan dam was completed in 1902. Its level has been raised twice in 1907 - 10 and 1932 - 4 now giving a storage capacity of 5.5 milliard cubic metres. The Gabal-et-Awlia dam provides Egypt with 4.5 milliard cubic metres.(2)

In Egypt the Esna barrage provides both basin and perennial irrigation for Upper Egypt and there are other barrages at Nag-Hamadi, Assuit and Deirut.

The Delta barrage, just north of Cairo, raises the level of Behera, which irrigated the eastern Delta, and the Tawfik canal, which irrigates the western Delta. The Damietta branch of the Nile is also raised by the small Zifta barrage (See Map no. 23)

The irrigation pumping stations of the Delta at Abul Managa, Balamon, Fua and Alf, fulfil the same function as the regulator barrages.

Finally, there are earth embankments built at the mouths of the Nile to keep back the sea and store the water needed for rice cultivation. Sealed in March, when the Nile reaches a low level, they are broken up during the floods in August. In 1951 the embankment at Edfina, on the Rosetta branch was replaced by a stone barrage.

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(1) The area of salt land unfit for cultivation in the Delta is estimated at 1,200,000 feddans. These lands can be brought under cultivation only if systematic large-scale washing out operations are employed, whereby the salts are removed in solution by the drained off water.

(2) Hurst, N.E. 'The Nile' Constable, London 1952.

These dams and barrages are supplemented by an elaborate network of irrigation canals, aggregating 22,000 kilometres. Fields are watered either by free flow or during low flood by mechanical means such as pumps of which there are about 37,000 in Egypt including primitive lifting buckets (50,000 Shadufs), (250,000 Archimedian screws), and 16,000 water wheels (sagias)

Due to the scarcity of rainfall and the inadequacy of irrigation, well water is needed, at least as a supplment. Deep underground water is recorded at a depth of 40 - 50 metres (175 - 155 feet) while shallow underground water may be found at 1.5 to 3.00 metres.(1) The map no. 29 shows the distribution of the water wells at Ashmoun.

Egypt is now provided with 12.000 kilometres of drains. Most of the land is still drained by free flow, but one million feddans in Lower Egypt are served by lift drainage and it is planned to extend this to another one million feddans. In 1949 there were 25 drainage pumping stations in Lower Egypt, served by three power stations.(2) Expansion was held back at the moment by the high cost of electricity.(3)

It is reckoned that in certain regions as much as one tenth of the cultivated area is taken up by drains. At present 50,000 feddans are drained by pipe drainage. This system saves land and water, requires less upkeep and reduces disease, but unfortunately, is more costly to install than the normal drains.

Rotation System

For irrigation purposes, water supplies have to be of adquate amounts, as far as possible, and suitably distributed throughout the year, With this end in view, an irrigation rotation is planned to make the best use of available supplies.

Water requirements differ from one crop to another and from one season to another. These requirements have been summed up by 'Hurst' (4) as follows:-

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(1)The underground water of the Delta has its origin in the river, with which it is in direct contact. When the river is in flood there is a lateral flow of the river water into the soil whereby the level of the subsoil water is raised, and as the river falls, a portion of this water finds its way back again into the river, and the level of the subsoil water correspondingly falls.
Willcocks Sir.W. ' J.L. Craig. 'Egyptian Irrigation' London 1913 vol. I

(2)Issawi.C.'Egypt at Mid-Century' Oxford Press. London 1954. Page 101

(3)Five stations are under construction in Northern Delta to serve new pum stations.

(4)Hurst. H.E. The Nile, Constable London 1952.

1. In early summer; summer crop watering
2. Early flood months; further watering of summer crops, watering of the 'Sharagi' and maize cultivation requirements.
3. Late flood: watering of the 'Nili' or flood crops, the remaining summer crops, if any, and preparing for winter-cultivation.
4. In winter, watering of winter crops and preparation for the summer crops.

The crops follow a system of rotation covering a period of two or three years. Taking cotton first, the succession will be as follows: -

February	-	October	-	cotton
November	-	May	-	wheat, clover or barley
May	-	June	-	(partly fallow)
June	-	November	-	maize or rice
December	-	February	-	clover
April	-	October	-	cotton
November	-	May	-	winter cereals or clover
May	-	November	-	Maize (or fallow)
November	-	March	-	clover or winter cereals
March	-	June	-	(partly fallow)
June	-	October	-	Maize or rice
November	-	March	-	clover

The advantages of the rotation system are:-

1. The preservation of land fertility
2. The regulation of the cultivation process
3. Making use of irrigation water and regulating drainage by uniting the cultivation in collective areas.
4. Combatting harmful insects and weeds.

The rotation system is carried on in areas with large holdings and permenent settlers. On the other hand it is rarely carried on where small areas of holdings exist and where the farmers prefer to cultivate more food products as in the case of the provinces of Menoufia and Qualubyia which are the main food supply areas for Cairo.

The Acts No. 500 of 1955/56 and No. 501 of 1955/56 enforce that 33⅓ of every holding must be devoted to the cultivation of cotton and 33⅓ to grain.(1)

(1) Marii, S. 'Agrarian Reform in Egypt' Government Press, Cairo 1958. page 213

Cropping Year

The cropping year is divided into three overlapping seasons, namely 'Shitwi' or winter, 'Seifi' or summer, and 'Nili' or flood season. For irrigation purposes the cropping year is divided into similar divisions according to the availability of water supply. These three divisions whether for cropping or irrigation purposes, have each climatic conditions proper to them, mainly as far as temperature is concerned.

The seasonal distribution of crops in the Delta by feddans (calculated in 1927 was as follows:- (1)

Summer Crops	1,531,000 feddans
Flood crops	1,382,000 feddans
Winter Crops	1,919,000 feddans
Total Crops	4,832,000 feddans
Cultivated Land	3,114,000 feddans

Therefore, the area of crops per cent of cultivatable land is 155% (see Map no. 25) The cultivated area of the Delta comprises 3/5 of the whole cultivated area of Egypt.

The 'Hod' System of Land Division:

The 'Hod' is a defined area of land identified by number and by name. In Ashmoun, for example, both the flood land (the 'Gezira') and the main land are divided into a number of 'Hods'. Each village is a complete unit with its 'Hods' separate from those of other villages. A village may have from four 'Hods' - as in the case of Kafre-el-Sa3id - up to thirty seven 'Hods' as in the case of Ashmoun Village. The area of each 'Hod' varies from one 'Hod' to another. It can be as little as 2 feddans or as much as 575 feddans (e.g. 'Hod' El-Gezira No. 11 in Ashmoun village)

According to the farmer the origin of such a division is based on soil type and land productivity, but this should not be taken as to mean the whole 'Hod' must be of a uniform soil and different from a neighbouring 'Hod'.

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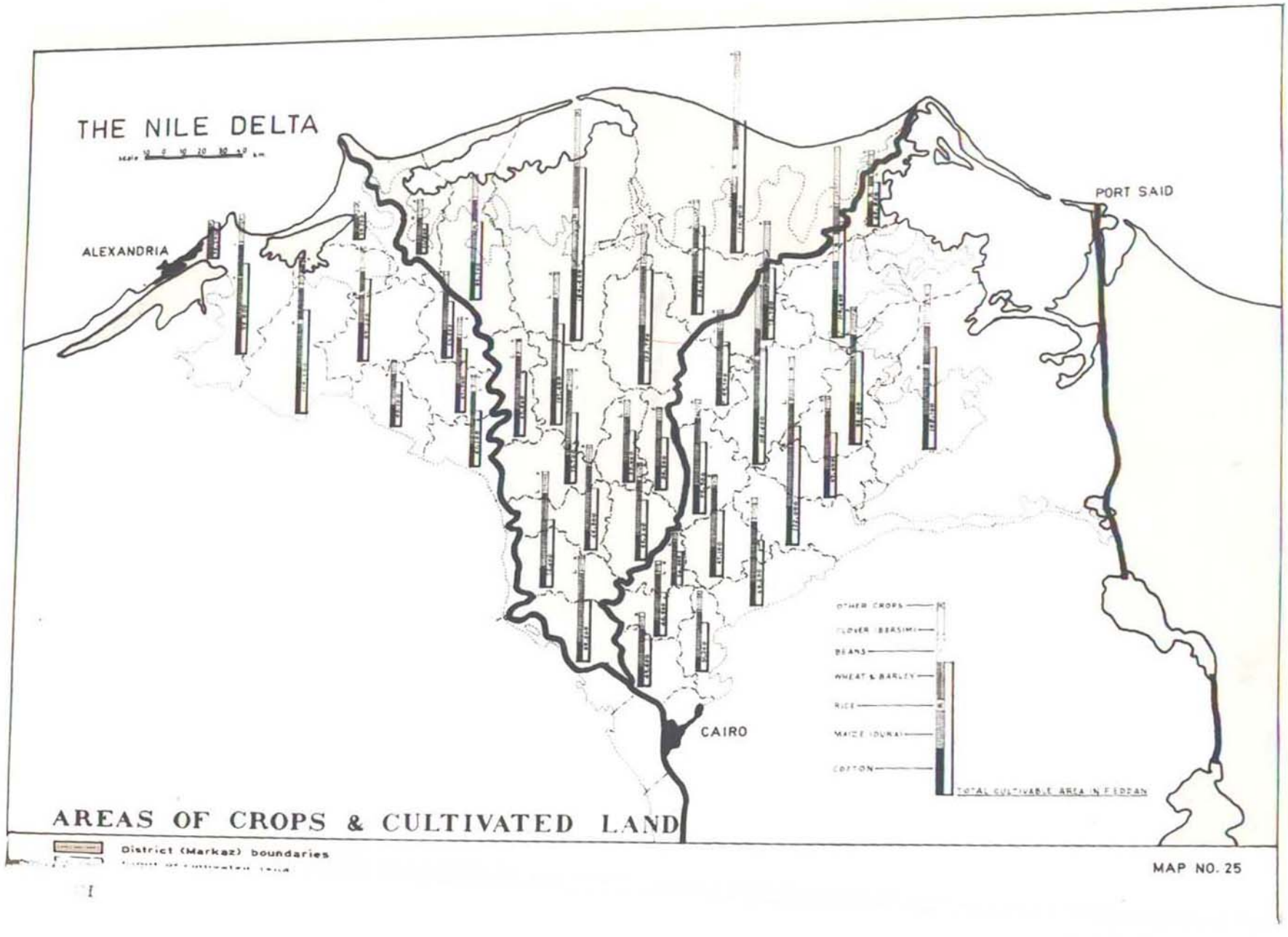
(1) Hurst. H.E. 'The Nile' London 1952, page. 77


THE NILE DELTA
ALEXANDRIA
PORT SAID
CAIRO
OTHER CROPS
CLOVER (BERSIM)
BEANS
WHEAT & BARLEY
RICE
MAIZE (DURA)
COTTON
TOTAL CULTIVABLE AREA IN FEDDAN
AREAS OF CROPS & CULTIVATED LAND
District (Markaz) boundaries

MAP NO. 25

Writing about 'Hods', Lyons[1] mentioned that although no special reference to such subdivision 'Hods' is made in the records of Ancient Egypt, it may well have existed, and he suggests that it was probably intended originally to afford a ready means of assessing tax.[2] In 1897 the 'Hod' was defined to be 50 - 100 fe dans of one piece of land with a regular shape and in the definition of which natural boundaries should be made use of whenever possible. The naming was left to the village authority.

Drainage:

Good drainage system was very essential as the subsoil water can be very injurious to field crops, vegetables and fruit trees.

There are different types of drains. Surface drainage is normally carried out through covered or uncovered drains. The uncovered drains usually occupy a considerable area in the utilized land (See map no. 23) This amounts to 10% of the cultivated lands.[3] Covered drains were recently introduced in Egypt. In this case drainage is taken at a depth of 2.5 metres instead of 1.5 metres of the uncovered drains. When compared with the irrigation network drains compose a similar but reversed 'Drainage Tree' starting with the small drain and ending in the largest one.[4] In Ashmoun there are 120 kmts of drains. There is a great need for more drains to raise the productivity of the land in this district, but the small holding system prevailing in the Delta as a whole, with its consequences of limited capital and the impossibility of reaching public drains, is the main hinderance to carrying out field drainage on the open drain system. This obstacle can be overcome through the introduction of covered drains and consolodation of lands.

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(1) Lyons.J. Cadwister Survey of Egypt, Cairo 1932
(2) Another possible explanation of the origin of the 'Hod' is that they may be natural consequence of subdividing the land for irrigation purposes.
(3) Marii.S. 'Agrarian Reform in Egypt', Cairo 1958, page 302
(4) Water in drains has great importance as it can be used for irrigation after special treatment. This depends on the composition of the drainage waters and the amount of salt they hold. This amount varies between 270 parts per million (i.e.0.027%) in the water of Bahr Saft drain, near Abu El-Shekuk (Sharqiya) and 1000 parts salt per million (i.e.0.1%) at the tail of that drain during flood. These proportions vary considerably during the year with respect to the flood season when the amount of salt is at its minimum. The percentage can be as high as 0.4% as was found in Sharakawia drain in the month of July.
(Sir W. Wilcocks, 'Egyptian Irrigation'.)

Irrigation Implements:

The different types of irrig tion implements are:-

1. The most primitive one - the Shadouf which works as a lever.
2. The 'Tambouk' or Archimedes screw
3. The 'Tambout' or water wheel is made of wood and costs about £E 30
4. The 'Tambousha' or water wheel made of steel and costs about from £E 59 to £E 74.
5. The pumps driven by steam power.

In his research in Agricultural Geography in the Delta, Dr. Nasr[1] found that the number of feddans which can be irrigated in 6 days (which constitute a single rotation during which water is available in the summer months), by the existing implements amounts to 185,322 feddan in the Ashmoun while the total area of the district is only 67,284 feddans. This means that the existing irrigation power-age could supply an area 2.7 times that of the Ashmoun. It was found that holders of 2 feddans and less are characterized by the 'Shadouf' and the 'Tambout' Holders of over 2 to 5 feddans inclusive, depend more on the best driven implements such as the 'Saquia' type, mainly the 'Tabout'. Holders over 5 to 20 feddans, though still depending upon 'Saquia'[2] type can be seen concentrating more on the more modern steel types of wheel. Holders of over 20 feddans show more dependence upon power-driven implements.

The Tabout irrigates one acre in 24 hours in the time of Sharaqui (very dry soil) but in ordinary cases during the cultivating period it waters two acres in the case of cotton, maize, beans or sugar cane. The Tambousha waters one acre in 6 hours in the time of Sharaqui (very dry soil) or in 3 hours if otherwise.

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(1) Nasr. N.S. 'Agricultural Geography' in the Delta', Cairo 1952

(2) Water wheel.

Land Tenure

Before the 1952 revolution about half the land was owned by large proprieters who were also large farmers, and employed atleast half the farm population as labourers; the remainder were peasant cultivators, the majority with dwarf holdings of under one feddan.

The land system was built up on the basis of Ottoman Law by the reforms of Mohammed Ali, and the system was one of complete individualism before the Land Reform Law of September, 1952. The main feature of the Ottoman Land Code was its division of Land into different categories.(1) These were :-

1. Mulk Land: land held in absolute freehold ownership. Landownership comprises two rights: the 'raqaba', or right of absolute ownership, and the 'tasarruf', or right to the usufruct of land. In 'mulk' tenure both rights belong to the individual.

2. Miri Land: land of which the 'raqaba' or absolute ownership belongs to the State, but the usufruct of 'tasarruf' to the individual. It is a form of heritable leashold ownership in which the State leases land to the individual.

3. Wakf Land: land dedicated to some pious purpose

4. Matruka Land: land reserved for some public purpose as for example village threshing floors.

5. Mawat Land: dead or unreclaimed land.

Large Landlords, whether 'mulk' or 'miri' owners, as a rule used to let their land to small share-tenants. The Ottoman Code was not to help the cultivator, but to establish a claim to revenue by the Government.

Consequently the Ottoman Land Code was also opposed to the recognition of any type of collective ownership. 'The whole land of a village or of a town cannot be granted in its entirety to all of the inhabitants nor to one or two persons chosen from amongst them. Separate pieces are granted to each inhabitant

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(1) Doreen Warriner 'Land and Poverty in the Middle East' Royal Institute of International Affairs', London 1948, page 16

and a title is given to each showing this right of possession.(1)

The state of ownership has passed through a significant change in the first half of this century. With the increase in population, the class of small proprietors has increased far more than other classes.

The following table shows the changes in the land tenure structure due to fragmentation and heritage between 1896 and 1948.(2)

Table 21 Changes in Land Tenure between 1896 and 1948

Year	All holdings		Holdings of less than 5f		Holdings of 5 to 40 f.		Holdings of over 50 f.	
	No. 1000	Area 1000f.	No. 1000	Area 1000f	No. 1000	Area 1000f	No. 1000	Area 1000f
1896	767	5,002	611	994	144	1,816	12	2,192
1913	1,557	5,193	1,411	1,419	133	1,633	13	2,242
1929	2,176	5,794	2,019	1,708	144	1,759	13	2,327
1939	2,481	5,837	2,323	1,915	146	1,674	13	2,180
1948	2,721	5,938	2,565	2,056	144	1,754	12	2,128

Small holdings of less than one feddan increased in number as showing in the following table:-(3)

Table 22 Increase in Holdings of less than 1 feddan 1913 - 48

Year	Number	Area
1913	942,530	405,595
1929	1,475,777	569,464
1939	1,751,587	701,857
1948	1,980,098	818,524

(1) Issawi, C. 'Egypt at Mid-Century' Oxford University Press, London 1954. page 126
(2) Doreen Warrimer 'Land and Poverty' in the Middle East' London 1945.p.17
(3) Doreen Warrimer 'Land and Poverty in the Middle East' London 1945.p.37

This means that during the period between 1896 and 1948 the area held by all holders increased by about 107% while the number of small holders themselves increased by 320%. Most of this increase has been in the area devoted to farms of under one feddan. This state of land fragmentation is still deteriorating and will continue to deteriorate unless drastic measures are taken to stop it.

The state of land ownership before the Land Reform Law introduced in 1952 was as follows:- (1)

Table 23 State of Land Ownership before the Land Reform Law 1952

Size of holding in feddans	No. of holdings	% of total holdings	Total area	% of total area	Average size of holding
Less than 1 feddan	2,018,132	71.7%	777,865	13.0%	.39f.
From 1 to 5 "	623,746	22.3%	1,343,999	22.5%	2.15f.
From 5 to10 "	79,259	2.8%	525,904	8.8%	6.64f.
From 10 to 50 "	69,115	2.5%	1,291,423	21.5%	24.89f.
From 50 to 100 "	6,378	2.0%	439,494	7.2%	67.34f.
From 100 to 200 "	3,184	1.0%	436,775	7.3%	137,18f.
Over 200 feddan	2,136	0.6%	1,176,801	19.7%	550.00f.
	2,801,950		5,982,361		2.14f.

The above figures show that a minority of owners (0.6% of the total number) held estates of over 200 feddans each and these together occupied almost one fifth of the cultivable land, whereas the great majority of owners (94%) only possessed holding of under 5 feddans together making about one third of the cultivable land. In fact over two million of the owners possessed no more than 1 feddan each amounting to about 13% of the cultivable area - this representing about two thirds of the amount of land held by the 2,136 large land owners. The Distribution Department of the Higher Committee of Agrarian Reform estimated that by 1958 the ownership pattern as a result of the Land Reform Law would

(1) Marii, S. 'Agrarian Reform in Egypt', Government Press, Cairo 1958, page 247

Have the following form:(1)

Table 24 State of Land Ownership afterhthe Land Reform Law of 1952

Size of Holding in Feddans	No. of holdings	% of total holdings.	Total area	% of total Area	Average size of holding
Less than 5 feddan	2,869,878	95.0%	2,945,065	49.3%	1.026f.
5 - 10	79,259	2.6%	525,904	8.8%	6.66 f.
10 - 50	69,115	2.3%	1,281,423	21.5%	18.55 f.
50 - 100	6,378	0.2%	429,494	7.2%	67.11 f.
100 - 200	3,184	0.1%	436,775	7.3%	136.58 f.
200 feddan only	1,768	0.058%	353,600	5.9%	200.00 f.
Total	3,029,572		5,972,261		

The above figures show that after the implementation of the Agrarian Reform law and thef fixing of the minimum limit of ownership at 200 feddans, the large landowners are left with about 6% of the total cultivable land. After land redistribution the number of small holders with less than 5 feddans each represent 95% of all owners and possess 49.2% of the total cultivable land, i.e. about half the arable land of the country. This means that the Agrarian Reform Law had increased the small holdings while reducing the size of the big estates. This result will not affect the output of the land as a consequence of increasing the number of small holdings, since the change will bemainly one of title rather than of agricultural operation, large units continuing to be cultivated as such through co-operative means prescribed by law.

One of the main features of the cultivated land is the dispersal and the fragmentation of holdings. The total area of the arable land is 5,962,662. feddans composed of 2,760,000 holdings owned by 1,003,023 owners (in 1950)(2) i.e. one owner for more than one holding. The majority of landowners own small

(1) Marii. S. 'Agrarian Reform in Egypt' Government Press, Cairo 1958.p.247
(2) Marii. S. 'Agrarian Reform in Egypt' Government Press, Cairo 1958.p.190

sized holdings and yet these holdings are broken down still further into plots separated one from another and sometimes lying within the boundaries of different villages. These holdings are subdivided into 6 million plots. Taking an average, the figures show, that each holding, as far as the ownership per individual is concerned, is divided into 6 plots, and the average size of the plot is less than one feddan.

This distribution is seen in the following table:(1)

Table 25. Distribution of Land Holdings

No. of Plots	No. of Owners	Area in Feddans
1	381,151	1,116,813
2	279,994	1,117,997
3	173,448	1,037,113
4	78,224	663,174
5	33,879	406,100
6	20,814	320,942
7	9,107	174,980
8	8,302	194,900
9	2,933	71,612
10 and more	12,869	939,884
Not known	3,252	51,409

The following table shows the number of holdings of less than 5 feddans sub-divided into one or more plots.(2)

Table 26 Subdivision of Holdings of less than 5 feddans

No. of Plots	Area in Feddans	No. of Holdings	Average Area perplot	
			Feddans	Kirats
1	429,806	351,109	1	5
2	476,828	466,324	-	20
3	304,106	638,778	-	20
4	121,724	176,020	-	17
5	45,876	75,825	-	14
6	21,770	42,330	-	13
7	8,249	18,483	-	11
8	5,415	13,864	-	9
9	1,818	5,202	-	8
10 and over	2,898	16,320	-	8

The numbers of holdings which are more than 5 feddans subdivided into four or more plots are shown in the following table.(1)

Table 27. Subdivision of Holdings of More than 5 Feddans

No. of Plots	Area in Feddans	No. of Holdings	Average Area per plot	
			F	K
4	362,064	130,752	2	18
5	210,943	82,820	2	13
6	175,406	76,296	2	7
7	84,148	41,517	2	-
8	93,036	46,728	2	-
9	32,043	18,693	1	17
10 and more	161,211	122,775	1	7
Total	1,118,851	519,081		

From these tables it follows that there are some 2,537,291 feddans (about 42.5% of the whole cultivated area of the country) divided into 2,063,320 holdings constituting independent units each of which is divided into small separate plots of less than 3 feddans a piece.

The existing system of land tenure and the consequent dispersion and fragmentation of holdings have given rise to the following effects:-

1. An undue increase in the number of workers per land unit
2. The spread of land renting.(2)
3. An inordinate increase in rental values

Fragmentation also has marked repercussions on the efficiency of agricultural production and these aspects will be dealt with later in this Chapter.

(1) It has been estimated that 60% of the cultivated land is rented (Said's estimate was 75%)

(2) Marii, S. 'Agrarian Reform in Egypt'. Government Press, Cairo 1958. page 191

ation System:

There were three kinds of taxes during the rule of Mohammed Ali: (a) Tax on orchards, (b) Tax on trees and Palm Trees, (c) Tax on cultivated land. The value of the tax was equal to that of 1/10 of the production in the first and second kinds. In the third kind the value was not less than the equivalent of two 'Mesht' nor more than 21 'Meshts' per feddan(The Mesht equals 2.25 piasters, i.e about six pence)

In 1844 the tax was raised by 12.5% then in 1853 it was raised by 17% and in 1856 the value was not to be less than Pt. 25 (i.e. 5 shillings) and not more than PT 100 per feddan.

In 1899 the tax value was fixed at 28.64% of the annual rent of the land. This was beside additional taxes for irrigation improvements and the like.

In 1935 the law had fixed the tax value to be 16% of the annual rent up to a maximum of Pt.164 per feddan. This value was reduded to 14% in 1949. The taxpayer who paid taxes of a value between £E 2 and £E 20 was to get a £E 2 reduction. This reduction was increased to £E4 in the 1951 Act and was maintained at this level by the 1952 act.

Tenancy System:

In addition to the normal system of each rental there were two systems of tenancy before the Rural Reform Law came into effect in 1952.

a. El-Muzaraa System (cultivating system): In this system the farmer- the tenant - was to cultivate the land at his own expense while the land-owner helped him in providing the necessary seeds for cultivation together with various manures. In this case the land production was to be divided equally between the tenant and the land-owner, the latter being liable for the land tax.

b. El-Mukhamasa System (the one fifth system): This system was also practised before the Land Reform Law. In this system the tenant had to pay all the expenses of cultivation, seeds and manures, while the land-owners paid the tax. In this case the land-owner took three-fifths of the production of cotton and wheat

while the tenant got the other two fifths of the production. Other cultivation products were to be divided equally between the land-owner and the tenant.

Once taxes were determined they tended to remain fixed but there was no corresponding fixing of rents which in fact continued to rise. The Land Reform Act of 1952 has met this problem by fixing the rent of land to be seven times the amount of tex levied on it, this implies an average rental price of between £E30 and £E 40 per feddan per annum for first grade land. The 1952 Act also regularises the El-Muzarraa System but abandons all other forms of arrangement between land-owner and farmer-tenant.

ricultural Labour

To the soil the Fellah devotes all his energies, he belongs to the land rather than the land belongs to him. During the periods of heavy work, preparing for the cotton, sowing, fighting the cotton pests, harvesting the wheat, he has to work all day and a great part of the night and early morning.

Those who are engaged in agriculture fall into two main groups: land-owners and land labourers, the latter forming 38% of the rural population. Up to the 4-5 feddan size group of holding, holders can provide their own labour.(1) On the larger holdings, however paid labour exists. The latter is of two categories.

1. 'Tamallia' or personal labour and can be paid in kind or in cash.
2. A Share cropper; if theowner pays the taxes and irrigation dues. provides the farm implements, cattle, seed or manure, the Fellah provides labour. For this he receives 1/5 or $\frac{1}{4}$ of the yield of his plot.

It has been observed that from existing conditions two farmers are able to cultivate five acres, 4 farmers, 10 acres and 6 farmers 20 acres.(2) This is, of course, apart from the women and children who normally participate in the work.

The Land Reform Law has fixed the minimum daily wages for agricultural labour at P.T. 18 for the man and P.T. 10 for the woman or the boy(3). The working hours have been fixed at 8 hours a day. But these measures are not seriously observed by most of the land-owners.

Agricultural Labour Status

The agricultural conditions which prevail in the Nile Delta make it rather difficult to define accurately the type, amount and relative efficiency of agricultural labour. It is also misleading to make any comparison between the

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(1) M. Said. Agricultural Economy. (Arabic Text) El-Nahda, Cairo 1954.p. 48
(2) Observation of the Author in Ashmoun District during survey
(3) Marii. S. 'Agrarian Reform in Egypt' Government Press.Cairo 1958 page 395

atus of agricultural labour in the Delta and that in any country in Western urope. The main feature which characterizes the agricultural land in Egypt is that the total net cultivated area, which is 6 million feddans, comprises 9 million feddans of cropped area. It is also difficult to define the population engaged in agriculture as nearly every person in the rural family gives a hand in the cultivation except the very young children. The determination of the size of family is also a matter of some difficulty through complications in the composition of the household.

However, the phenomenon of agricultural under-employment or hidden employment as Issawi puts it,(1) is evident. It is well known that while there is little official unemployment in the rural areas, there is an enormous amount of hidden unemployment.

The determination of the scale of unemployment has been the subject of a variety of views, estimates and considerations regarding the labour requirements of each kind of crop as well as the optimum standard of living desired.

The minimum area necessary to ensure economic use of the land has been found to be 3 feddans (according to the research works of the Agrarian Reform Distribution Department)(2) This is stated to be enough to absorb the labour of an average sized family using local implements; and it can provide a reasonable living for an average family of six persons, with an average of $\frac{1}{2}$ of a cropped feddan per individual. This means that 12 million people can live directly from agriculture. This figure is very near to the 13 million people who are stated in the general census to be actually engaged in agriculture.

It has also been stated that a family of 8 was economically sufficient to cultivate 5 feddans.(3) This estimate would bring the total population directly living on agriculture to be 9,600,000. This figure gives an excess of 3.4 million people engaged in agriculture. In another estimation, M. Habashi(4) put the total needs of Egyptian agriculture in 1939 at 370 million to 394 million man days, this, assuming 300 working days per annum (which actually is about 210 days)(4) and a permanent staff of engineers, keepers, clerks etc., of 132,000 gives employment to only 1,300,000 to 1,400,000 men and 400,000 to 650,000 women

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(1) Issawi, C. 'Egypt at Mid-Cenutry' Oxford Univ. Press. London 1954. page 241
(2) Marii. S. 'Agrarian Reform in Egypt' Government Press, Cairo 1958. p.92
(3) Lucouture, J.&S. 'Egypt in Transition' Methuen, London 1958. page 551
(4) Issawi. C. 'Egypt at Mid-Century' Oxford Univ. Press, London 1954. page 241

and children, i.e. a working population of about 2 million supporting a rural population of about 4.6 million, compared with an existing rural population, at that time of about 14 million. But it seems that these estimates were based on a highly developed kind of agriculture which is very different from the form of agriculture now existing. Cleland[1], in 1939 found that, whereas the average area farmed by a peasant family was 1.6 feddans, it was possible for a family to cultivate five times that area on the existing methods. This suggests that one-fifth of the present farm labour might be able to maintain the present volume of production. He also considered that a safer estimate of the surplus would be one-half of the farm population. This puts the surplus at 6.5 millions. From the living standard point of view Dudley Stamp[2] has found that at the Western European standard of productivity per acre (and Egypt has, more or less reached such a standard) an acre can support one member of the rural population. If we take this estimate into consideration and compare it with conditions in Egypt, we find that the total rural population should amount to 9 million giving one cropped feddan per person. When due allowance is made for a lower standard of living, the total rural population can be estimated at, say 13,500,000. But since the present total rural population is 18 million this figure implies an excess of about 4.5 million, a figure which is generally accepted by the authorities. If we compare this figure with the figure of 3.5 millions representing the excess of population directly dependent on agriculture (which was arrived at on the basis of estimating that a family of 8 would suffice for the cultivation of a 5 feddan unit) it will be appreciated that the two estimates tend to confirm each other since the first represents the excess of <u>total rural population</u>. This means that about 30% of the population providing the labour engaged in agriculture constitute an excess on the land. Or, according to the previous assumption that one cropped feddan is sufficient for one person 25% of the total rural population is considered as an excess. These figures are very near to those arrived at from N. Nasr's[3] theory which has been applied later in the District of Ashmoun.

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(1) Cleland, W. 'The Population Problem in Egypt', London 1936
(2) Stamp. D. 'Our Undeveloped World', Faber, London 1940
(3) Nasr. S. 'Agricultural Geography in the Delta', Cairo 1955

N. Nasr. built his calculations of the excess of labour and population on the basis of a family farm of five feddans. On this basis a feddan per working member of the family is considered as the optimum both for self-sufficiency and use of labour. Instead of considering the number of feddans of the cultivated land in the village to be sufficient for an equal number of population to be engaged in agriculture, he differentiated between the areas held by small holders and the area held by holders possessing more than five feddans each. The latter is divided by 5 to give the equivalent in holders of 5 feddans each. This is then added to the number of the existing small holders to get a theoretical total number of the existing holders. The latter number is then compared with the theoretical total number of the holders for the whole area, i.e. the total cultivated area divided by 5. The difference gives the theoretical shortage or excess in the number of holders, and then, if multiplied by the working family size (viz 5 persons) it will give the shortage of excess in the number of population engaged in agriculture. The following example of the village of Darawa (population 9257) in Ashmoun, illustrates this method:

Village	Cultivated area	Theoretical Number of Holders	Existing Holdings			Total	Excess of working population
			Small	Large			
			O	A	E		
Darawa	2212 f's.	442	530	1550f.	310	840	398 x 5 = 1990

O = Number of small holders
A = area held by large holders
E = equivalent in holders.

This method, although less straight forward than some of the others gives more consideration to the state of tenure in each village. On the other hand it tends to ignore the living standard of holders of less than 5 feddans. Nevertheless the method provides a compromise in the form of a combination of the theoretical and the actual surplus of population on the cultivated land.

This feature of agricultural hidden unemployment has been caused by the much greater increase in the amount of agricultural labour as compared with the increase in cultivated and cropped area. The waste in man-power is seen to be greater in the areas where the holdings are small in size and where more pressure on land and more sub-division of land occurs.

The agricultural year as far as labour is concerned, and this is characterized by a long season of under-employment, and this under-employment season varies from one province to another. In Ashmoni, for example, theoworking year is around an average of 210 days for adult male labour, 180 days for female labour and 160 days for young labour. This means that the under-employment period is about five months. This is the time for subsidiary farm industries.

Labour requirements per fed an for the main crops are shown in the following table which was reproduced by M. Said(1). The table also shows the labour costs per feddan of every crop. (1950)

Table 28. Labour Requirements and Cost per feddan of the Main Crops

Crop	Man-day	Child-day	Labour Cost (£E)
Cotton	41	87	10.75
Wheat	27	4	3.74
Barley	18	3	2.54
Beans	19	5	2.82
Onions	33	70	7.72
Barseem (clover)	25	3	3.15
Millet	42	11	5.14
Maize	25	10	3.71
Rice	35	40	9.26
Sugar-Cane	76	31	11.07
Ground Nuts	41	35	8.95
Sesame	28	4	4.20

Owing to the fact that most of the work is done by unpaid members of the farmer's family and the draught animals used also belong to him, it is difficult to get an exact analysis of cost.

(1) Said.M. 'Agricultural Economy', (Arabic Text) El-Nuhda, Cairo 1954. page 51

According to the law of diminishing returns which can be noticed from the figures below, given by Said [1] for the total production of wheat on an area of 100 feddans with different numbers of labour, not only does the total output decrease after a certain point but also do both average and marginal production, with addition of more labour on the land as a result of increasing pressure on and excessive sub-division of this land. The marginal production attains the maximum when four labour units operate.

Table 29 Total Production of Wheat on 100 feddans with Different Numbers of Labourers

No. of labourers on 100 feddans	Total production of wheat - ardabs	Average production (per unit of labour)	Marginal Production - ardabs
1	30	30	50
2	80	40	50
3	150	50	70
4	220	55	70
5	290	58	70
6	354	59	64
7	420	60	74
8	475	59.5	55
9	531	59	56
10	580	58	59
11	616	56	36
12	648	54	32
13	682.5	52.5	33.5
14	700	50	17.5
15	735	49	35
16	760	47	35
17	765	45	5
18	775	43	10
19	776	40.5	1
20	700	35	- 75
21	672	32	- 28

(1) Said, 'Agricultural Economy' (Arabic Text) El-Nahba Cairo 1954.

The following table shows the occupational status of the agricultural population in 1939 (1)

Table 30 Occupational Status of Agricultural Population in 1939

Occupation	Male.	Female	Total
Working on own land (farm)	778,000	67,000	884,000
Unpaid member of family working on farm (over 15 years of age)	620,000	160,000	780,000
Unpaid members of family working on farm (under 15 years of age)	534,000	191,000	725,000
Hired workers (over 15 yrs)	796,000	114,000	910,000
Hired workers (under " ")	551,000	167,000	718,000
	3,279,000	699,000	3,977,000

Cultivation Implements:

Most of the implements used are of the type depicted in the Ptolemaic temples while the high yields obtained by progressive land-lords and government stations show that the ordinary methods of sowing and tilling could be considerably improved upon. Egyptian agriculture is wasteful in its use of time, of seeds, of berseem (clover) as fodder and of dung, which is used as fuel. But the absenteeism of the many landlords and the illiteracy of the peasants has slowed down, though it has not stopped, the diffusion of technical improvements. (1)

The cheapness of labour and the skill of the fellah with his traditional instruments have held up the use of machinery. Further obstacles are the very small size of individual plots and the planting of many different crops over a small area, the poverty of the farmers, the weakness of the co-operatives, the fact that the fields are cut up into small patches by canals and drains and the nature of cotton cultivation which does not lend itself to mechanization. As a

(1) Issawi, C. 'Egypt at Mid Century' Oxford Univ. Press, London 1954. page 127
(2) Ibid. Page 106

sult, whereas on highly mechanized American farms a hectare of wheat requires y five man-days of labour for ploughing, sowing, reaping and threshing, in gypt a feddan of wheat (0.4) hectare) requires forty man-days.(1)

In recent years, however, the number of tractors rose from 1,200 before the r to over 7,000 in 1957 owing to the fact that on large estates, tractors are heaper than the traditional methods. S. Saffa(2) puts the cost of ploughing by tractor at PT 16 per feddan per day against PT 70 for a plough and a pair of oullocks. It is doubtful whether this trend is to be welcomed, in view of the lr ady enormous redundance of rural labour and the absence of alternative employment. (See 'echanization' later in this chapter) There are also 13,400 machines with a total horse power for irrigation and drainage.

Egyptian agriculture is one of the most advanced due to the utilization of chemical fertilizers. The average consumption of chemical fertilizers has risen rom 500,000 tons per annum to about 800,000 tons of fertilizers at present, giving an average of 44 kg of nitrogen per cultivated hectare, against 23 in the U.K. and 7 in the U.S.A.(3) This average is due to be increased in the future owing to the rapid expansion of this industry.

Ploughing: The type used is the native plough costing about £E 2. The action of ploughing in the Delta with its dry soils and the lack of a grass cover is essentially simpler than in Western Europe. The need arose for an implement easy to use and cheap to own by a small holder. The depth of ploughing from one area to another. This varies from 7.5 to 35 cms. The native plough ploughs to an average depth of 15 to 18 cms., but with some adaption great depths can be reached.(4)

The time needed for ploughing one feddan by the native plough depends on the type of soil and degree of moisture and other factors, and varies between 1.5 and 3.5(5) days. The holdings of the 4 - 5 feddan size group can be said to be of a size

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(1) Issawi, C. 'Egypt at Mid Century' Oxford Univ. Press, London 1954. page 106
(2) Saffa.S. 'Economical and Agricultural Exploitation in Rural Egypt, article L'Egypt Contempaire, Cairo 1949
(3) Issawi,C. 'Egypt at Mid Century' page 107
(4) Nasr. N. 'Agricultural Geography' in the Delta, Cairo 1953
(5) Author's observation during survey.

suitable for one native plough. The European type of plough can be suited to 5 - 10 size group or even 200 - 500 size group.

Levelling: Levelling is only occasional and may be done every four or five years on land continuously cultivated. The 'Kassabyia' or the scraper, costing about £E 4 is the main implement used for the purpose.

The 'Lawwata' is another local implement used for levelling the land while it is under water.

Apart from ploughing and levelling official records show only threshing and winnowing machines and implements. Land smoothing, harrowing, rolling, dividing and ridging as well as several other practices take place before the crop is ready for threshing and winnowing, and are of no less importance.

Harrowing and smoothing the soil are not part of the small farmer's practices. Compacting or pressing the soil is of greater importance, and is generally carried out by means of the native implement called the 'Zahhafa' which costs about £E 3. The average work of the 'Zahhafa' is five feddans per day.(1)

The arrangement of the field into ridges and basins is carried out by two main implements. The first is the 'Tarrad-el-Takhtit' which works an average of 2 to 3 feddans a day. The second is the 'El-Battama' which is used for dividing into small parcels rather than for ridging. The 'Battama' works an average of 4 to 6 feddans a day(2) The 'Massah' and the hoe 'Fas' are also generally used.

Sowing: This is carried out by three methods: 1. Broadcast (Baddar), 2. Drilling (Talkit), 3. Dibbling broadcast (Nakr). The job is done by hand. A broadcast sowing machine is rarely used except on large farms where its capacity is from 8 to 12 feddans per day.(3)

Harvesting: The common implement used is the sickle for cereals and a fine sharp chopper for maize and sugar-cane. In the case of cottong, casual labour generally boys and girls provide the picking hands.

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(1) Author's observation during survey.
(2) Author's observation during survey in Ashmoun.
(3) Ministry of Agriculture information Office. Cairo.

Threshing, Shelling and Winnowing: For threshing, the 'Norag' is generally used. he 'Norag' takes 4 to 5 days to thresh a feddan yield of wheat. Four 'Norags' thresh 0.75 of a feddan yield per day.(1) One or two beasts can be used.

Locally constructed threshing machines are generally employed. In most cases they thresh, winnow and sieve at the same time. On a farm of 500 feddans, a threshing machine is sometimes used.

The price of the 'Norag' varies between £E 12 and if the main body is made of wood and £E 24 if all is made of steel.

The holdings of 5 - 10 feddan size group show a close balance between area and the use of one 'Norag'.

These facts emphasize the importance of considering the 5 feddan size group to be the limit between small and larger holdings.

Agricultural Production and Land Values

During the last forty years the value of agricultural production has only just succeeded in keeping pace with the population in spite of much technical research and improvements of methods of cultivation.(2)

Naturally agricultural output varies from one place to another according to the fertility of the land, services, irrigation and drainage of the land. These factors also determine the land value in the different districts of the Delta. Owing to the pressure of population on the very limited land resources, and because of the absence of alternative employment, land values have risen enormously. The average land value per feddan in the different districts of the Delta is shown on map no. 24.

The net income from cultivating one feddan also varies from one place to another according to the output. Variations in income are also due to changes in world marketing conditions particularly in the case of cotton. In the year 1949 - 1950 the agricultural lands of the Delta gave the following yields per feddan under different crops.(3)

(1) Author's observation during survey in Ashmoun
(2) It has risen from £E115 million in 1914 to over £E 300 million in 1957
(3) Ministry of Finance, M. Bulletin of Agricultural & Economic Statistics May 1951

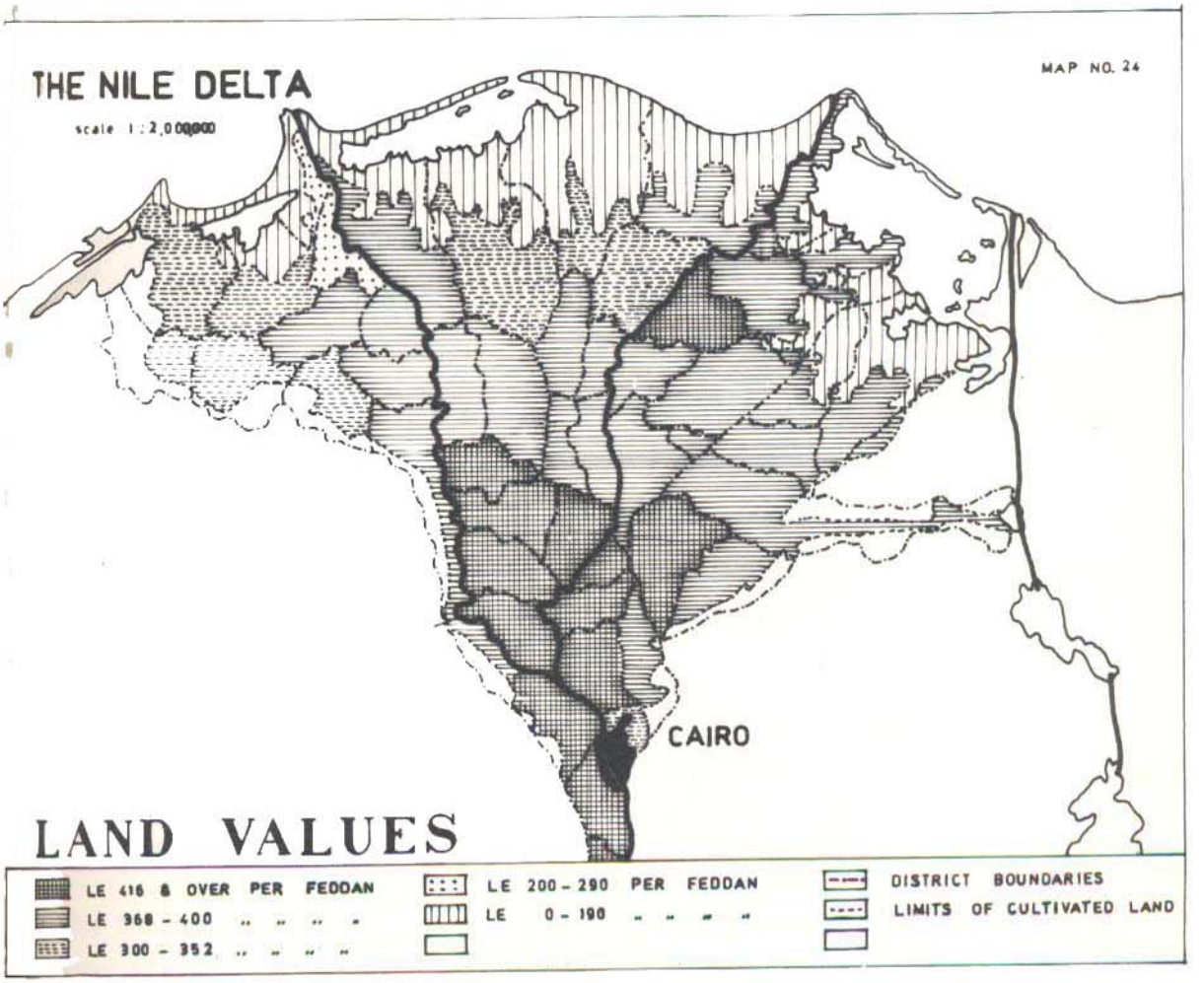
THE NILE DELTA
scale 1:2,00,000
MAP NO. 24
CAIRO
LAND VALUES
LE 416 & OVER PER FEDDAN
LE 368 - 400 " " " "
LE 300 - 352 " " " "
LE 200 - 290 PER FEDDAN
LE 0 - 190 " " " "
DISTRICT BOUNDARIES
LIMITS OF CULTIVATED LAND

Table 31 Yields of Agricultural Lands under the Main Crops (1944 - 1950)

Crop	Cultivated Area in Feddan	Average Yield per feddan	Value in £E of output per f.
Cotton	1,198,256	4.18 Kantar (100lb)	70 - 100(1)
Wheat	836,134	4.60 Ardab (5.44 bushels)	25
Beans	141,441	2.88 Ardab	12 - 15
Barley	64,700	6.46 Ardab	
Maize	1,017,362	6.45 Ardab	32
Rice	673,778	1.91 Dariba	28 - 40
Clover(Barsheem)			8 - 27 (2)

In the country as a whole the agricultural production value has risen from £E 252 millions in 1952 to £E 312 millions in 1957. In the same time the cultivated area has risen by 317,000 feddans of rice; 103,000 feddans of vegetables 13,000 feddans of orchards; 17,000 feddans of sugar-cane; 12,000 feddans of beans; and 13,000 feddans of onions.(3)

The net income from cultivation also depends on the expenses of services, fertilizers and cost of labour. It was found the labour expenses amount to 30% of the total income and the cost of services and fertilizers varies between 20% and 45% of the gross income.(4)

In the village of Silwa, Dr. H. Ammar(5) found that the net annual income from cultivating one feddan and the profits derived from one cow, five sheep and other animals amounts to £E 59.5; and as the per capita proportion of land is about 1/3 of a feddan then the per capita income from agriculture is about £E 20 per annum.

(1) The price of one kantar varies between £E15 and £E17 for the Gize to £E18 to £E20 for the Menoufi and £E20 to £E 25 for the Karnak according to world's market.
(2) The clover output value is about £E8 per feddan in summer and£E27 in spring.
(3) Al-Ahram - Newspaper 7th July, 1958
(4) Saiid, M. 'Agricultural Economy' - Cairo 1954
(5) Ammar, H. 'Growing Up in an Egyptian Village' Kegan Paul, London 1953

The following table, which is reproduced by G. Said gives estimations for the cost and return of the different crops based on 1948 - 1949 prices.(1)

Table 32 Costs and Returns for Main Crops per feddan in £E

Crop	Costs 1948 - 1949				Average Profit. 1945-8
	Rent	Costs of Cultivation	Total Costs	Value of Product	
Seifi Crops					
Cotton	16.6	16.7	33.3	44.1	12.6
Rice	9.4	15.3	24.7	30.1	2.5
Millet	8.6	9.9	18.5	14.8	-2.4
Sugar-Cane	23.1	29.9	53.0	61.2	7.2
Shetwi Crops					
Wheat	11.4	11.2	27.6	16.2	-3.8
Beans	10.0	7.1	17.1	19.6	2.8
Berseem	11.7	6.6	18.3	28.8	11.8
Onions	16.7	21.1	37.8	58.8	17.7
Flax	12.1	13.8	25.9	28.4	8.3
Potatoes	-	-	70.3	80.6	10.4
Nili Crops					
Maize	7.0	12.4	19.4	16.9	-1.8
Vegetables					
Seifi	14.0	23.0	37.0	45.0	11.7
Shetwi	12.0	18.0	30.0	41.0	11.7
Nili	13.0	26.0	39.0	57.0	17.7
Fruit					
Oranges	30.0	50.0	80.0	113.0	33.0
Tangarine				85.0	5.0
Grapes	30.0	36.0	66.0	102.0	36.0
Mangoes	30.0	31.0	61.0	116.0	35.0
Figs	30.0	34.0	64.0	119.0	55.0
Bananas	-	-	158.0	255.0	77.0

(1) Issawi, C. 'Egypt at Mid Century' Oxford Univ. Press. London 1954. page 110

Marketing:

In the Nile Delta the farmer is paid for his cotton crop usually immediately after the crop is picked in July or August. The crop may then be handled by some or all of the following: the village broker, the village merchant, the banker or spot commission agent in Minet-el-Bassal (Alexandria spot market), the broker at Minet-el-Bassal, and then the exporter.

Larger growers often consign their cotton to the ginning factory and sometimes even see it through to Alexandria. Small growers, on the other hand, either sell it to the village merchant or carry it to the local market where it is sold by auction to brokers who in their turn dispose of it to merchants or exporters with up-country agencies. The cotton is then ginned, pressed, and dispatched to Alexandria.

For grain marketing, the normal proecedure is for the grower to sell his crop to the village grader who sometimes then either deposits it in a bank 'shoona' (open store). The grain is then either sold to the village agent of one of the big city traders or sent by boat to the riverside markets of Cairo (Rod El-Farage) and Atar El-Nabi) or Alexandria. Large growers and co-operatives often short-circuit the village trader.

Vegetables are picked, washed and carried away to the town or the local market. The government can act together with co-operatives in improving the grading and packing of vegetables; providing storage refrigeration and factories for preserving and canning; facilitating the operation, and reducing the cost of marketing both at home and abroad; and above all, standardizing the different varieties and delimiting the regions most suited to each crop.

For fruits, the average output gives a per capita supply of 6 kilograms per annum, to which should be added another 3 kilograms of imported fruit. The output of fruits is carried directly to the local markets in towns and cities. The large orchards usually have their own transport facilities and are directly connected with the traders in towns where the fruits are sold by auction.

Livestock

In recent years progress has been more rapid in livestock breeding than any other branch of Egyptian agriculture. Average annual production in the selected

herd[1] is 4,500 lb. milk and over 300 lb butter fat, against a national average of 2,500 to 3,000 lb milk and 200 to 250 lbs fat per animal. The total output of milk in 1951 was one million tons; of this total 65% was buffalo milk and 35% cow milk[2]

Further progress is held up by the scarcity of green fodder in summer; by the predominant use of livestock for farm work; by the high capital investment required; and by the poverty of the market.

In 1947 the number of cows rose to 1,321,000 that of buffaloes to 1,241,000: that of sheep to 1,875,000 and that of goats to 1,476,000 and that of pigs to 50,000[3]

Poultry farming has also been well developed. In the pre-war period some 900 million eggs were laid each year, of which 50 million were exported; since then there has been an appreciable increase after the erection of several poultry stations in the Delta.

Fisheries output is low, being estimated at 60,000 tons of which 30,000 tons come from the lakes of Marout, Edku, El-Burellis and El-Manzala in the northern parts of the Delta; whilst 5,000 tons come from the Nile and the irrigations canals. At the same time the country imports about 16,000 tons as the per capita consumption is only 4 kgms.[4]

Very many of the cows and buffaloes are used for a dual purpose; work and production. The total number of cows and buffaloes in the country is about 2,562,000[5] of which 1,466,000 are used for work. According to the present needs of the cultivated land, it was found that a unit of 100 feddans need about 10 bullocks for working purposes. This means that the present total cultivated area needs only 600,000 working cattle. The excess in working livestock therefore is about 900,000 beasts all of which have to be fed from the land. This is beside the expenses of breeding.

On the other hand, there are 7,000 tractors with an average of 35. H.P. each.

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(1)
(2) Issawi, C. Egypt at Mid Century Oxford Univ. Press, London 1954. page 121
(3) Ibid page 120
(4) Council of National Production Report. Government Press, Cairo 1955
(5) Lacouture, J. & S. Egypt in Transition. Methuen, London 1958. p.309-339

according to the cultivation needs, this number of tractors can serve 500 to 1000 feddans, i.e. 35. H.P. for an area of 250 feddans. If these tractors are to replace some more beasts, the waste in livestock will be more than the estimate just given.(1)

(1) Lacouture, J. & S. 'Egypt in Transition' Methuen, London 1958 page 309 - 339.

b MECHANIZATION

The availability of cheap labour is a major contributing factor governing the economical use of power machinery on the land. Where there is an abundance of agricultural labour as in Egypt, and few other outlets for supplus farm labour, little is gained agriculturally by introducing tractors, if the arable area is at present adequately cultivated.

The capital outlay of modern farm machinery is high but it is not only the initial cost which has to be taken into account. There are fuel and lubricants repairs and spare parts, servicing and housing, actual hours of work and idle time all of which govern the economics of mechanization.

It is not unusual to conclude that even though ploughing, cultivating, seeding and harvesting can profitably be undertaken by hand and animal power, water-raising, threshing, draining and grinding should be mechanized by installing engines or electric motors on individual farms or communally.

In this view mechanization of agriculture would be more reasonable to be applied to the countryside after the industrialization of the region is developed and has taken a stabilized shape. Therefore mechanization must come in the last stage of the development plan as a natural result of industrialization.

Level of Mechanization

In Egypt the tractor fleet was estimated in 1957 to be 7,000. The arable land per tractor was about 600 to 1000 feddans while the percentage of agricultural land in holdings exceeding 80 feddans - an area which, if a figure is reasonable to use a tractor - was about 51% in 1959(1)

In the near East in general, the percentage of world tractors between 1948 and 1949 was 0.2% while that of world arable land was 6.1%. In Europe, for example, 15.0% of world tractors were in use on 12.2% of the worlds arable land. In the U.S.S.R. 9.3% of the world's tractors were in use on 18.4% of the world's arable land. In the Far East the figures were 0.2% and 22.9% respectively, while in Africa, they were 1.0% and 12.4%.(2)

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(1) Issawi, C. 'Egypt at Mid Century' Oxford Univ. Press, London 1954. page 118
(2) F.A.O. Farm Mechanization . UnN.O. Washington 1950.

In the Agrarian Reform regions, in Egypt, the following list of machinery was in use in January, 1957.(1)

106 Threshing machines - 470 tractors - 270 irrigation installations
550 mobile irrigation installations between 400 h.p. and 16 h.p.
200 cars and motorcycles - 90 motors to drive sprinklers and sprayers
In addition there were 250 water pumps driven by traction motors which are to be replaced by fixed irrigation installations.

The indigenous agriculture of the Delta depends on the use of hand tools, supplemented by animal-drawn equipment, of simple design such as the wooden plough and the 'norag' or bullock-drawn threshing machine. Local industry supplies the traditional equipment of the small farmers, but most of the improved animal-drawn implements and all tractors and associated implements are imported.

In comparing costs of mechanization and those of draft animals statistics of the Agrarian Reform Machinery Department(2) show that the cost of using cattle to thresh one ardab of wheat is 40 PT. (about 8/-) and it takes an average of 3 hours, but using machinery the cost of threshing one ardab is only 26.5 ardab P.T. and the job is done in twelve minutes.

The cost of a single ploughing, harrowing and levelling of one feddan using cattle is £E 2.52 and the work takes three days and a half. Using a 45 h.p. tractor and a nineshear plough it takes only one hour to complete a first ploughing and levelling as well as a second ploughing, levelling and furrowing, and it costs only £E 1.44.

To irrigate one feddan with a water wheel (saqiyah) takes a whole day and costs £E 1.155, but with a mechanical pump one fed an can be irrigated in one hour and it costs only 25 P.T. (@ 5.s.)

It seems that these figures are not based on the initial capital invested in each case, plus the cost of training, spare parts and maintenance in the case of using machines, and the cost of feeding, breeding and care in the case of using the ordinary draft power.

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(1) Marii. S. 'Agrarian Reform in Egypt.' Government Press Cairo 1958. page 237
(2) Ibid.

On one hand if we consider the tractor's working age to be 10 years with an overall cost of £E 4,000 this will give an annual cost of £E 400. On the other hand, if we consider that 8 draft animal units can replace one tractor, as estimated by the F.A.O.[1], we have to consider the cost of these units in the rural Delta so as to compare it with that of the tractor.

The price of the buffalo varies between £E 50 and £E 70 and sometimes £E 100. The annual expenses of a buffalo amount to about £E 30 on the average. In return the buffalo gives products of about £E 18 of milk and fat, £E 10 in calves, and £E 4 of manure. This amounts to £E 32 per year in a working period of 14 years. This means that even disregarding the buffalo's labour contribution the value of its own products almost covers its cost of maintenance.

The eight draft animal units will therefore cost about £E 800 over a period of 14 years with an average of £E 60 per year. This cost is somewhat smaller in the case when a cow is used instead of a buffalo as the cow is cheaper and lives longer.

The above comparison shows that it is cheaper to use draft-power units instead of tractors. But this does not imply abandoning the use of machinery in agriculture. On the contrary, it is essential to introduce new techniques and machinery which suits the type of agriculture in the Delta, although power from draft animals can still be used.

Limitations in the Application of Mechanization

The most pressing and vital problem of the country today is to grow more food and other agricultural products as quickly as possible. Whether mechanization of agriculture can contribute anything towards the solution of this vital problem is a subject which must receive very careful consideration.

There are two types of mechanization. The first is the mobile type which attempts to replace animal power on which the agriculture of the world has been based for very many centuries. The second involves machines designed to eliminate the drudgery of certain operations which have to be performed either by human labour or by a combined effort of human beings and animals.

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(1) F.A.O. 'Farm Mechanization' UNO 1950.

The case in the Delta is very different from that of many European or American countries. As there is a surplus of man-power, mechanization will be ineffective, not only because of the expenses which it involves, but also by reason of the additional unemployment which it would create. If the agricultural production in the Delta is to continue to depend upon small holdings and subsistence farming, it can be stated that mechanization will have no place in such a system, nor will such a system ever be capable of producing enough to satisfy the country's needs. If co-operative farming were to be adopted it would lend itself to partial mechanization of agricultural operations. In the early stages, this partial mechanization will have to be through State agencies.

Partial use of machinery would lead to efficiency, but it does not necessarily follow that this would mean fewer men upon the land. It might involve fewer men per operation but not per feddan. Partial mechanization would create several new classes of employment. Mechanization would help to establish village industries and the processing of agricultural produce will be possible within groups of villages. From the residential point of view, the co-operative farms will have collective stores, machine services, and stables which will cause a great reduction in the amount of accommodation at present attached to the individual rural house.

Under the system of rural land reorganization advocated in this thesis, mechanization, if applied, will only be used on a small scale, since it is only the landowners who possess less than 5 feddans who would be involved in the co-operative farming system which eventually will need partial mechanization. The other sections of the landowners will continue to adopt the usual implements which can be improved or modified as far as their holdings give economical farming.

c. Rural Industries

The village crafts are carried on according to ancient routine with primitive instruments. Not until very recently (1955) has there been any attempt at improving craftsmanship or at specialization. As a matter of fact many artisans ply their crafts along with agriculture and only in their spare time. Similarly many cultivators during their slack season are engaged in making baskets, matting, rugs mats and hand-spun cloth out of local wool or cotton and they sell these in the periodical markets in the towns or larger villages.

There are rural industries which lack organization and modernization, on both the production and the distribution sides, viz. blanket-weaving, carpets, pottery carpentry, matting and furniture from palm trees leaves.

Industries that are of an artistic nature and are run by artisian groups that have aquired hereditary skills command markets even outside the country, provided their technical methods, supply of raw materials and marketing organization are properly rationalized. (See figure 16)

There is a good variety in the types of rural industries. They differ slightly from one district to another; but the main local industries are:-

1. Cheese and butter making: the percentage of consumed liquid milk does not exceed 5%. This percentage can be 50% in villages with a big weekly market, hospital and civil servants.(1) Most cheese and butter is made at homes in the villages.

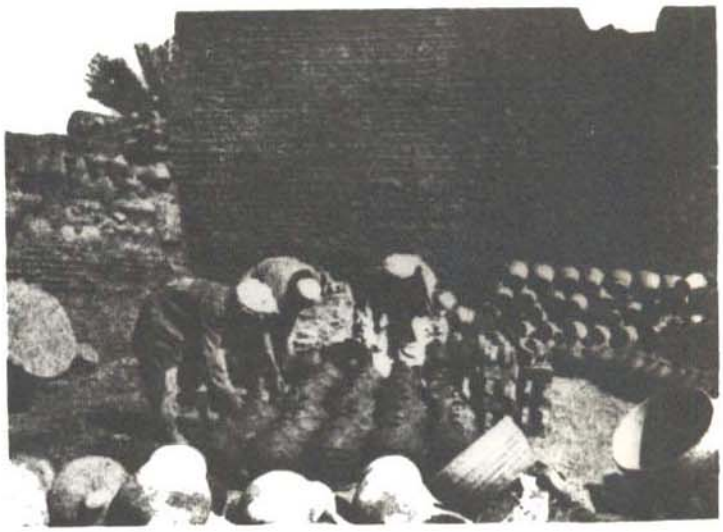
2. Egg Hatcheries: these are comparatively few as yet, but at present about 1 million chickens are being produced annually in hatcheries.(2)

3. Other industries: some of these are handicraft industries whilst others are directly related to agricultureal products. In the first group are such undertakings as basket-making, pottery and furniture making whilst the second group includes such activ-

(1) Consumption of liquid milk is larger in towns and country towns.
(2) Council of National Production, Report Government Press, Cairo 1955

Basket-making

Tile-making



Pottery-making

RURAL INDUSTRIES

Honey-making in a C. Unit

FIG. 16

ities as hand-weaving looms for cotton, mats and carpets honey making, 'agwa' from dates, sugar-cane juice, and other products for essential needs.

The introduction of rural industries into the villages can have a good effect in offsetting unemployment, also to increasing the farmer's income and helping to raise the standard of living of the farmers, provided that - as a part-time occupation - the industries are introduced on an adequate scale and on a proper basis.

Structure of Industry

The structure of industry in the Delta indicates that about 22.2% of the industrial population are engaged in textiles, 19.6% in clothing 12.20% in wood-work and 8.7% in vegetable foods. This means that industries dependent on agricultural raw materials engaged about 63% of the industrial population in 1947. On the other hand 11 groups of industry out of the total 22 groups, together employ only 7.9% of the total industrial population(1)

In Menoufiya Province the total number engaged in secondary industries amounts to 30.062 distributed as follows:-(2)

Table 33 Distribution of Population engaged in Secondary Industries In Menoufiya

Industry	No. of people engaged	Percentage
Textiles	9,890	33.0%
Clothing	4,169	12.7%
Wood-work	2,822	9.4%
Vegetable Foods	1,531	5.1%
Power & Public Services	1,654	5.5%
Metal Articles	2,437	8.1%
Machine & Machine Tools	508	1.7%
Transport Equipment	878	2.9%
Preparation of Metals	453	1.5%

/ Cont over

(1) General Census 1947
(2) Menoufiya, General Census 1947.

Industry	No. of people engaged	Percentage
Materials of Construction	847	2.8%
Printing	64	0.5%
Leather and Fur	158	0.5%
Scientific Instruments	160	0.5%
Tobacco	295	1.0%
Chemicals	123	0.4%
Drinks	350	1.2%

(1)

Distribution of Rural Industries

The distribution of rural industries does not vary much from one district to another, except in the case of some villages which are famous for one or two kinds of industry, even when they maintain other types of industries as well. In this case inherited artisan tradition plays a main part as well as the presence of adequate raw materials and marketing facilities. Examples of these are Kafre El-Hosrs (for matting) in the Province of Sharqiya, Fuwa (for blankets) and carpets) in the Province of El-Gharbiya, El-Kuren (for 'agwa' dates) in Sharqiya, Damietta (for dairy products) and Qaha (for food canning) in the province of El-Qalubiya.

Most of the big villages comprise the above mentioned rural industries as the village economy tends to be self sufficient.

A plan of development has been initiated by the State to set up Model Industrial Establishments in those centres where the possibilities are greatest for turning out high grade artistic products which could capture a wide market. The Government has already made considerable strides in this sphere, to reorganise and develop rural industries and cottage crafts.

The objects which these establishments are to fulfil are:

1. Training and demonstration among the farmers of improved implements, machinery and methods

(1)

2. The introduction of new and improved designs and planning of production according to the demands and tastes of consumers

3. Cheap supply of raw materials t the artisans

4. Organization of marketing.

These developments are likely to have marked sociabogical repercussions both on the individual and on village community structure and will tend to stimulate population movements both internally and externally. The process of rural industrialization will give rise to a transition period in the nation's life as it changes a purely agricultural country to one based on an agro-industrial economy. The fellah has for a long time, lived in his village and become an integral part of it. He never thought of leaving his village whatever the circumstances were. He is part of the village environment, its character, its habits, its food, and even its mud. Rural industrialization will help to break down this age-old tie between man and land in the Egyptian countryside.

CHAPTER VII

CHAPTER VII

EFFECTS OF FRAGMENTATION AND CONSOLIDATION ON LAND USES

Land fragmentation is one of the most prominent features of agricultural structure in the rural Delta. It has created a persistent problem which has stood in the way of any effective land reform directed towards collective farming in the region. The problem has been growing since the rule of Mohammed Ali when he divided the cultivated land amongst his officers and the big families, and since then the fragmentation has gone on unchecked and has seriously affected the agricultural structure.

The conditions which encourage fragmentation of land in the Nile Delta are due to the expanding population in a limited area and law of inheritance which makes for subdivision of holdings. Furthermore, density of agricultural population is also usually associated with a lack of alternative employment for members of the cultivating classes, thereby tying people to the land, and so heightening the tendency toward subdivision. The relatively high value of land is another reason for subdivision and causes the fellah to cling tenaciously to his so precious little bit of land which constitutes his sole means of livelihood.

With the increase in population, the class of the small proprietors has increased far more rapidly than the other classes; between 1905 and 1940 their number increased by 133% while the area in the under 5 feddans class has increased by 50%. Most of this increase has been in the area of farms under one feddan, that is in the size of farm which does not provide a minimum subsistence level. Thus the increase of the population has added to the number of landless or sub-landed peasants. The growth of this class has reduced the size of the medium-sized farms, and has nibbled a little away from the area under large estates. The other classes remained roughly the same.

Table 34 Change in Land Ownership (1905 - 1940) (1)

Size of holding in f's.	No. of population 1905	1940	Increase % age	Area in Feddans 1905	1940	Increase % age
Under 5	1,005,705	2,336,151	133	1,264,034	1,895,477	50.0
5 - 10	77,063	85,622	11	544,674	573,038	5.2
10 - 30	49,305	53,362	8	802,323	787,444	1.8
30 - 50	8,601	9,179	6.8	331,501	356,538	7.6
Over 50	12,475	12,232	-0.2	2,356,602	2,168,514	-4.6
Total	1,153,149	2,496,546	116.5	5,299,084	5,841,011	10.25

Size of holding in feddans	Average Area in Feddans 1905	1940
Under 5	1.76	0.81
5 - 10	7.01	6.69
10 - 30	16.30	14.80
30 - 50	38.50	38.84
Over 50	189.00	177.28

This means that the number of population owning less than 5 feddans must by now have been doubled since 1905 while the percentage increase of holdings of less than 5 feddans must be about 75%. Land Fragmentation will continue to increase unless preventive measures are taken.

(1) Eileen Warriner: 'Land and Poverty in the Middle East' Royal Institute of International Affairs, London 1948

Effects of Fragmentation

The most obvious effect of dividing a farm into a number of physically separated parcels is to make the working of the farm unnecessarily difficult. Time is wasted and extra expense involved in moving workers, animals and implements to and from the farmstead; supervision is rendered more difficult; expenses on water supplies, buildings, threshing floor etc., are often much greater; comprehensive drainage or other schemes of improvement may be rendered impossible; access to the various fields may be difficult. The farmers in this case, cannot control a particular rotation for the land, despite the harm they cause to their neighbours by growing crops different from those on adjoining holdings.

As B.P. Jain[1] has said, in his book on Agricultural Holdings in the United Provinces in India, 'It is calculated that expenditure for cultivation of land increases by 5.3% for every 500 metres of distance for manual labour and ploughing, 20% to 35% for transport of crops. It has been further observed that on compact holdings the income from farming would be increased by at least 20% without any modification in the method of cultivation.'

The scattered holdings are a source of quarrels among villagers over boundary disputes, and cattle trespasses occur frequently and they lead to affrays and litigation. It is tragic indeed that a lot of money which might easily improve the economic position of the peasant should find its way in the pocket of the lawyer.

Fragmented holdings, also, cause waste of the land area itself due to the existence of borders between the plots, the multiplication of canals and drains for irrigating each plot. In addition there is wastage from the irregular shape of the land.

These are the most obvious drawbacks of fragmented holdings. The drawbacks are even more far-reaching, affecting the country's agricultural production by

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(1) F.A.O. Consolidation of Fragmented Agricultural Holdings' U.N. Publication Washington 1950

reducing the level of output of land and thus affecting the national income.

Prevention of Fragmentation

The adoption of legislative action to prevent excessive subdivision would be faced with considerable practical difficulties. The danger that the law might be ineffective arises from the fact that regulation cannot move much in advance of public opinion. It is also important to mention that legislation which, by establishing a minimum farm area, limits the number of farmers, may, as population increases, become unworkable unless opportunity is provided for alternative employment. Here again appears the need not only for agricultural expansion but also for developing rural industries and perhaps absorbing the surplus agricultural population in large-scale industries. Regulatory legislation should, therefore on the one hand be so framed as to allow considerable discretion to local administering authorities, and, on the other hand, resort should be made to persuasion directed towards the development of public opinion.

In this connection, articles 23 and 24 of the Land Reform Law stipulate that holdings should not be divided into plots of less than five feddans, whether through sale, exchange, inheritance, or any other means of transfer of ownership. This attempt to bring about a solution has not yet been put into practical execution for a number of different reasons. These reasons have been given by S. Marii[1] as follows:-

1. Agreement between heirs to surrender their shares to one person who shall assume ownership is out of the question because this would mean depriving them of a secure and continuous source of livelihood even if they get adequate compensation for their shares.

2. The transfer of the shares of heirs to a single owner would be hindered by his lack of enough capital to buy shares.

3. Agreement of the heirs among themselves about who shall assume ownership is the main problem since in the Egyptian culture land still maintains its value as a symbol of social prestige.

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(1) Marii. S. 'Agrarian Reform in Egypt' Government Press, Cairo 1958. page 206

S. Marii suggested a different solution for the problem by the reallocation of holdings and controlling land use and crop rotations in big areas.(1)

The Need for Consolidation

In the Nile Delta small farmers in undersized holdings are hardly occupied for more than 200 days in the year. Intensive farming is the only method available for the masses of people for the improvement of income and credit. But intensive farming is being jeopardized by the poverty of the cultivators. There is no possibility of rehabilitating intensive farming except by overcoming the handicap of subdivision of holdings by either consolidation of holdings or consolidation on the basis of crops. The village will have to be divided according to the crops cultivated and each of the middle class cultivators will be given, say, one compact block. This will ensure both security and the economic advantage of co pact farming. The individual who owns less than 5 feddans still owns his particular portion of any one block but close association of persons growing the same crop invariably leads to co-operative work on the block as a whole; it makes the utilization of co-operatively owned implements easier, and it facilitates the demonstration of improvements and stimulates rivalry for better production. In the latter case consolidation of cropping is easier than consolidation of holdings.

To facilitate credit for the mass of small farmers who have sunk below the credit line it is essential to improve the scale of farming as the basis of credit by means of consolidation. It is probable that due to the fact that the majority of holdings have reached an uneconomical size, the problem can only be solved by legislation, making it compulsory for the cultivators to accept re-stripment when the cultivators of more than say, one third of the cultivated area of the village agree to consolidation.

Co-operative societies should also be organized which should pool bullocks ploughs and seeds, and undertake agricultural operations in common. Small farmers may organise themselves for joint ownership of cattle, joint cultivation and an equitable sharing of the produce in consolidated holdings according to the quota of labour from each family estimated by some pre-determined form or standard (See appendix No. 6)

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(1) This is discussed in detail in Chapter II.

Farmers in a group can be expected to combine together to allow for ploughing seeding and harvesting at the same time, but each individual will own the usufruct of his own farm.

Such co-operative farming societies would be even more necessary for the landless classes.

The Way to Consolidation

It is useless to think of real enduring agricultural progress without consolidation. Here is a justification for the State enforcing consolidation measures, by legislation if necessary, if it is convinced that consolidation of holdings is of real benefit to the country as to the fellaheen themselves. The Land Reform Law can be considered a preparatory step towards this target.

Measures to cope with the fragmentation of holdings have to be formulated from two points of view: 1. Prevention of sub-division, and 2. Reunion of scattered holdings.

Laws are made for human beings in their social setting and, therefore, must be adapted to the changing conditions of a society. If laws of inheritance are in some matters found wanting, they should be modified in the interest and welfare of those for whose benefit they were formulated in a social condition presumably different from that which prevails at present. Fortunately, the Islamic faith is a flexible one and can fit almost any social conditions. Although consolidation is a physical procedure there is no reason why laws of inheritance should not still work provided the benefits accruing from it are not lost.

There are difficulties, no doubt, in the way of enforcing legislation aiming at a compulsory restripping of land; the system of land tenure prevalent in the country and vested interests will tend to thwart every effort to readjust field boundaries. But this opposition may have to be faced boldly and overcome. Among the countries which successfully adopted compulsory consolidation as a solution to the problem of fragmentation are France, Switzerland, and Ireland. The same is true of the Lebanon which was able, by the application of this system to reallocate big areas of its fragmented land in 46 villages, 22 in the region of Zahla and 24 in the Baalbek region.(1)

(1) Marii S. Agrarian Reform in Egypt Government Press, Cairo 1958 page 208

It would be preferable if, instead of being enforced by the Government, re-stripping were to be effected on a voluntary basis, as had happened in the co-operative consolidation of holdings in the Punjab (in India) where the confidence of the peasant had been won by the success of co-operative credit and other societies.(1) But at the same time legislation was needed in other provinces. In most areas in India and Pakistan voluntary consolidation did not work and the two countries resorted to the compulsory system.

M.S. Randhawa,(2) in his book 'Developing Village India' illustrated what he calls the Agriculture Ladder to reach consolidation and then mixed farming as follows:-

i. Reform of land tenure.
ii. Village Committee (Panchayat organization)
iii. Development facilities
iv. Consolidation of holdings
v. Mixed farming - leading to prosperity.

Marii,(3) has found that intervention by the State itself backed by effective legislation is essential for achieving positive results from land consolidation, in the Egyptian countryside. He also emphasized that immigration into new reclaimed areas and consolidation must go side by side. Migration will help to relieve the pressure on the land which will consequently facilitate the procedure of consolidation.

The procedure of the consolidation of the fragmented holdings involves many technical, social, and economic problems. The requirements for a consolidation scheme are briefly summarized in the F.A.O. publication on the Consolidation of Fragmented Agricultural Holdings, (September 1950 - pages 28 and 29).

Effects of Consolidation

The main social consequences of the scheme will be to accentuate the effects of transition from peasant farming to commercial economics. Commercialism makes

(1) F.A.O. The Consolidation of Fragmented Holdings. Washington 1950.(UN. Pub.)
(2) Randhawa, M.S. 'Developing of Village India Hind Kitabs Bombay 1951.
(3) Marii, S. 'Agrarian Reform in Egypt' Government Press, Cairo 1958.page 207

communities more liable to the effect of price changes and will tendto sharpen conflicts between young and old and to weaken established forms of discipline and of 'Social Insurance' Even family bonds may be weakened by changes in responsibility for work and by the greater independence which cash may afford to individuals. Local antagonisms may also tend to increase as authorities will be tempted to impose on ordinary men, and societies will assume a deeper and different stratification according to economic productivity rather than hereditary or administrative distinction.

Real local leadership will be needed not only to gain support for the scheme but also to secure wise adaptation of farming systems, and efficiency in the use of machinery and in financial and marketing arrangements. It will be needed too, in altering the layout of fields and plots and, perhaps most important of all, in achieving land tenure arrangments appropriate to changed economic conditions.

The transformation of small disintegrated peasant farms into large-scale amalgamated farms, on the basis of co-operative farming and employing new and better techniques, involves a very radical change indeed but intermediatery stages can be used in the process which will make transition easier and more acceptable. Such an intermediate form would be to amalgamate the petty and tiny peasant farms gradually but steadily, not by means of pressure, but by example and conviction, into large-scale undertakings on the basis of co-operative farming, supplying agricultural machinery, applying scientific methods for the intensification of agriculture. An experiment has already been carried out in Nawag village near Tanta where 1935 feddans owned by 1500 owners were affected.(1) The area has been divided into 12 rotations the average area of each being 150 feddans, with the results that production has increased by 25%.

Apart from actors related to traditions, distance from the village and other social and security factors, the size of the farm, and the crop grown are the main factors affecting the pattern of settlement.

The dispersal of the plot of each farm has its effect on the pattern of

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(1) This is discussed in detail in Chapter II.

settlement. In the case of small farms, dispersal of plots means agglomeration mainly inthe village form, dispersal in the case of large farms does not produce such an effect, but, on the contrary may encourage dispersal of settlements.

Due to consolidation and co-operative farming, a number of farms of about 100 to 200 acres may be created together with farm buildings and rural houses like the so-called existing 'Ezbas'. This will eventually effect the village size and reduce it to the minimum. Further more, the factor of security which influenced the form of the village plan for thousands of years will no longer be so important as the result of economic, social and cultural changes.

Satisfactory consolidation may results in depriving some farmers of their farms. In a densely populated countryside, such as that of the Nile Delta, with few or no opportunities for alternative employment this may be a very serious matter. In such cases, theexpedient of working the land, without division in lage co-operative units may be a partial and temporary solution; but it will seldom be a complete or permanent one, especially as the efficient working of large farms usually demands methods different from those suited to small family farms - methods which sooner or later will involve less demand for human work and consequent redundancy of workers.

The physical and technical aspects of consolidation are only the simpler parts of the problem. More obstinate difficulties arise from the fact that the farmers are human beings with normal human emotions and reactions and who have been tied to their land for thousands of years. These human feelings are of equal importance when remedies are sought. There is the inertia of peasant tradition, which tends to obstruct all change. Or there may be a real attachment to the fields that the fellah knows and understands - perhaps largely sentimental, but strengthened by a natural professional doubt as to the wisdom of changing this well-understood land for something less familiar.

Another difficulty is financial, as no scheme of consolidation can ordinarily be carried out without considerable expenditure. Quite apart from the expenditure which may be necessary on account of such preliminaries as survey

and demarcation, the construction of roads and cattle paths, the superivising of staff; it is certain that at some stage or another the question of Capital will also be required to organize the consolidated farms, and special credit arrangements may be necessary for this purpose. The expenses of consolidation are usually shared between the Government and the landowners.

Social difficulties also exist from which come a number of miscellaneous difficulties deriving from the organization of the community itself. The fellaheen must be aware of the problem and must be advised to try to anticipate and take part in solving it.

CHAPTER VIII

CHAPTER VIII

THE PROSPECTS OF RURAL RECONSTRUCTION

It is clear from the preceding examination of the problems connected with rural land uses in the Nile Delta that population pressure on the land is the most important problem confronting any scheme of rural reconstruction. Any policy for rural development and remedies must be based on this consideration.

The Population Problem

The best approach to the population problem is to examine the rise of Egypt's population in the light of the population density, level of employment, and level of consumption. The inhabited part of the Delta which is the only part that should be considered at the present time, has a population density of over 500 persons per square kilometres, most of whom derive their income from agriculture.

As regards employment, it is well known that while there is a little overt unemployment in the Delta villages there is an enormous amount of hidden unemployment as has already been mentioned.

In view of this it may be said that as much as one third of the present rural population is surplus in the sense that there is no adequate employment for this surplus population within the present agricultural framework. In other words, the same output could be obtained with only two thirds of present rural population.

Any attempt at raising the standard of living presupposes either an enormous expansion in production or a reduction in the population.

Several partial means of lessening the population pressure have been suggested, including emigration, industrialization and birth-control.

It is reasonable to envisage fairly large-scale emigration to Syria where geographical and agricultural conditions are very similar to those prevailing in the Delta. This seems to be even more feasible now that the two countries

have been amalgamated in the United Arab Republic. Syria could absorb about 39% of the surplus population in Egypt - see appendix no. 7.

The Sudan also provides an outlet for the Egyptian emigrant, but its potentialities should not be overrated.

Internal migration to the sparsely populated north of the Delta or to the New Valley area in the Western Desert could also ease the congestion of some parts of the country. The acceleration of reclamation works and the extension of cultivation could absorb large numbers.

Industrialization, unfortunately, offers little hope of absorbing Egypt's surplus population, for although industry can make an important contribution to the national income, it is doubtful whether it can even absorb the normal increase in population, especially as the death rate is likely to decline because of improvements in the health services and other related developments.

Birth control even if adopted on a fairly large scale would only succeed in slowing down the rate of growth of the population, rather than arresting it. In England where birth control has been practised on a large scale since about 1890 the population is still slowly increasing, and in less developed countries like Japan birth control has succeeded only in slowing down the rate of growth to a small extent.(1) Birth control in fact tends to be practised on a large scale only in urban, literate communities enjoying a high standard of living.

In the Delta, there have been certain developments which may facilitate the ultimate spread in birth control. It is possible that a vigorous propaganda campaign might arouse some response, but there is no reason to expect a basic change for a long time to come.

Prospects in the High Dam Scheme

If, as is claimed, the High Dam Scheme will make possible the reclamation of two million feddans, this means that it will bring work to about 400,000 families by giving 5 feddans for each family to cultivate. If we consider the number of

(1) Issawi, 'Egypt at Mid Century' Oxford Univ. Press. London 1954. page 245

persons per family as four, then the scheme will absorb about 1.6 million people in a period of 15 years, at the rate of over100,000 persons per year which is the equivalent of 25% of the annual increase of the whole population of the country.

Therefore, if this scheme and the Syrian emigration scheme were to be executed over the same period of 15 years, they would absorb the equivalent of 64% of the annual increase in the populatio.. The remaining 36% must then be absorbed by the industrialization schemes.

In fact, if the annual increase in the number of population can be absorbed either by immigration to Syria, and by the two million feddans provided by the High Dam Scheme or by industrialization as mentioned above, the population problem will not be completely solved because of the existing surplus of about 4 million rural inhabitants. The situation needs furt.er investigation and research with a view to devising other long-term schemes. The Second Valley scheme, which has already been discussed or the Sinai Desert Reclamation scheme might provide more possibilities for solving this acute problem of population pressure on the land.

Integration of Agric.ltural Redevelopment and Industrialization

To achieve the integration of agriculture and industry the production of cotton must be increased, both by expanding the area and by raising yields. There should be no questionof holding up cotton expansion for the sake of wheat or other cereals, which can be produced more effectively inthe Syrian region. At the same time efforts must be made to increase dairying and fruit and vegetable production, especially the latter.

Agriculture can be prosperous only if it is integrated in an industrial system which at once draws off some of its surplus labour and buys its produce.

Rural industries must be developed on a large scale through a long-term policy. This type of industry besides being de.endent on rural products and labour will also depend on the home market, although a certain amount of export may be possible. An adequate home market can only c me into being if a large amount of industry is built up, but industry in its turn is conditioned by the rural

market which in its present form cannot absorb more than a very small output of industrial goods. This is why the establishment of Rural Industrial Centres will act as a transition stepptowards larger scale industry. These centres will help to divert the rural population towards industrialization and to divorce the fellah from his age old bondage to his land. This will, eventually, change the social structure from large rural clans to somewhat smaller sized independent families. This last achievement will create the possibilities for internal migration and external migration, as well as the creation of industrial communities should any large scheme for industrialization be carried out.

The attitude towards industrial locations within the Delta must vary according to the scale of industry to be established. The cottage industries will still function in the villages and small towns as they do now, but in addition each Planning Unit (average population 15,000) will have a small workshop centre sited preferably on a redeveloped site within the country town. In the case of the medium-sized inusuries these will be best located at the main Rural Industrial Centres each of which will serve a population of about 100,000 and will be most probably sited in a country town or large village, again preferably on a redeveloped existing built-up site. In general it has to be remembered, that the productive agricultural area is so limited in extent and so high in value that it must be safe guarded as much as possible. This means that major industrial expansion should take place :-

1. near the large towns and cities on sites which will do the least damage to agricultural production
2. on land of low agricultrual value in the extreme west and east of the cultivated land of the Delta.
3. on land in the north of the Delta near the marsh land which, it is suggested, should be reclaimed for agriculture.

So far as detailed siting is concerned regard naturally must be paid to other locational factors both of a general nature and those related to the efficient siting of the particular industry. These factors will include such matters as:-

a. Surface relief; b. Water supplies; c. transport; d. market; e. Price of land; f. Labour, and g. Power.

Stages of Reconstruction and Priorities

Schemes of development are linked with one another; and in a total plan of development it must need be assured that development in each sector goes on according to its specific, predetermined targets and this is seldom possible without corresp nding development in other sectors.

The top priority should be given in respect to protective rather than development measures, otherwise it will be like irrigating a loose sandy desert, all the water will be lost in the ground.

Public health and sanitation measures together with mass education should be included in the top priority scale. Then come the measures providing for stability and security of subsistence and employment, viz. Reform of tenancy, rationalized credit, marketing, fixation of wages, hours and conditions of employment of agricultural workers, colonization and settlement of the landless classes in virgin areas as well as the development of rural public works.

Next in order are the development programmes and means leading towards better land utilization and agricultural production, which form the indispensable economic basis for reaching the targets for improved leisure, culture and happiness.

Finally, it is clear that agricultural and rural reconstruction cannot be assisted or given priority unless they are linked with the development of communications and industrialization which not only reduce economic isolation, excessive dependance upon agriculture and chronic unemployment, but also break down the mental and social inertia of the people.

Large-scale heavy and light industries with their varied products from brick buildings and furniture to radio sets and motor cars for mass consumption will assist this social tr nsition and their priority, therefore, will loom upon the course of planned industrialization. Besides, it is the heavy industry supplying cheap tractors, pumps, and other agricultural machinery and the chemical industry supplying artificial fertilizers, that gives an impetus to scientific agriculture

A net-work of industries, large, medium-sized and small, established in the countryside through the facilities of cheap power and transport will utilize the industrial crops and raw materials from which the agriculturist's income will appreciably increase, abolish rural idleness and lead to a more equitable distribution of wealth and purchasing power among the urban and rural classes.

The pattern of scientific farming, whether represented by small peasant holdings with State aid, or co-operative effort in various directions, or by large mechanized farms organized on collective lines, will largely depend on the social habits of the people, population pressure and crops and crop rotations, that no economic planner can disregard. On the other hand, there is an inter-relation between the type of farm organization and the progressive ideology of urban-industrial culture; and just as the village community or coperative farming favours a decentralized type of industrial structure on the foundation of guilds and co-operatives, a State-controlled system of industry favours collectivization in agriculture. The most important thing in planning is to order priorities and envisage the targets in the various fields according to the particular economic stage and social ideology of the people.

Economic planning is largely agricultural and rural planning. The essence of such planning is that developmental activities should be co-ordinated and linked together. Piecemeal and isolated programmes cannot make for success, especially since ancient customs and usage have to be fought down in the villages. Thus in any well-considered rural programme of improvement of agriculture, compulsory education liquidation of adult illiteracy, health services, cooperative selling, consolidation of holdings, better living and social reform should all march hand in hand.

P A R T I I I

D I S T R I C T A N D V I L L A G E P L A N N I N G I N

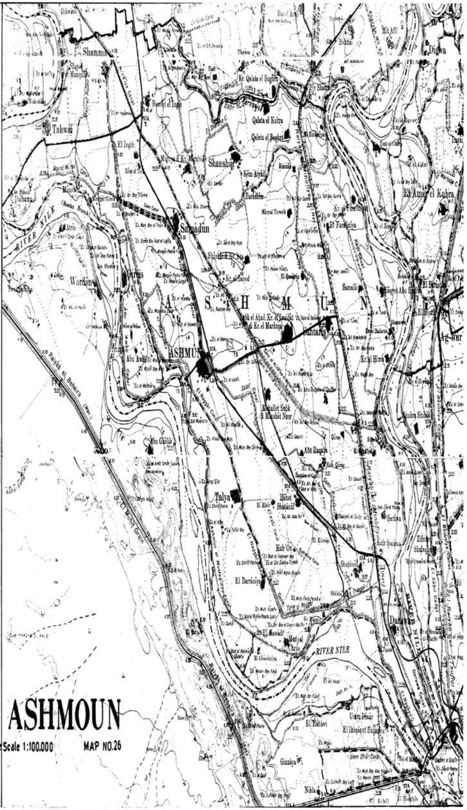
T H E N I L E D E L T A

With special reference to Markaz Ashmoun
and the country town of Shatanouf.

CHAPTER IX

KEY

- DISTRICT BOUNDARIES
- VILLAGE BOUNDARIES
- RAILWAYS
- PRINCIPAL ROADS
- ROADS SUITABLE FOR WHEELED TRAFFIC
- NARROW ROADS
- CANALS & DRAINS
- 'GEZIRA' LAND



MARKAZ ASHMOUN

2 1 0 1 2 3 4 5km. Scale 1:100,000

MAP NO.26

CHAPTER IX

SURVEY AND PLANNING OF MARKAZ ASHMOUN

The district of Ashmoun, not only has a unique character as it forms the central part of the Delta, but it is also in a sense, representative of the whole Delta since within its boundaries it contains examples of three main settlement patterns to be found in different parts of the Delta. (See map No.9) Moreover the general population problem which characterizes the Delta is here in its most intense form since Ashmoun is one of the most overpopulated districts in the Delta.(1) One of the main reasons for choosing this particular area is the availability of most of the information needed for a study of this nature, since much research has already been carried out. This might be because it is one of the nearest areas to Cairo or because of its special physical features which make it an easily definable entity capable of separate examination without much reference to the influence of its neighbouring districts. It is quite noticeable that most of the rural reforms were first implemented in the areas nearest to the capital. This again gives the District of Ashmoun another advantage of being up-to-date in benefiting from the different types of reform.

The choice of the village of Shatanouf for special study was also based on similar grounds.

(a) Physical Features

General Setting

Between the Rosetta Branch to the west and the Damietta Branch to the east, lies the 67,971 feddans of Ashmoun, about fifteen miles to the north of Cairo. The southern boundary of Ashmoun is formed by the Delta Barrange. (See map. No.26).

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(1) Density of population is 1,800 per square mile.

With the two branches of the Nile on the two sides of the area, the 'Markaz' is somewhat cut off from neighbouring areas, except on the northern side where the boundary is less clearly defined except in northern Shanshour and part of Magiria where the boundary runs parallel to the southern bank of El-Faraonia drain, a former river channel.

The 'Markaz' of Ashmoun occupies the highest land in the central Delta and is very well served by the main sources of irrigation.

This geographical position is also responsible for many other results. Its effect on land holdings is serious. As a result of its nearness to Cairo most of the large farm holders find it easy to live in Cairo and are content with occasional visits to their farms.

Being near to Cairo and served by road and railways, the cropping system of the Markaz is partly directed towards the urban markets of Cairo. This applies especially to farms with vegetable and orchard produce.

Topography

The land is almost flat. The differences in height between the contour lines is insignificant. The contour lines, however, run across the area from east to west while the inclination of the land drops to the north. The contour lines are very much affected by the course of the two branches of the Nile. (See map No.27). This explains the fact that the irrigation canals and drains run northward following the inclination of the surface of the land.

There are many bends in the two branches of the Nile which cause the flooding of a considerable area inside the curves during the flood of the Nile. These parts are called 'gezira land'. It has a special agricultural system and crops.(1)

Soil Types

About 50% of the area is covered by clay loam. Most of the eastern part of the area is covered with loam while the western part is covered with sandy loam. In the middle there are separate patches of clay here and there. (See map No.28).

The soil is very fertile; in fact this is one of the most fertile areas in the world.

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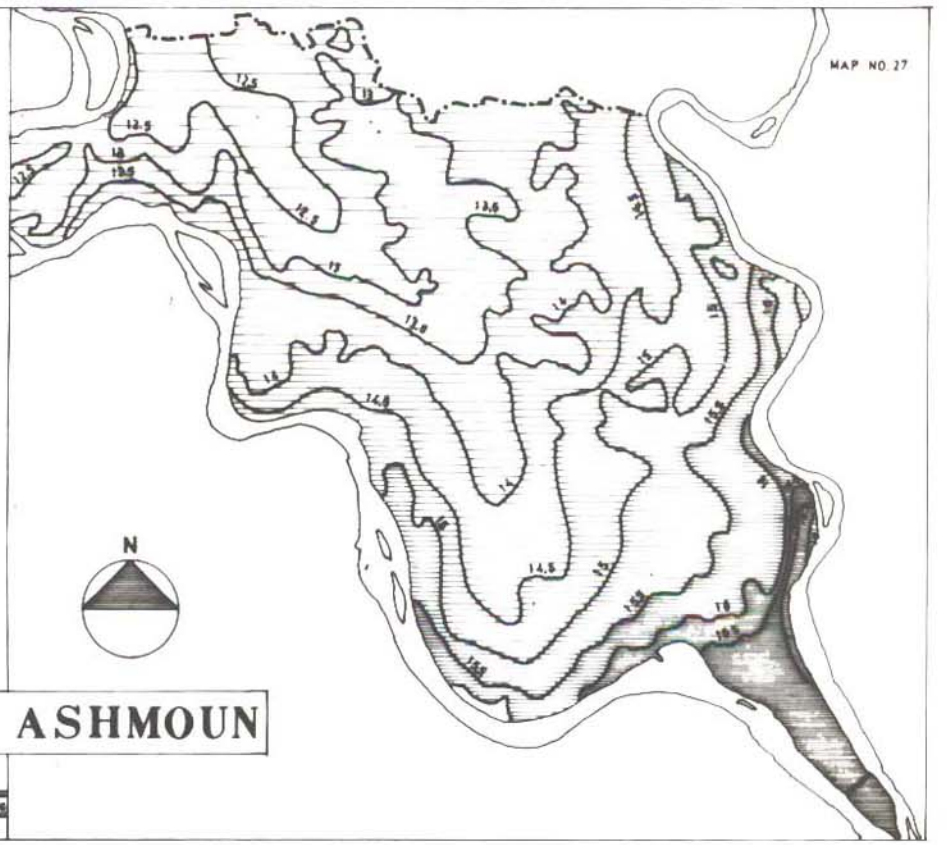
(1) Cultivated according to Basin Irrigation

TOPOGRAPHY

MAP NO. 27



CONTOUR LINES SHOWN ARE AT 1/2 METRE INTERVALS.

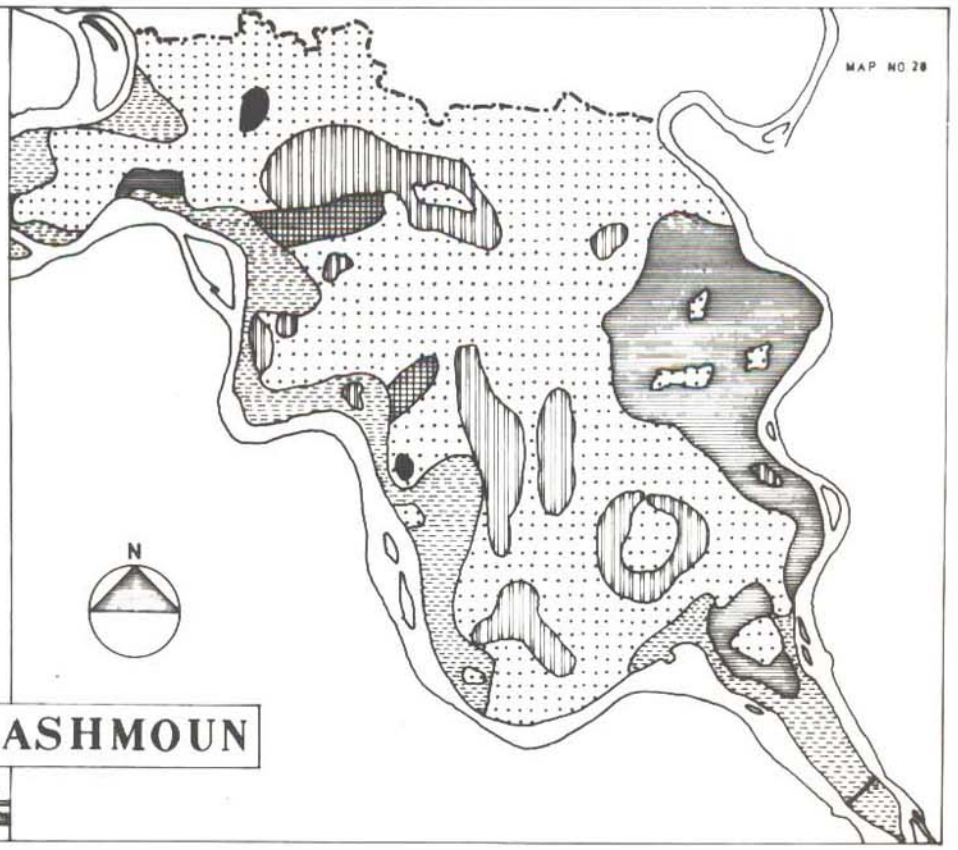
MARKAZ ASHMOUN

1 0 1 2 3 4 miles

1 0 1 2 3 4 5 6 7 kms

SOIL TYPES

MAP NO. 28



KEY

- CLAY
- CLAY & LOAM
- SANDY LOAM
- SANDY CLAY LOAM
- SILT CLAY LOAM
- LOAM

MARKAZ ASHMOUN

1 0 1 2 3 4 miles

1 0 1 2 3 4 5 6 7 kms

The depth of the clay varies slightly from one place to another. At the village of El-Kawadi the clay is about six metres deep, beneath which there is a layer of about four metres of fine sand followed by about twenty-four metres of medium coarse sand.(1) At the village of Shama the clay depth is about ten metres.

Landscape

The landscape of the 'Markaz' is typical of that of the whole Delta. A vast area of flourishing fields dotted with some palm-groves or groups of sycamore (sant) or lebbek. This vast flat green surface is interrupted here and there by irrigation canals, the veins of life of the land and the people.

Climatic Conditions

The geographical setting of Ashmoun and its relation both to the Mediterranean and adjacent desert areas is, above everything else, the determining factor in the climate of Ashmoun. Ashmoun at the head of the Delta, lies approximately between parallel 30° 10' and 30° 25' north and reflects conditions as a transitional zone between desert and Mediterranean conditions.

Temperature: The monthly range for the Delta Barrage (south of Ashmoun) lies between the 13° 2'C. mean for January and 28° 0'C. for July.

Generally when winds blow from the east and south east the prevailing temperature is considerably hotter than the monthly average whilst winds from the north west have a cooling effect. Western winds, however, are relatively warmer in January and have a cooling effect in April whereas the reverse is true of the eastern winds.

Wind Direction and Rainfall: The passage of depressions along the Mediterranean in winter and through North Africa in spring and early summer affects wind and rainfall. The former depressions are mainly responsible for the northern, western and north-western winds which bring the greatest part of rainfall in the area. In the spring the passage of depressions over the main land itself is reflected in the desert winds from south to south-east. The hot, dry Khamasein wind which blows in late spring is the main outcome of these depressions.

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(1) Nasr. S.N. Agricultural Geography in the Delta, Research, Cairo 1953.

The main directions of the winds are from the north, north-east, north-west and west.

The wind velocity rate at Tanta, varies from 1.1 m.p.h. in the late summer and early autumn to 1.8 m.p.h. for late winter and spring months. Generally speaking they are light winds with an average velocity of not more than 3 miles per hour.

Beside being negligible, decreasing towards the south and confined mainly to the winter months, rainfall in this part of Egypt is variable from one year to another for the same months as can be seen from the following table for Shebinel-Kom (north of Ashmoun) - 1945-1950.

Table (35): Rainfall in Shebin El-Kom (1945 - 50) S.S.

Month	1945	1946	1947	1948	1949	1950
	m.m.	m.m.	m.m.	m.m.	m.m.	m.m.
December	4.1	trace	0.6	6.0	11.6	0.0
January	-	6.0	4.4	7.4	9.6	16.9
February	-	1.8	trace	14.0	4.6	1.9
March	6.0	4.6	1.6	8.1	1.9	2.4
April	0.0	trace	0.0	2.0	0.0	5.3
May	27.3	18.2	2.6	0.0	0.0	3.0

Evaporation: The study of evaporation in relation to rainfall and irrigation arrangements is important. Calculating the expected loss of water is necessary in defining the allocation duty of canals and the amounts needed for the various crops. During the summer months when no rainfall exists and when the available water supply for irrigation is at a minimum evaporation is at its highest.

Land Utilization

In 1945 Ashmoun had an area of 107,880 feddans under field crops, 5,396 feddans under vegetables, 777 feddans under orchards, and nurseries and 7,873 feddans as agriculturally unproductive lands.(1) . . . . . .

(1) This includes built-up areas, roads, canals and open spaces.

Of that total area under field crops 55,825 feddans were under winter crops, 14,320 feddans under summer crops and 37,735 feddans were put under Nili crops. It is important to mention that the cultivated area has decreased in 1953, to 64,569 feddans while the uncultivated, or the unproductive land has increased to 8,680 feddans.(1) This difference of about 800 feddans has been taken by public works, canals, drains, roads, or residential buildings. The cropped area, on the other hand, increased to 119,367 feddans - 18,276 feddans under summer crops (seifi), 58,199 feddans under winter crops (shetwi), and 42,992 feddans under Nili crops. The remainder 1,325 feddans are under orchards. As can be seen, field crops constitute the main form of land use in Ashmoun. Orchards and vegetables usually cover small areas of land near the villages for security reasons. They actually compose a part of the village and its landscape.

Water Resources

Wells: The need for well water and the factors governing it are responsible for the distribution of 'well-belts'. (See map No.29). There are three well belts in Ashmoun.(2) The first is mainly connected with irrigation problems. The second lies within the areas by the side of 'Sabbal' drain. The transformation of this drain from an irrigation channel has created the need for more water than could be supplied by the existing channels, and therefore the supply had to be supplemented by wells. A second factor which gave rise to this belt is the lowness of the land level and the excess of salt in the soil.(3) The third belt lies within the area served by the minor distributaries. The conditions which gave rise to this belt are similar to those met with in the second belt.

Common to the three belts is the existence of large farms which can afford the rather expensive under-ground irrigation.

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(1) Ministry of Finance, Bulletin of Agricultural and Economical Statistics, May, 1954.
(2) Nasr. S.N. Agricultural Geography in the Delta, Cairo, 1953.
(3) See the Topographical map.

/Research,

Irrigation Channels and Implements: The water reaches the fields from the Nile through four ways:

1. Main canals which draw their water directly from the Nile.
2. Branch canals of which the main characteristics are their continous flow and the possibility of direct irrigation.
3. Distributaries which receive water from a branch canal during rotation periods only. There are main and branch distributaries which in turn lead to minor distributaries.
4. Water-courses, 'Massagi'.

For irrigation in Ashmoun there are three 'Tree Systems'. The following table shows their particulars in brief.(1) (See map. No.29).

Table 36 Irrigation Tree system in Ashmoun

Tree System	Total length of channels: Km.	Area allocated: in feddans	Discharge duties per fd. in cu. Metres
a. Rayah-el-Menoufi	100	30,250	1,058,750
b. Darawa	21	8,500	356,832
c. El-Naggaiel	179	31,000	900,000

The above mentioned three 'Tree systems' handle, besides supplying other areas, the total water supplied need in Ashmoun. Each system consists of one feeder and a small number of irrigation channels leading off from it.

In Ashmoun there are:-

300 Kms. of irrigation canals not including private water-courses. (See appendix No. 12).

120 Kms. of drains not including field drains.

(1) Nasr. S.N. Agricultural Geography in the Delta, (Research), Cairo 1953.

The following table gives the number of implements in the District, the area which is irrigated by each implement and their relative importance, i.e. the percentage of the total powerage of implements to general total.(1)

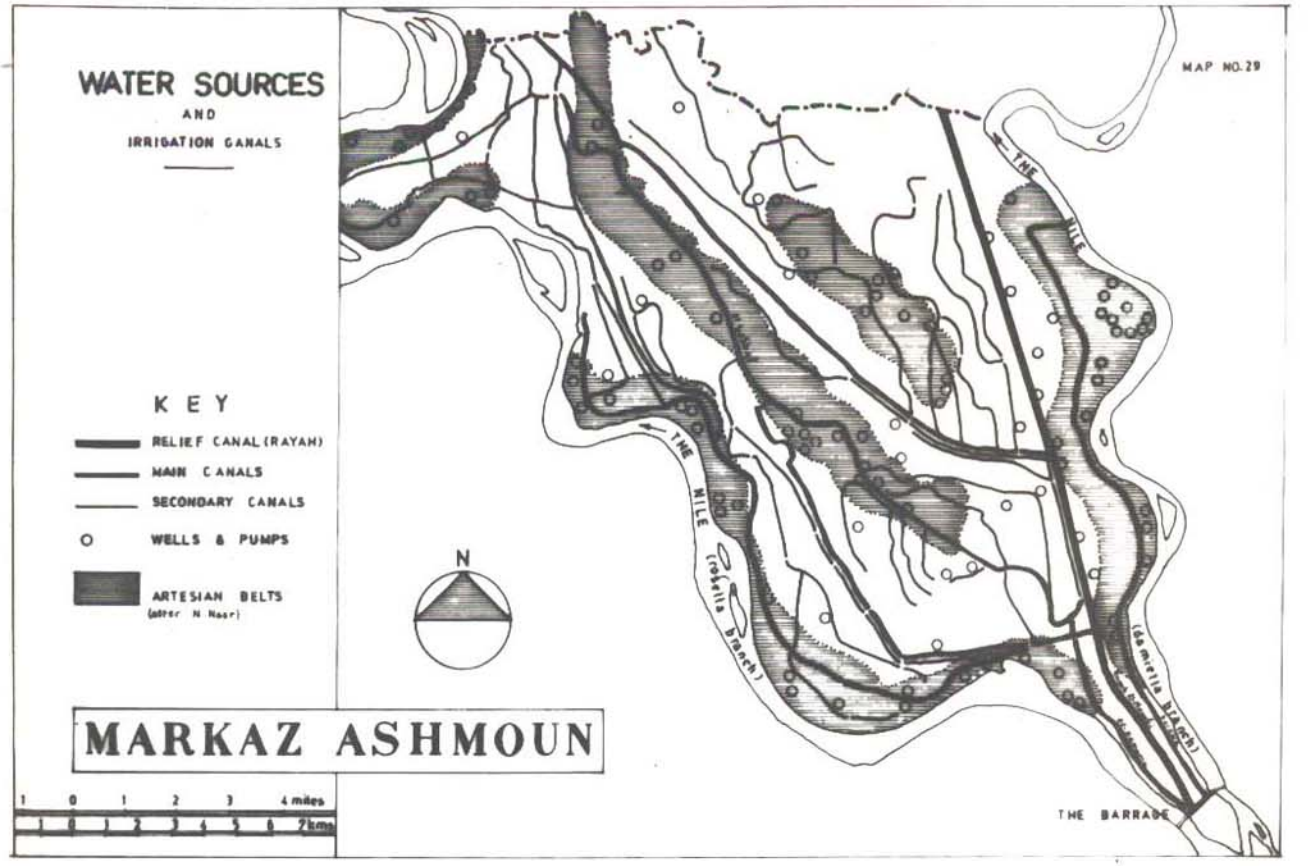
Table (37) Number of Implements and their Importance in Ashmoun. S.S.

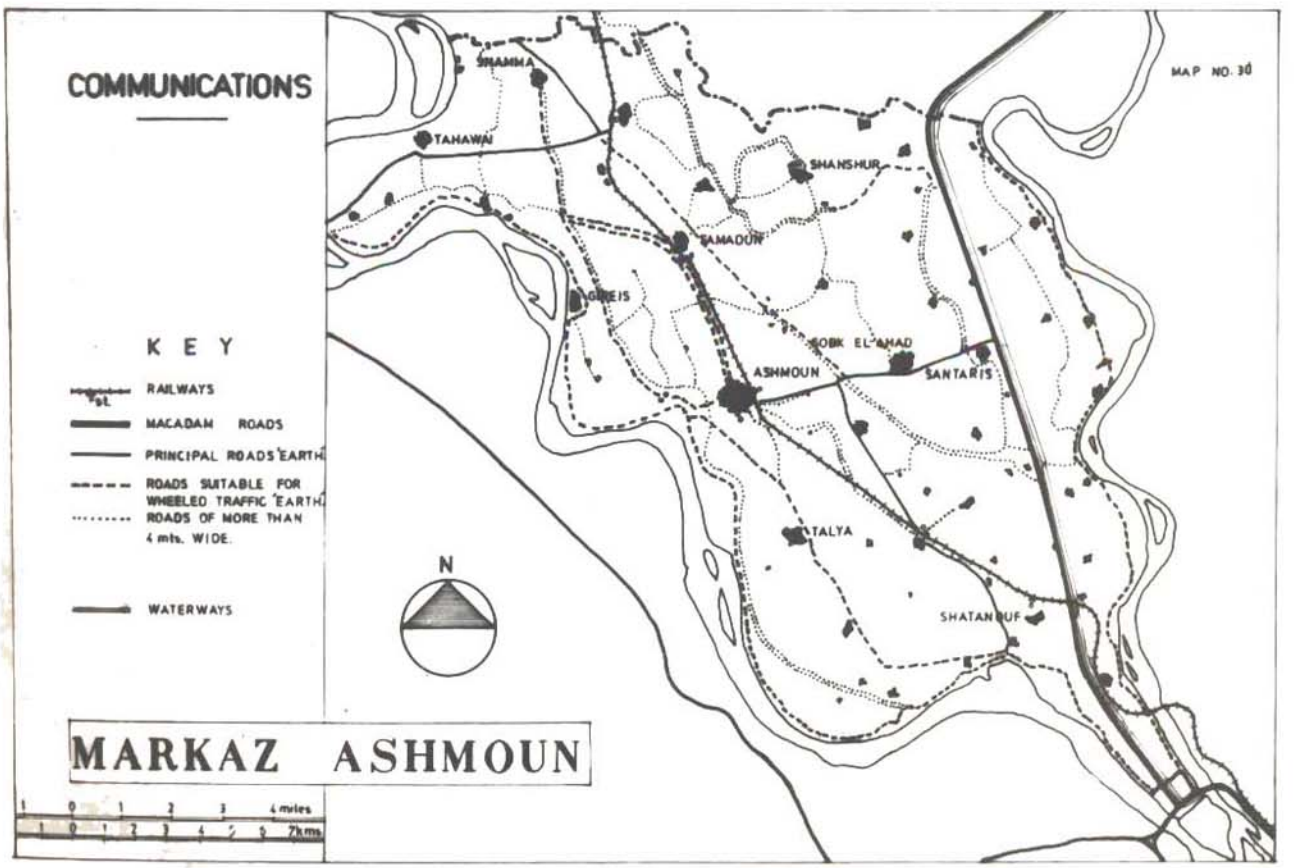
Implement	No. of Implements	Area/implement (feddans)	Relative Importance %
Pumps	112	100	13%
Steam engines	199	338	23%
Steel Sakias	248	271	1.1%
Tabouts	872	77	6%
Normal Sakias (wooden)	3366	20	13%
Tambours	10178	6.6	41%
Shadoufs	542	1.24	.03%

From the above table the steam engine proves to be the most efficient for irrigation. Steam engines and pumps are used on large farms. Each engine costs about £E400. In recent years the Co-operation Department in the Ministry of Social Affairs has induced many co-operatives in the Delta to use steam engines for irrigation. The Shatanouf co-operative has been very successful in pursuing this policy.

Most of the 'tabouts' and the 'sakias' are used semi-co-operatively. The implement is usually owned by more than one holder. Every holder has to provide the beasts besides other parts used for working the 'tabout' or the 'sakia'. Land fragmentation has a great effect on the number and the types of implement used, the number of irrigation implements increasing according to the increase in fragmentation.

(1) Ministry of Finance's Bulletin of Agricultural and Economical Statistics, April, 1953.


WATER SOURCES
AND
IRRIGATION CANALS
KEY
RELIEF CANAL (RAYAH)
MAIN CANALS
SECONDARY CANALS
WELLS & PUMPS
ARTESIAN BELTS
(after N Nasr)
MAP NO. 29
THE NILE
THE NILE (Rosetta Branch)
(Damietta Branch)
N
MARKAZ ASHMOUN
1 0 1 2 3 4 miles
1 0 1 2 3 4 5 6 7kms
THE BARRAGE


COMMUNICATIONS
KEY
RAILWAYS
MACADAM ROADS
PRINCIPAL ROADS EARTH
ROADS SUITABLE FOR WHEELED TRAFFIC EARTH
ROADS OF MORE THAN 4 mts. WIDE.
WATERWAYS
MAP NO. 30
SHAMMA
TAHAWAI
SHANSHUR
SAMADUN
GUEIS
SOBK EL AHAD
ASHMOUN
SANTARIS
TALYA
SHATANUF
N
MARKAZ ASHMOUN
1 0 1 2 3 4 miles
1 0 1 2 3 4 5 6 7kms

Land Reform in Ashmoun

The area which was affected by the Land Reform Law is small. The requisition of land took place in five areas of about 1,258.5 feddans distributed as follows.(1)

Table (38) Areas affected by the Land Reform Law in Ashmoun.

Village	Owner's Name	Area Requisited			Area Distributed			Area Left		
		F	K	S	F	K	S	F	K	S
Samadoun	Abd El-Haviz Omar	393	7	2	355	19	2	37	12	2
Abu Awali	M. Nasly Sabry	319	2	23	250	-	-	69	2	23
El-Barraniya	Talaat El-Farausawy	267	2	18	236	13	18	30	13	18
"	Shefif Sabry	179	23	12	171	13	21	8	9	15
"	Anistasia Tyderally	99	-	23	19	-	23	-	-	-
	Total	1,258	13	16						

This means that about 2% of the cultivated area of the district is under collective farming. Although this is a very low percentage it still provides a good example for that type of farming which might inspire other areas to adopt the system. These areas, therefore, constitute practical experiments which are already established with material results for the fellaheen to witness and to adopt.

(b) Communications

Railways

The 'Markaz' is served by one railway line crossing the area from south to north. This line runs between Cairo in the south and Shebin-el-Kom and Tanta in the middle of the Delta. Almost all of the villages of the 'Markaz' are served by four stations. They are from south to north: Shatanouf, Shisha, Ashmoun (the District town) and Samadoun. The number of passengers arriving at and departing from Ashmoun railway station in 1947 amounted to 205,000 and 197,000 respectively.(2) At present there are nine trains per day running northward and eight trains running southwards.

(1) Agranian Reform Authority, Cairo 1959.
(2) General Census of Egypt (1947)

The north-western point of the Markaz, including Tahawai and El-Ingib zones, is served by the station of Shamma which is outside the boundaries of the 'Markaz'.

The railway stations are accessible either by roads or tracks; but very few motor coaches connect these stations with the different villages. They were reached either on foot, on donkeys, or (something which is rare in rural areas) special cars or carriages. Moreover, the trains do not run very frequently. There are 200 kms. of roads including (a) the Cairo-Shebin-el-Kom Road, (b) the Cairo - Kafr-el-Zayat Road, (c) the Cairo - Ashmoun Road, whereas there are only 26 kms. of railways, consisting of the one line which connects Cairo to Tanta via the Delta Barrages. (See map No.30).

Roads:

The Markaz is served by a system of roads running from the south to the north. These roads are of earth but are reasonably wide for vehicles. The only constructed road is that which runs along Riyah El-Menufi. The roads usually follow the banks of the canals or the river. (Types and conditions of roads are shown on map number 30).

There are no coach services except on the road following the Rayah-el-Menoufi canal and that which runs in the middle of the 'Markaz' from south to north. Furthermore, these services are very infrequent and irregular.

Waterways:

The Rayah-el-Menoufi Canal which also runs from south to north in the eastern half of the 'Markaz' is the only water thoroughfare in the area. (See map No.30). In 1945 the number of sailing craft which passed through this canal amounted to 5,542 from North to South and 4,692 from South to North.(1) These figures dropped to 2,891 and 2,557 respectively in 1956.(2) Much of the cargo has been diverted to road transport.

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(1) General Census of Egypt (1947).

(2) The Engineer (July 1956), Article; The Development of Communication (1952-1956).

In general, the means of communication and transport are very poor, as in all other parts of the Egyptian countryside. This has had a great effect on the economy and productivity of the area, as well as being inconvenient to the people. It has also affected the migration of the people and perhaps their education.

The present regime in Egypt is aware of this fact. An ambitious scheme has been planned to build a greater network of roads and to improve the inland water transport. This was the first step taken by the permanent Council for the Development of National Production to achieve its objectives.

(c) Administrative Divisions and Service Areas

The 'Markaz' is divided into two units, one on the north and the other on the south. The northern unit is divided into six zones:

Tahawai, El-Ingib, Shanshor, Samadoun, Sintris and Ashmoun.

The southern unit is divided into five zones:

S.A. Shara, Shatanouf, Shisha, Talia and El-Barrania.

These units and zones are administrative divisions. In every zone there is a police station and perhaps a Collective Unit.

The Markaz (district) is divided into administrative, financial, and health units. (See map No.31). From the administrative point of view the district is divided into a Centre (markaz) which locks after nine villages[1] besides the capital Ashmoun, and five police centres (Nokta). These are:

(a) El-Nienaiya which comprises 11 administrative villages.
(b) Zu-el-Fakar comprising 6 administrative villages.
(c) Shatanouf comprising 12 administrative villages.
(d) Shama comprising 10 administrative villages.
(e) Shanshour comprising 9 administrative villages.

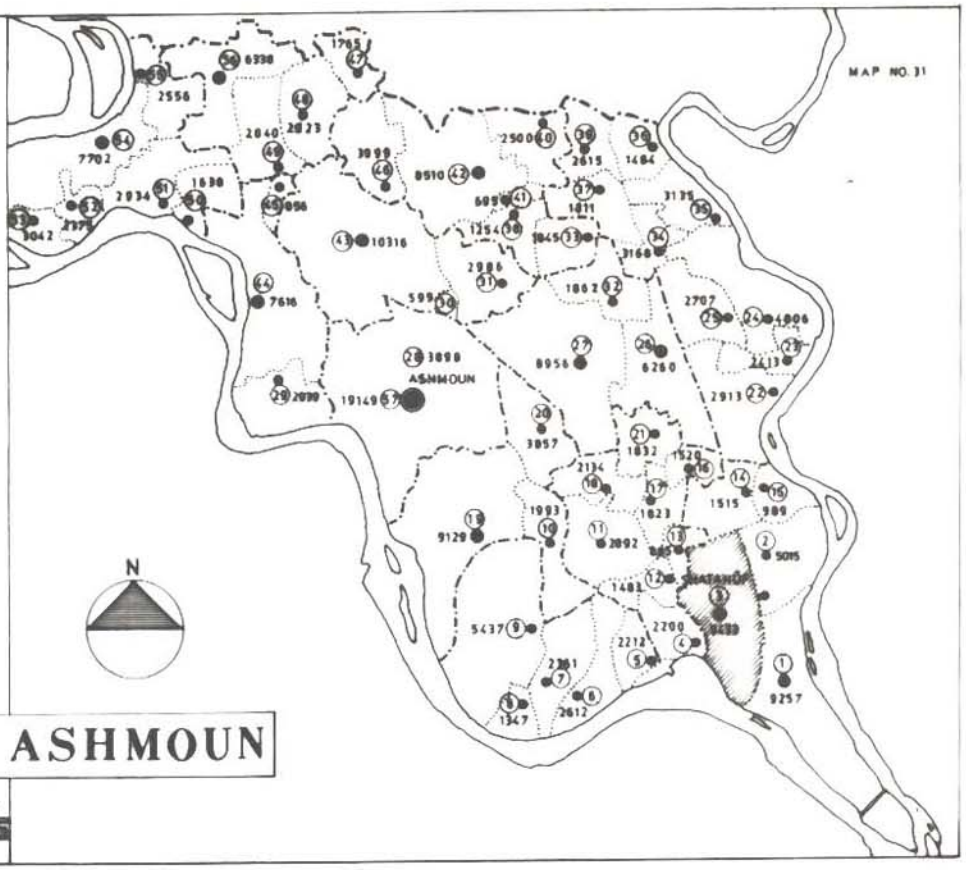
(Kafr Abu-Rakaba and Kafr Sarawa are both included in Abu-Rakaba and Saraw villages respectively).

---

(1) The term 'village' has a wide collotation in Egypt both in terms of population and settlement size as well as area. For administrative purposes the term can cover either a country town or village together with its surrounding service area which may often include a number of hamlets.

VILLAGE UNITS AND POPULATION

MAP NO. 31



KEY

- (28) VILLAGE NUMBER – see text.
- 54321 POPULATION / VILLAGE
- ● VILLAGES
- —·—·— ZONE BOUNDARIES
- ..... VILLAGE BOUNDARIES

MARKAZ ASHMOUN

1 0 1 2 3 4 miles
1 0 1 2 3 4 5 6 7kms

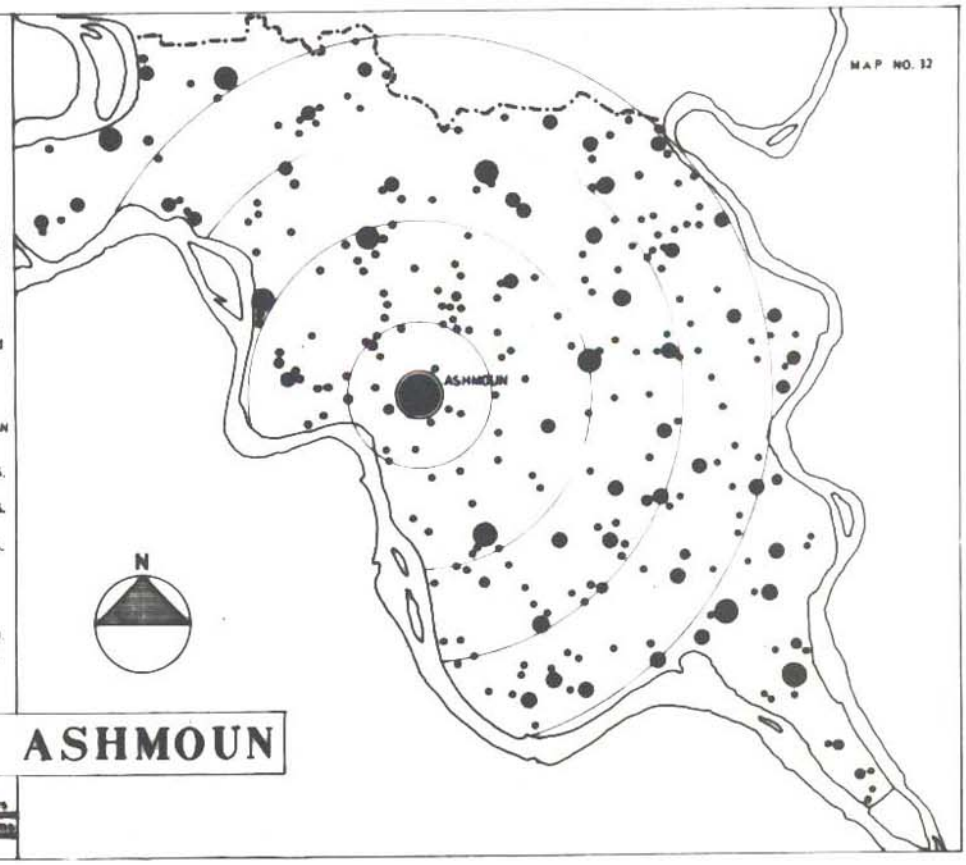
SETTLEMENT DISTRIBUTION

MAP NO. 32

Grade (IV) is the small market village of 5 to 6 kmhs. from its nearest neighbours and is the basis of the whole system. And grade (V) is equivalent to a large county town of about 20,000 to 50,000 inhabitants which is the District Town. Then come towns of about 50,000 and over which are the Provincial Towns.

KEY

- I • SETTLEMENTS OF LESS THAN 500 INHABITANTS
- II ● SETTLEMENTS OF 500 – 1,000 INHBS.
- III ● SETTLEMENTS OF 1,000 – 5,000 INHBS.
- IV ● SETTLEMENTS OF 5,000 – 10,000 INHBS.
- V ● SETTLEMENTS OF OVER 10,000 INHABITANTS
- N.B. CIRCLES 2.5, 5 7.5 & 10 km. RADIUS FROM ASHMOUN.



MARKAZ ASHMOUN

1 0 1 2 3 4 miles
1 0 1 2 3 4 5 6 7kms

The financial or taxation units include the administrative villages plus the hamlets (ezabs) which they comprise. One of these units, for example, is the village of Shatanouf which comprises the hamlets (ezabs) of M. M. Farid, El-Dakar, H. Yousef, K. Yousef and Z. Yousef.

The health units are defined with respect to the health centres in the area. The district in this respect is divided into four health units:

(a) Ashmoun, which looks after 26 villages.
(b) Shatanouf looking after 23 villages.
(c) Shama looking after 5 villages.
(d) Shanshour looking after 4 villages.

This system of division operated until 1953 after which the distribution of Collective Centres has affected the functioning of the health units, and is likely to affect the other units as well.

Settlement Pattern.

In Ashmoun there are (in addition to the District Town) 56 Country towns and villages distributed according to population size as follows:(1)

Table (39) Distribution of Settlements according to population in Ashmoun. S.S.

No. of Settlements		Size (Population)
5	Villages	500 - 999
14	Villages	1000 - 1999
18	Villages	2000 - 2999
6	Small country towns	3000 - 3999
1	Small country towns	4000 - 4999
5	Market towns and larger country towns	5000 - 6999
7	Market towns and larger country towns	7000 - 10999
1	Market towns and larger country towns	over - 20000
57		

(1) See Appendix No.6 (Population Census 1947) in Ashmoun.

This shows that besides the 'Markaz' town which has a population of over 20,000 there are thirteen settlements constituting the market and larger country towns of more than 5,000 inhabitants each and seven small country towns, whilst the number of villages amounts to 37. There are also about 200 hamlets with populations of less than 500 persons each.

The distribution of densities in the villages and towns is as follows:(1)

Table (40) Distribution of densities in the villages and Towns in Ashmoun S.S.

NO. of Settlements	Density (persons per sq. kilometre)		
2	100	-	199
2	300	-	399
8	400	-	499
12	500	-	599
12	600	-	699
8	700	-	799
7	800	-	899
2	900	-	999
3	1000	-	1999
1	4000	-	4999
57			

The size and distribution of the rural settlements of the district are shown on map No. (32). It is clear from this map that the distribution of population in the district is uneven and some redistribution of population within the Markaz seems both feasible and desirable.

(1) See Appendix (Population Census 1947) in Ashmoun.

Public and Social Services

The district of Ashmoun is to be served by 12 Collective Centres as indicated on map No. (34). This is in addition to the rural centres already established. Five of the Collective Centres have now been built. Every collective centre is designed to serve 15,000 inhabitants. Their objectives have been discussed previously in Chapter (V). There are six police stations in the district with a fire station in the town of Ashmoun.

Public Utilities (Water, Electricity and Sewerage)

The main sources of water are the canals, the wells and the pumps. There are three artesian belts in the Markaz. They follow the main inclination towards the north and are shown on map No. (29).

Markaz Ashmoun is also served by 24 water works the largest of which is in Ashmoun itself, the capital of the district. (See map No.33). The district was one of the first areas to benefit from the recent scheme to provide the rural areas with more adequate supplies of drinkable water.

Electricity is not available except in the town of Ashmoun. There are no proper sewerage systems anywhere in the 'Markaz'.

Markets

In the main, maize is grown for the farmer's food, clover for his beasts, cotton for rent and debts while wheat is partly for rent and partly for current expenses. Any surplus of the above commodities together with meat, eggs, milk and cheese find their way to the village market or the weekly markets where buyers and sellers come from more than one village and may even come from all parts of the district. The outside market is beyond the small farmer's thinking. Large farmers are mainly concerned with this last market which, in the case of Ashmoun, may be Cairo for vegetables and fruits or Alexandria and other industrial towns for cotton.

There are nine market places serving the Markaz apart from that of Shamma which is just outside the district. (See map No.35).

MAP NO 33

PUBLIC SERVICES

HEALTH & EDUCATION

K E Y

- COLLECTIVE UNITS
- ELEMENTARY SCHOOLS (mixed, 6 to 12 years old)
- PREPARATORY SCHOOLS FOR BOYS
- PREPARATORY SCHOOLS FOR GIRLS
- SECONDARY SCHOOLS FOR BOYS
- SECONDARY SCHOOLS FOR GIRLS
- CLINICS
- SANITARY BUREAUX
- HOSPITALS
- RURAL SOCIAL CENTRES
- W. WATER WORKS
- P POLICE STATIONS

Journey to school is shown in circles of 800 mts. rd & 1,200 mts rd for elementary & secondary sch. resp.

MARKAZ ASHMOUN

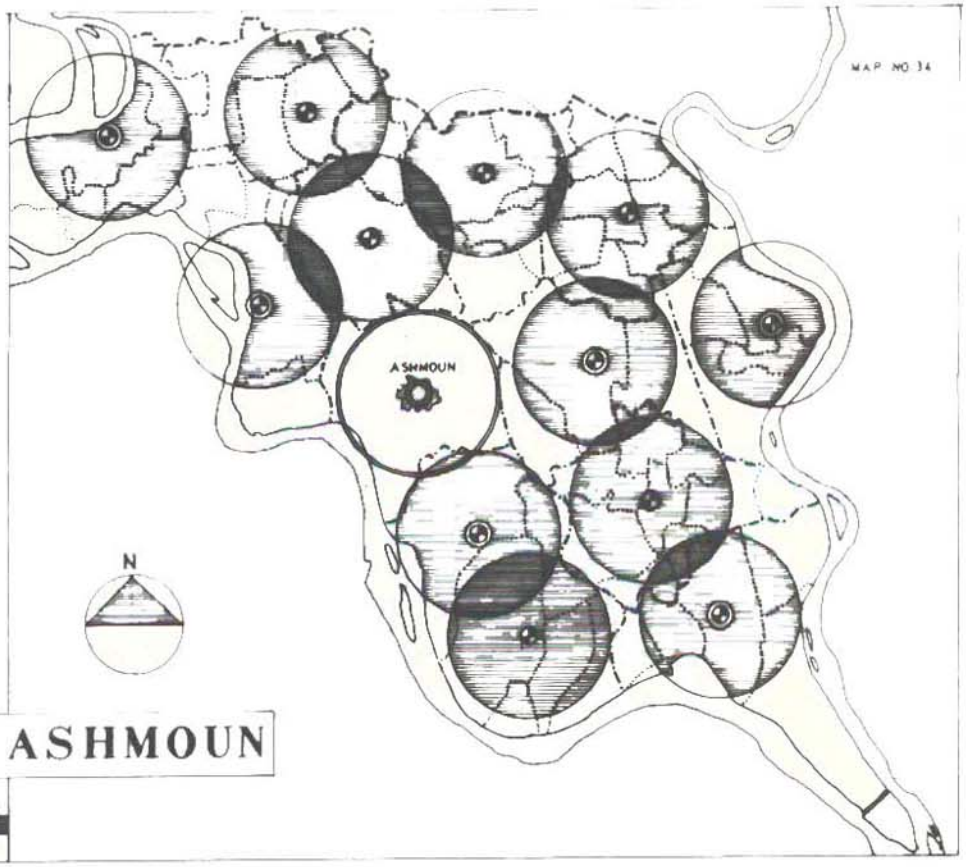
MAP NO 34

COLLECTIVE UNIT DIVISIONS

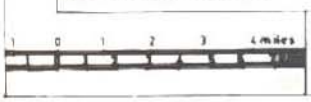
THE Collective Units are distributed in a regular sense Every Unit is serving an area of approx 2.5 kmts.rd Overlapping is due to poor communications. Every C.U. serves abt 15,000 inhabitants

K E Y

- EXISTING COLLECTIVE UNITS.
- PLANNED COLLECTIVE UNITS.
- C.U. BOUNDARIES
- VILLAGE BOUDARIES



MARKAZ ASHMOUN



These markets are of different importance according to the number of villages which each one serves and also according to the type of goods or trade which can be found there. A detailed examination of one of the markets is made later in this thesis when dealing with the market town of Shatanouf. These markets are held weekly and on different days. Some are well-known as cattle-markets or grain-markets besides functioning as general markets. The market is usually held on an open area outside the village built-up area.

These markets are:-

MARKET		MARKET DAY
Shatanouf	:	Saturday
K-el-Minara	:	Sunday
Talia	:	Sunday
El-Kawadi	:	Tuesday
S. A. Shara	:	Tuesday
Sintris	:	Thursday
Sobk-el-Ahad	:	Monday
Samadoun	:	Tuesday
Shoshai	:	Thursday
Shamma	:	Monday

In addition to the above there are two big markets in the Markaz. The first is in the town of Ashmoun and is held every Wednesday and the other is the Barrage town market and is held every Monday and Thursday. The boundaries of the area which these two markets serve are shown on map No. (35).

(d) Population

The population of Ashmoun, although having the same general characteristics of the fellaheen elsewhere in the Nile Delta seems to be somewhat more enlightened and progressive. This might be due to the nearness of the district to Cairo which is easy to reach. Cairo as mentioned before is the main market for the district production especially for fruits and vegetables. The villages of the district were the first in the Delta to respond to the recent progressive movements.(1) Many of Cairo's labourers are drawn from Ashmoun and this migratory movement has affected the area to a great extent.

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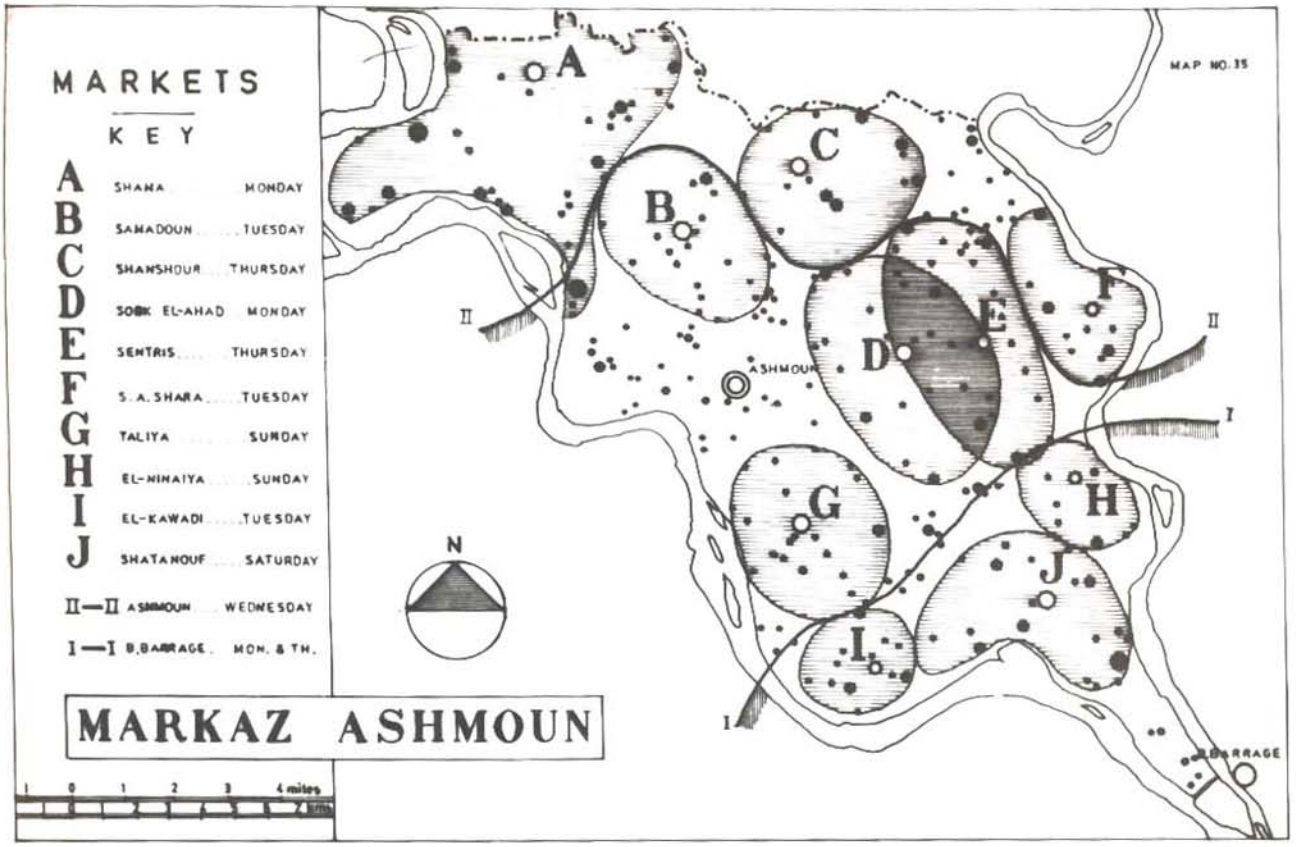
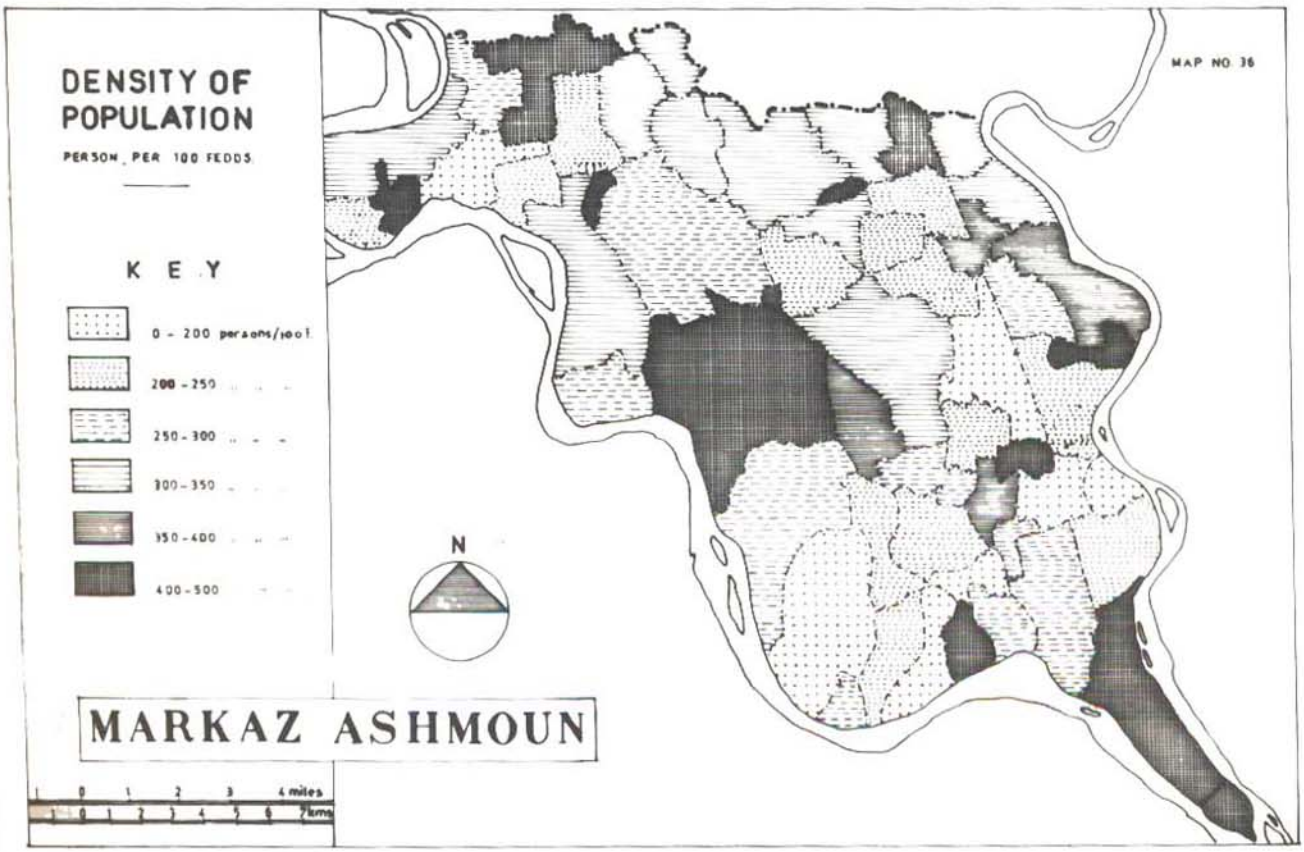
(1) This means the establishment of Collective Units, Schools, Co-operative, and Land Reform.


MARKETS
KEY
A SHANA MONDAY
B SAMADOUN TUESDAY
C SHANSHOUR THURSDAY
D SOBK EL-AHAD MONDAY
E SENTRIS THURSDAY
F S.A.SHARA TUESDAY
G TALIYA SUNDAY
H EL-NINAIYA SUNDAY
I EL-KAWADI TUESDAY
J SHATANOUF SATURDAY
II—II ASHMOUN WEDNESDAY
I—I B.BARRAGE MON. & TH.
MARKAZ ASHMOUN
MAP NO. 35
ASHMOUN
N
1 0 1 2 3 4 miles


DENSITY OF POPULATION
PERSON PER 100 FEDDS
KEY
0 - 200 persons/100 f
200 - 250
250 - 300
300 - 350
350 - 400
400 - 500
MARKAZ ASHMOUN
MAP NO. 36
N
1 0 1 2 3 4 miles

Moreover the district was the first to experience the social, economic, educational improvements which have been planned for the rural areas as a whole. Furthermore because of the district's proximity to Cairo the officials responsible for the implementation of these different branches of reform have the advantage of being able to visit Cairo from time to time which gives an advantage over those who work in remote villages under difficult living conditions.

The following table illustrates the structure of the population and its growth since 1882 when the first official census was taken up to 1947 together with estimates for 1957.(1)

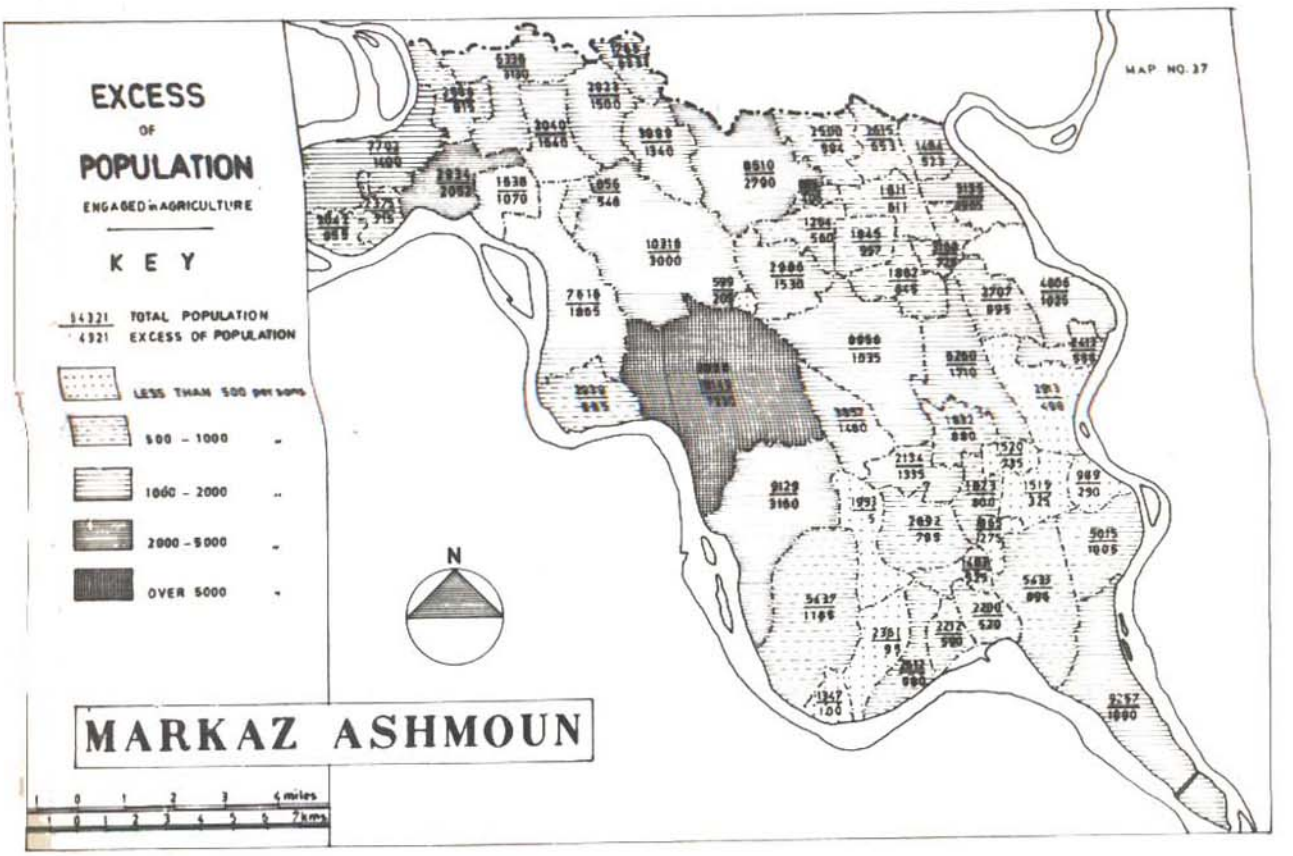
Table (41) Structure of Population in Ashmoun (1882 - 1957) S.S.

Sex	1882	1897	1907	1917
Male	48.855	68.953	79.025	91.469
Female	50.722	67.748	77.769	88.151
Total	99.587	136.701	156.744	179.620
Percentage Increase over previous total		(2.5%)	(1.5%)	(1.5%)

Sex	1927	1937	1947	1957
Male	93.838	100.960	102.468	103.976
Female	93.732	100.194	106.043	111.892
Total	187.570	201.154	208.511	215.868
Percentage Increase over previous total	(0.4%)	(0.7%)	(0.4%)	(0.3%)

The birth rate is very high being 40 per 1000 total population but is offset by a very heavy infant mortality rate amounting to 15 per cent of the live births. Death rate is about 22 per 1000.

(1) General Census of Egypt (1947).


EXCESS
OF
POPULATION
ENGAGED in AGRICULTURE
K E Y
54321 TOTAL POPULATION
4921 EXCESS OF POPULATION
LESS THAN 500 per sqms
500 - 1000 "
1000 - 2000 "
2000 - 5000 "
OVER 5000 "
MAP NO. 37
N
MARKAZ ASHMOUN
1 0 1 2 3 4 miles
1 0 1 2 3 4 5 6 7kms

The population of the 'Markaz' in 1977 is expected to be 250,000 if not more, due to the improvement in the health, education and social life of the people. This estimate does not take account of migration problem.

Density of Population

Although the district is one of the most overpopulated in the Nile Delta the distribution of population is not even. While the density of population is 2 person per feddan in some places it rises to 5 persons per feddan in others. (See map no. 36) The main concentrations of population are round the market centre of Ashmoun and in the extreme south. The lower densities exist in villages and areas where large estates are to be found employing less labour on their land. There is a close relationship between the density of population and the excess of labour in the different villages as shown on both maps showing densities and excess of labour (See maps nos. 36 and 37) and this information can be of assistance in selecting sites for rural industrial sites having regard of course to such other factors as raw materials, communications and markets. (See appendix No.9)

As far as the state of labour is concerned there is a general excess of labour in every village of the 'Markaz'. The excess of labour ranges between 200 and 5,000 persons per village. In General the excess in the working population amounts to more than 30% of the total population of the District.

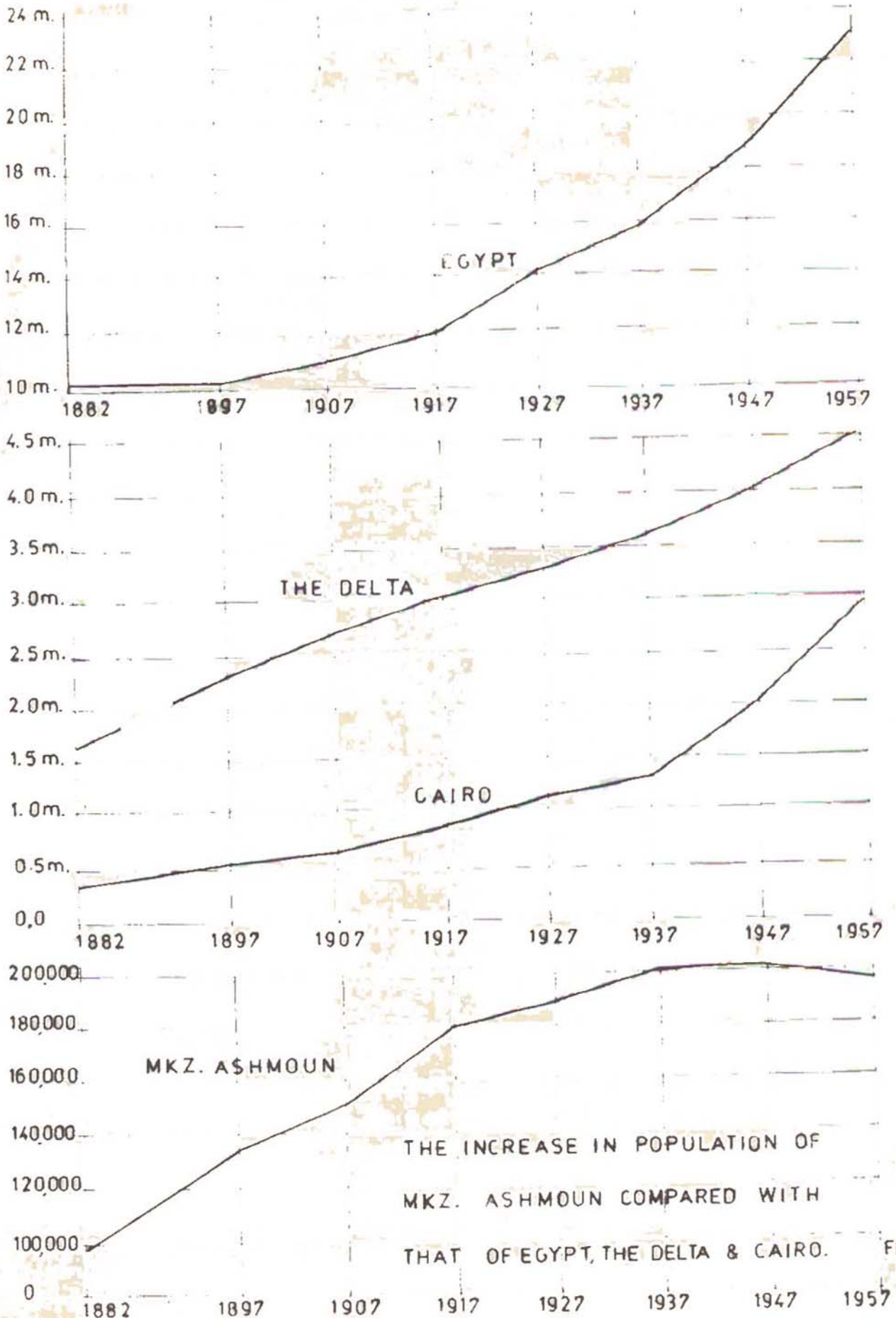
The figures given on Map No. 37 are calculated according to the method of determining the excess of labour given in Chapter VI.

The following table shows the average density of population per square kilometre and the state of crowding in 1947: (1)

Table 42. Density of Population and State of Crowding in Ashmoun

Area in Sq. Km	No. of population.	No. of families	No. of rooms	Density Pop/sq.km	Average size of family	Occupancy Rate
312.8	208,511	44,797	127,770	667	5	2 persons per room

(1) General Census of Egypt 1947



THE INCREASE IN POPULATION OF MKZ. ASHMOUN COMPARED WITH THAT OF EGYPT, THE DELTA & CAIRO.

FIG. 1

It is clear from the previous table that the occupancy rate as far as dwellings are concerned, is not so alarming. It is the extremely miserable housing condition that matters. Although the occupancy rate is relatively reasonable the housing conditions are inhuman as have been described in chapter (IV).

Although the average rate of increase in the population in Egypt is about 2.5% in the case of the Province of Menufiya which embraces the District of Ashmoun, there is a recorded decrease of 1.5% because of outward population movement from the Province. (See fig. 17). Even so, Ashmoun is still one of the most over-populated parts in the Delta.

Population and Occupation

The following table shows the classification of the population of the district according to age and sex as stated in the census of 1947:(1)

Table (43) Population: Sex and Age Groups in Ashmoun.

Age	Male	Female	Total
Less than 5 years	14,138	14,461	28,599
5 - 9	13,362	13,221	26,583
10 - 14	11,946	10,996	22,942
15 - 19	11,105	9,271	20,376
20 - 24	6,490	7,000	13,490
25 - 29	7,014	8,227	15,241
30 - 39	13,307	15,097	28,404
40 - 49	11,184	12,112	23,296
50 - 59	7,181	7,757	14,938
Over 60 years	6,619	7,647	14,266
Not mentioned	122	254	376
	102,478	106,043	208,511

The population pyramid is shown in fig. (18) (Sex and age groups for every village are shown in Appendix No.11)

The following table shows the distribution of the population in Ashmoun according to the different occupations of those over five years of age, i.e. among a population of 179, 900 inhabitants in 1947:(2)

(1) General Census of Egypt (1947).
(2) Ibd.

Table (44) Population and Occupation in Ashmoun.

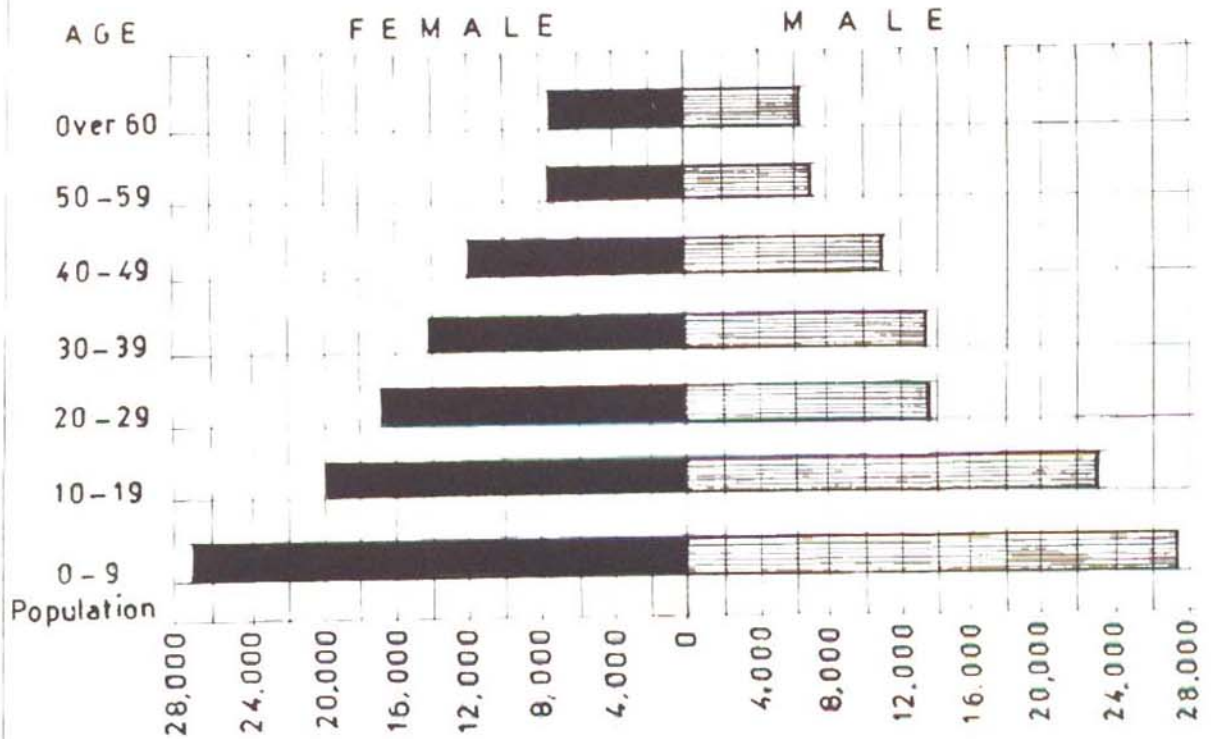
Occupation	Male	Female	Total
Agriculture & fishery	55,007	57,933	112,940
Processing industries	3,700	302	4,002
Building & construction	478	4	482
Transport & communications	806	5	811
Commerce & trade	4,003	1,527	5,530
Personal services	1,117	14,694	15,871
Public & social services	3,130	141	3,271
Other occupations	9,138	4,210	13,348
Unoccupied	10,891	12,766	23,657

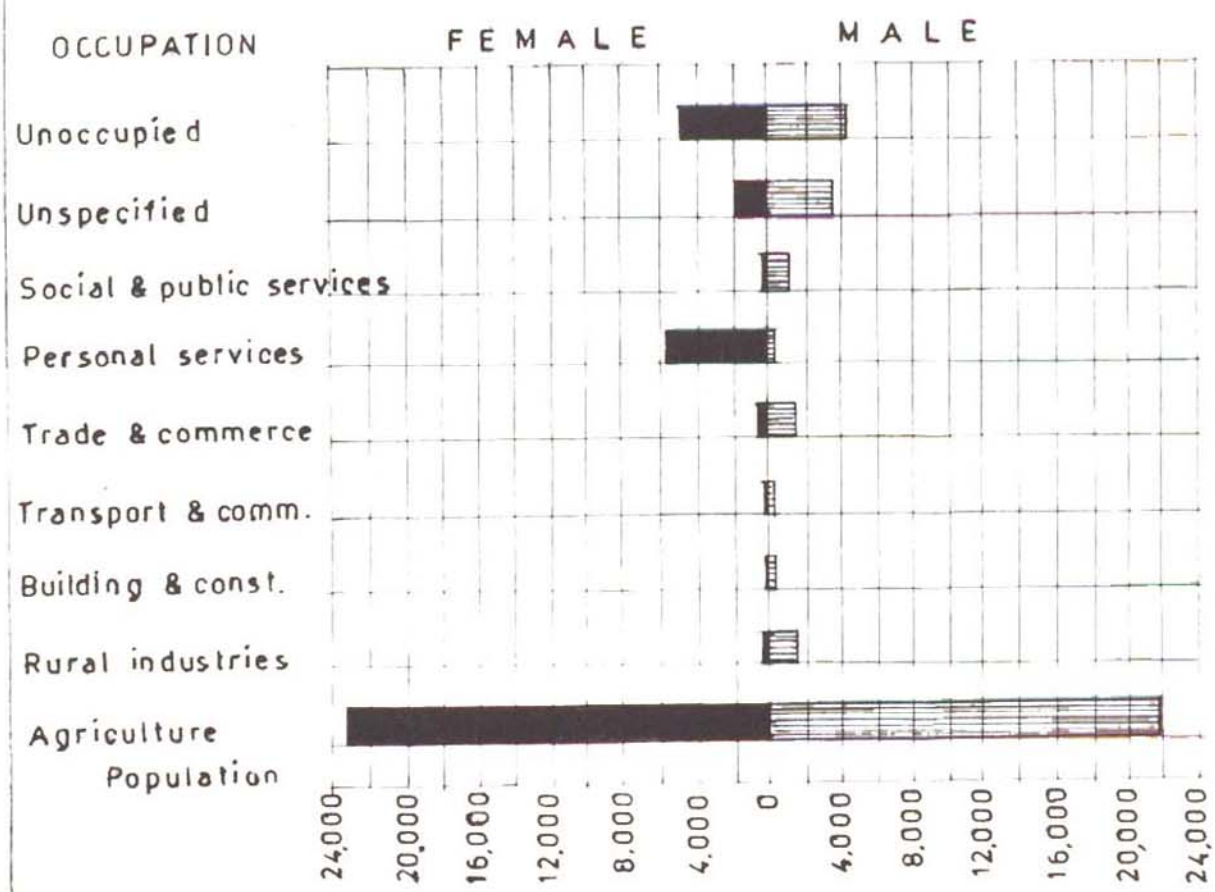
From this table (See fig. 18) we see that about 62.8% of the population are engaged in agriculture while only 2.2% are engaged in processing industries. This is against 8.8% engaged in personal services and 20% unoccupied or other non-productive activities. Furthermore there is an excess of agricultural labour amounting to 62,728 persons calculated on the bases indicated in Chapter (VI). This amounts to as much as 50% of the total agricultural labour force or 30% of the total population of the District. (Classifications of population according to occupations in every village in the District are shown in Appendix No.10).

The population engaged in agriculture are divided among the following occupations:(1)

Table (45) Occupations of Population Engaged in Agriculture in Ashmoun

Occupation	Male	Female	Total
Arable farming	54,130	7,279	61,409
Horticulture	42	2	44
Livestock breeding	84	4	88
Bird breeding	-	29	29
Cheese & butter making (at home)	17	2,709	2,726
Honey bees	44	4	48
Poultry farming	27	5	32
Domestic services (in farmhouses)	85	293	378
Personal services (" ")	-	47,045	47,045
Land lords	313	555	868
	54,742	57,927	112,669





POPULATION PYRAMID & OCCUPATION IN ASHMOUN

Fig. 18

This means that arable farming accounts for 34% of the working population while 28% (all of them women) are engaged in domestic work complemental to agriculture.

Working Season

The agricultural year, as far as labour is concerned, is characterized by a long season of under-employment. In the Delta, this under-employment season varies from one province to another. In Menoufia (the province of which Ashmoun is a Markaz) the working year is around an average of 210 days for adult male labour, 180 days for female labour and 160 days for young labour.(1) This leaves adult male labour with a forced under-employment in the aggregate of five months each year. This is the case with permanent labour or small holders. 'Zoborat', or canal labour suffers much more. This seasonal forced under-employment points to the necessity of introducing subsidiary farm industries to fill the gap and add to the Fellah's income.

The period of canal winter closure, 'gafaf' is about 40 days, and takes place around December when less work is being done in the fields. The labour then is engaged mainly on canal cleaning. The seasons of excess of work are generally the harvesting of winter crops in May and June, cotton cultivation, in February and March, pest combating, cotton picking and 'tafi-el-sharaqui' or the watering of dry land before the cultivation of maize which starts in June.

Population Engaged in Rural Industries

By analysing the population engaged in rural industries we get the following distribution according to the different types of industries in the district:(2)

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(1) Nasr. S.N. Agricultural Geography in the Delta, Research, Cairo 1953.
(2) General Census of Egypt (1947).

Table (46) Distribution of Population According the Different Industries in Ashmoun

Type of Industry	Male	Female	Total
Milling	157	2	159
Bakery	44	5	49
Sweets	31	-	31
Preserved food from vegetables	4	-	4
Meat preparation	5	-	5
Dairy produce	31	6	37
Syrups	4	-	4
Tobacco	1	1	2
Oil pressing	1	-	1
Paints	2	-	2
Carpentry (machines)	25	-	25
Carpentry	235	4	239
Furniture	57	-	57
Implements	2	-	2
Chairs	5	-	5
Basketry	48	3	51
Palm tree products	10	-	10
Printing	6	-	6
Photography	8	-	8
Saddles	23	1	24
Cotton spinning and weaving	27	1	28
Wool spinning and weaving	83	45	128
Ropes and string	4	2	6
Matting	38	-	38
Cloth and textiles	37	-	37
Carpets and rugs	13	-	13
Spinning and weaving (unlicensed)	410	7	417
Tailoring	576	23	599
Caps	4	-	4
Women's tailoring	9	114	123
Shoe making and mending	220	2	222
Others connected with clothing	6	1	7
Umbrellas	1	-	1
Sacks for cotton	2	-	2
Irrigation (general)	426	-	426
Irrigation (private, mech.)	55	2	57
Gas and electricity	2	-	2
Water distribution	33	30	63
Brick work	16	1	17
Pottery	156	14	170

Cont. Over.....

Cont. Table (46)

Type of Industry	Male	Female	Total
Metal preparation	113	11	124
Blacksmiths, coppersmiths	406	15	421
Machinery and instruments	115	-	115
Repair shops (bicycles etc.)	160	2	162
Jewellery and fine instruments	26	-	26
Other metal trades	40	5	45
Buildings and construction	282	2	284
Roads	166	2	168
Railways	27	-	27
Railway transportation	82	-	82
Road transportation	294	4	298
Water transportation	366	1	367
Communications	60	-	60
Petroleum	60	-	60

The above table illustrates the structure of the rural industries in the district and their rudimentary stage of development in spite of the unique situation of the district in relation to the large market of Cairo and the easy communications to it.

The number of people engaged in preserving foods, vegetables and fruits; dairy produce; sweets; syrups and oil pressing, is insignifacant, and there is obviously a prima facie case for the expansion of these productive and processing rural industries.

On the other hand, we find that the number of those engaged in carpentry and furniture manufacture is considerably larger although still not sufficient. The same can be said for those engaged in basketry, palm tree products, cotton and wool spinning and weaving, matting, carpets and rugs, cloth and textile. It has to be noticed that a great number of people are engaged in spinning and weaving without licenses. This fact shows the great demand for this kind of rural industry and the need to rationalise its development.

The manufacture of caps and straw hats is nearly unknown in the district in spite of the great need for this kind of head gear as protection from the burning sun. Here is another prospect for the rural industry to flourish.

The electrification of the rural areas and the extension of supplies water will employ a greater number of labourers than the few (65) now engaged, and give a great impetus to rural industries.

Another type of industry in the district, which has been considerably neglected is the brick work industry which employs only 17 labourers. This is one of the main industries to develop if rural reconstruction is to be achieved.

The greater number engaged in preparing metals and the manufacture of simple equipment from copper, tin and other metals could become the nucleus for the establishment of an industry in the region devoted to the production of kitchen and other household utensils.

Improving the ways of communications by building new roads will help, to a great extent the progress of rural reconstruction as well as the absorption of more workers.

Using this analysis of rural industries as the starting point, the distribution and the policy of establishing rural industrial centres in the district can be pursued on the lines of the recommendations discussed later in this Chapter.

Social Classes

The social strata in the Markaz have been analysed according to Dr. Nasr, by classifying the population in different social classes according to their land holding and Annual income[1] as follows:

---

(1) Giving £E 50 of output per feddan per annum.

Table (47) Population of different social classes in Ashmoun.

Class	Size of holding (feddans)	Average Annual Income	% of Total
Low (a)	Less than 1	Under £E 50[1]	44%
Low (b)	1-2	£E50-100	29.2%
Middle (a)	2-4	£E100-200	21.0%
Middle (b)	4-10	£E200-500	2.1%
High (a)	10-20	£E500-1000	2.1%
High (b)	Over 20	Over £E1000	1.6%

From the above classification we see that in the district over 94% of the holders own less than four feddans each and have an income, from the land of less than £E200 per annum. Only 4.2% of the holders possess farms of between 4 and 20 feddans and the rest (1.6%) possess holdings of over 20 feddans (See fig. 19).

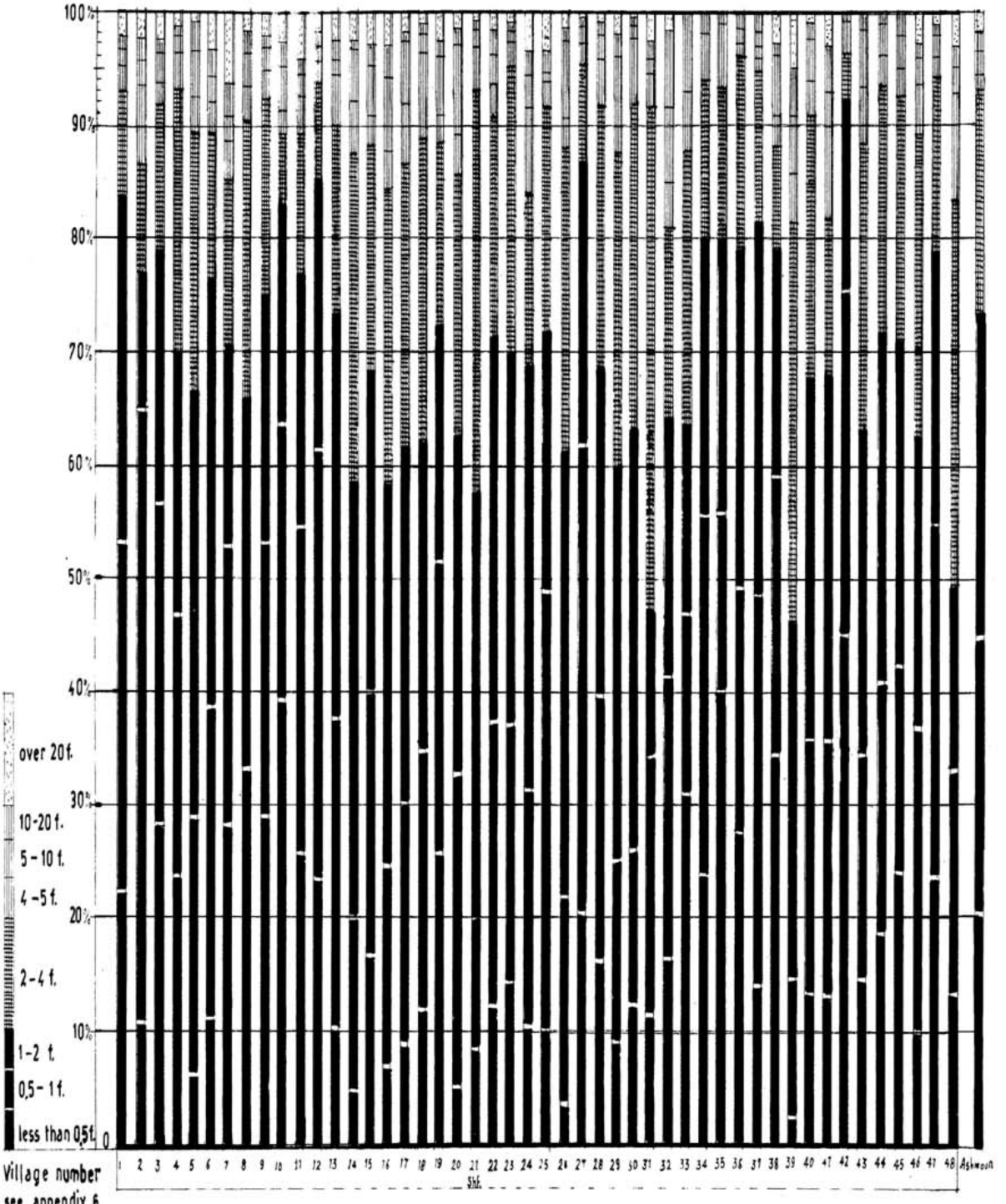
More than 70% of the holders of less than 2 feddans provide the major part of the labour force. Moreover, there are many (35% of the total population) who rent land but own none themselves and their plight is usually even more serious than that of the poorest owners.

(e) Education

The district is served by a secondary school for boys in the town of Ashmoun. Another secondary school for girls is also to be provided. In addition there are two preparatory stage schools (12 to 15 years), one for boys and one for girls in the same town and a similar school for boys in the country town of Samadoun.

Markaz Ashmoun is also served by about 79 primary mixed schools (first stage 6 to 12 years compulsory). Six of these schools are in the town of Ashmoun. (See Appendix No.13 & map No.33).

(1) The 1949 'Agricultural Statistics' gave £E 23 and £E 70 as an average income per holder of the very low and low classes respectively.



DISTRIBUTION OF LAND HOLDINGS IN MARKAZ ASHMOUN

Fig. 19

The following table shows the different types of schools in the district together with the number of classes and the number of students in each school in 1957-1958.(1)

Table (48) Types of Schools and Number of Classes and Students in Ashmoun.

Type of School	Boys			Girls			Mixed			
	a No. of Sch.	b No. of classes	c No. of Stud.	a	b	c	a	b	boys	girls
1. Primary	21	147	5,784	13	79	2802 62	48	290	7508	3700
2. General Preparatory	5	62	1,805	2	12	276	-	-	-	-
3. Agricultural preparatory	1	21	642	-	-	-	-	-	-	-
4. Secondary general	1	23	683	1	3	42	-	-	-	-

This table gives a total number of 516 classes accommodating 19,856 pupils in the primary schools, (See appendix 13) 74 classes accommodating 2,081 pupils in the general preparatory schools, and 26 classes accommodating 725 pupils in the general secondary schools. This gives an average of 35 pupils per class in the primary schools, 28 pupils per class in the general preparatory schools. All the schools, apart from two private schools, (2) are under government management.

The preparatory schools are distributed as follows:

1 - Ashmoun (boys)	13	classes with	386	pupils
2 - Ashmoun (girls)	7	"	" 250	"
3 - Samadoun (boys)	9	"	" 289	"
4 - Sintris (boys)	13	"	" 384	"
5 - Shanshour (boys)	10	"	" 275	"
6 - Ramlet El-Ingib (boys)	4	"	" 100	"

Two of the general preparatory schools and the agricultural preparatory school are in the Barrage town which is outside the district boundaries of Ashmoun although serving children from this district. The two secondary schools are in the town of Ashmoun.

(1) Education census in El-Menubiya (1957-1958, Sliebin El-Kom Education Division (1959).

(2) The private schools are, of course, under government supervision.

To indicate the recent progress in education in the district, it must be mentioned here that the number of pupils in the primary schools have risen by 28% between 1954 and 1958.

From the financial point of view the primary school pupil costs the country about £E 10 per annum. In the preparatory school the costs are £E 18 for a boy and £E 31 for a girl. In the case of technical preparatory schools the per head expenses are £E 48. This figure is reduced to about £E 30 for boys and £E 97 per annum for girls in the general secondary schools.

In the hygenic field the conditions of the schoolchildren are very poor. It was found that 46% of the pupils of the primary schools in the district suffer from bilharzia and 39% from parasitic diseases. These percentages are 52 and 41 respectively in the preparatory phase and 67 and 54 among the pupils of the secondary schools. This means that about 50.5% of the pupils in the district suffer from bilharzia and 43% suffer from parasitic diseases.

As the average size of the family in Ashmoun is 5 persons of whom 0.75 persons are at the age of compulsory primary education, we find that the district needs schools to accommodate about 30,000 children. If we consider that a school of 6 class-rooms with 240 pupils is a reasonable size to serve a community of 1,600 inhabitants (240 x 4/3 x 5), then the district should be served, theoretically, by 125 primary schools. This figure illustrates the great need for expanding the primary educational institutions in the area. There is also a great need for adult education to combat illiteracy in the district as about 80% of the population were illiterate in 1947.

The following table shows the state of education in Ashmoun according to the 1947 statistics for inhabitants over five years old:

Table (49) State of Education in Ashmoun.

Sex	Number	Illiterates	Literates	Unknown
Male	88,330	59,094	26,056	3,180
Female	91,582	79,835	7,596	4,151
Total	179,912	138,929	33,652	7,331

The term 'literate' is usually given to the person who can only write his name in front of the census official. This means that there are many of the literates who are actually illiterate.

(ع) Health

The hygenic conditions in Ashmoun, although similar to those prevailing in the Nile Delta, are comparatively better. This is due to the provision of more medical services than in many districts in the Delta.

The main diseases which prevail in the district are those of bilharzia, malarya, and parasitic diseases. It was found that from the 1625 deaths reported in 1947(1), 520 (30%) cases were caused by diseases of the digestive system, 298 (18%) cases caused by diseases of the respiratory system, 102 (6%) cases caused by infective and parasitic diseases, 92 (5.5%) cases caused by diseases of the nutrition and glands, and 73 (4.6%) cases caused by diseases of the urinary and genital systems.

The Markaz of Ashmoun is served by eleven hospitals; (See map No. 33) three of them are situated in the town of Ashmoun. There is a clinic in each of the following country towns:- Shama, Shanshour, and El-Gannamiya. This is in addition to a medical bureau, for registering births and deaths, in the town of Ashmoun, Sintris, and Shatanouf.

The following table shows the capacity of hospitals and clinics in the district:

Table (50) Hospitals' Capacities in Ashmoun.

Hospital	No. of beds	Additions
1-Ashmoun General Hospital	38	Out patients' clinic
2-Ashmoun Eye Hospital	12	" " "
3-Tropical (local) Diseases Hospital in Ashmoun	20	" " "
4-Tropical (local) Diseases Hospital in Sintris	20	" " "
5-Collective Unit Clinic - Greis	14	" " "
6- " " " - Shatanouf	14	" " "
7- " " " - Tahaway	14	" " "
8- " " " - Saqiet Abu-Shara	14	" " "
9-Ghannamiya Health Centre	24	" " "
10-Shama Health Centre	13	" " "
11-Shanshour Health Centre	25	" " "
Total	208	

(1) Vital Census of Egypt, 1947.

This gives an average of one bed per 1000 persons in the District.

Public health and sanitation targets have been briefly set forth by the Council of Public Services as follows:

1 - Health Units to be established in each unit of a population of about 100,000 inhabitants. The staff are as follows:

a. One medical officer of health.
b. One woman medical officer.
c. Four sanitary inspectors.
d. Eight midwives.
e. Four health visitors.

2 - Each unit to have a hospital with an adequate number of maternity beds, on the basis of 4 beds for every 1000 persons. This makes the size of the hospital of about 400 beds.

3 - A dispensary and a maternity home for every 1000 persons.

4.- A doctor and a nurse for every 1000 persons.

5 - Improvement of rural housing with a development plan for each village.

6 - Rural sanitary improvement.

7 - Maternity and child-welfare have to be taken up in every village. Where child-welfare centres have been started, these could ~~be~~ easily become birth-control clinics.

(g) The Redevelopment of the Markaz

The Markaz as a whole will form the administrative unit on which the major development proposals will be based, such as those relating to main communications and the distribution of principal hospital and health facilities, and the establishment of Rural Industrial Centres, whilst local planning problems will be tackled within the boundaries of the Planning Units.

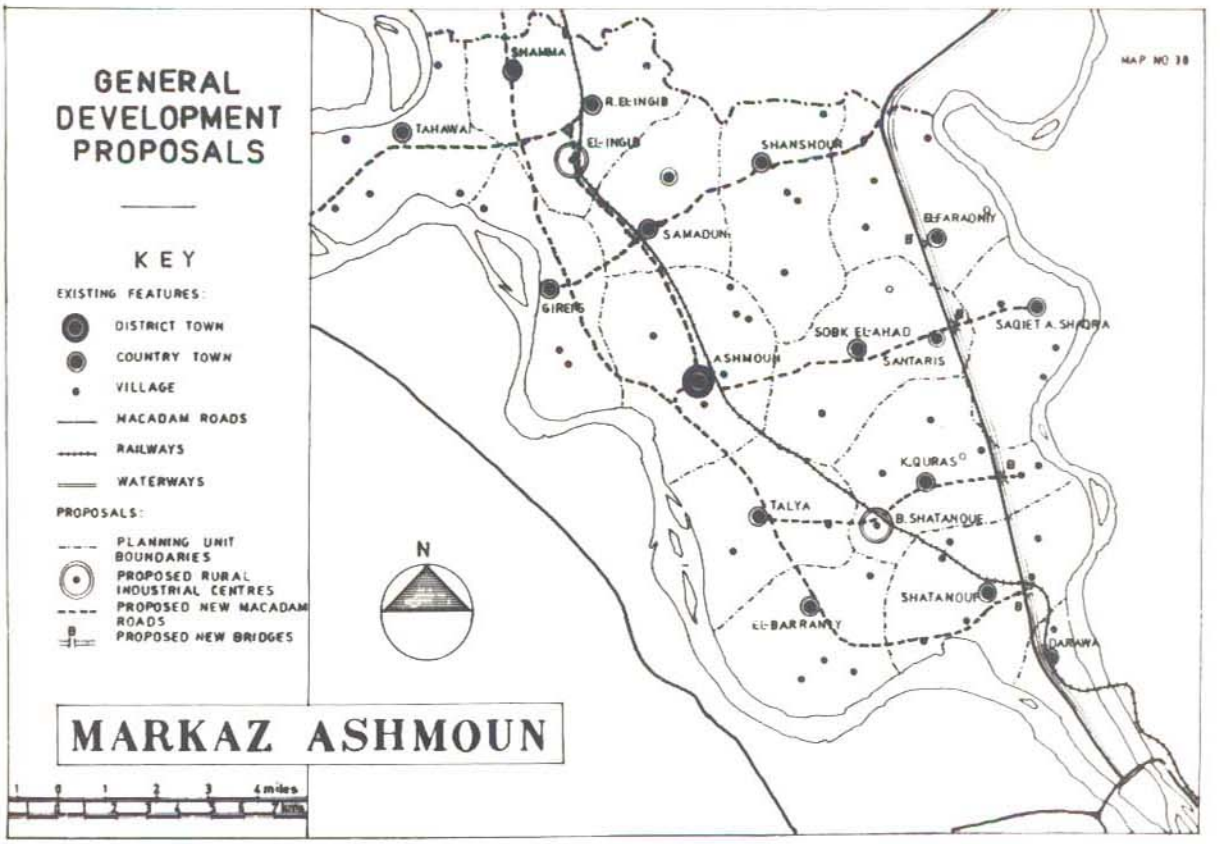
Communications

The railway line which runs from South to North through the Markaz is the backbone of the system of district communications connecting the Markaz with neighbouring districts and areas. As the only constructed road runs along the Ravah El-Menufi canal in the eastern part of the district, there is a need for a similar means of transport in the western section. The construction of a road branching from the Rayah El-Menufi route south of Shatanouf and connecting Shatanouf, Talya, Ashmoun, Samadoun, and Shamma is essential to serve the western part of the district. This road could be extended to the district town of Minuf in the North. (See map No. 38).

There is a marked absence of direct east-west routes across the district, and three such roads should be constructed. The first, in the northern part of the district, should connect Gireis, Samadoun, Shanshur, Qalata el Sugra, and then join the main road along the Rayah El-Menufi canal. (See map No. 38)

The second should connect Ashmoun, Sobk El-Ahad, Santaris, and cross the Rayah El-Menufi to Samalai and Saqyet Abu Shaqra. The third road to be constructed would run from Talya, Buhet Shatanouf, Kafr Quras, and then cross the Rayah El-Menufi to El-Neenaya. The lack of bridges across the Rayah El-Menufi canal isolates the eastern parts from the rest of the district. The provision of bridges over this canal is recommended at the four points shown on Map No.(38).

The overall net of communication within the district should be designed to connect the district town of Ashmoun with the different country towns which are to serve as centres of the planning units, and also to connect the main centres with outside areas. Communications within the boundaries of the individual planning units, should be dealt with separately as explained under the heading of 'Planning Units'.


GENERAL DEVELOPMENT PROPOSALS
KEY
EXISTING FEATURES:
DISTRICT TOWN
COUNTRY TOWN
VILLAGE
MACADAM ROADS
RAILWAYS
WATERWAYS
PROPOSALS:
PLANNING UNIT BOUNDARIES
PROPOSED RURAL INDUSTRIAL CENTRES
PROPOSED NEW MACADAM ROADS
PROPOSED NEW BRIDGES
MARKAZ ASHMOUN
N
MAP NO 38
SHAMMA
R.EL-INGLIB
TAHAWAI
EL-INGLIB
SHANSHOUR
SAMADUN
EL-FARADNY
GIRERS
SOBK EL-AHAD
SAQIET A. SHADRA
ASHMOUN
SANTARIS
K.QURAS
TALYA
B.SHATANOUF
SHATANOUF
EL-BARRAMY
DARAWA
1 0 1 2 3 4 miles

Rural Industrial Centres

The District should be served by two rural industrial centres each serving about 100,000 inhabitants. These centres will comprise large-scale rural industries as part of a scheme for industrializing the rural areas in the Delta. These are, of course, different from the local rural industrial units which should be provided in every country town or planning unit centre.

The new sites for these centres should be served by good and adequate means of communications. The provision of labour is also another factor to be taken into account in selecting sites for these centres. Raw materials will naturally come from all over the district. The cultivation of orchards and vegetables in areas near these centres could also be considered. El-Ingib in the north and Bouhet-Shatanouf in the south would appear to be two reasonable sites for these centres. (See map No.38).

Health Centres

The District is to be served by one major health centre in the town of Ashmoun. This is besides the medical services provided by the Collective Units in every planning unit.

Planning Units

The division of the District into several planning units will be carried out on the general basis adopted in connection with the Collective Unit divisions. But in the case of the planning unit divisions more consideration of physical factors relating to land holding and 'journey to work' inducements will be involved; for example certain holdings in a particular village area might be more easily served from a neighbouring village administration within the area of an adjoining Collective Unit. In such cases the boundary of the Planning Unit should be so arranged as to rectify such an anomaly. Where such cases occur in relation to village administrative areas within the Planning Unit, as they do for example, in the case of the Shatanouf village unit, no practical difficulty really arises, and, therefore, no alteration of a village boundary is called for - in fact for practical planning purposes village boundaries within the Planning Unit should be ignored. Where, however, a village boundary forms part of a Planning Unit boundary care in the definition of this boundary is called for. The boundary should lie between neighbouring villages near the perimeter of the different adjoining Planning Units and be so positioned as to give appropriate service areas to the villages concerned, having regard to their respective population sizes as well as to relevant topographical factors. (See map No. 38).

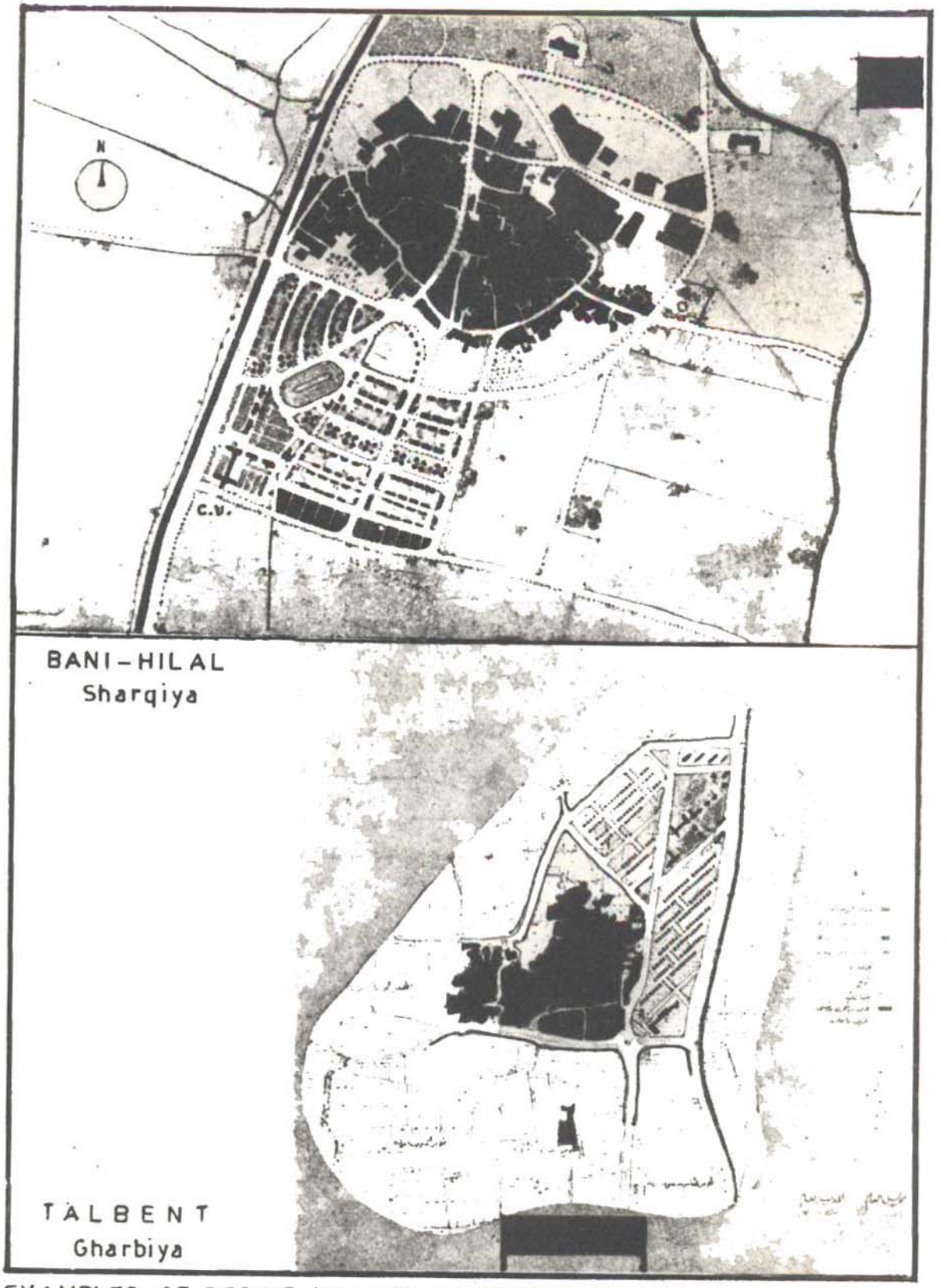
CHAPTER X

CHAPTER X

VILLAGE PLANNING PRINCIPLES

Introduction

Village replanning in Egypt has been the subject of many disputes in the past ten years. Many trial policies have been debated and a number of experiments have been carried out in this field but without any solid or well-established results. The government authority dealing with this operation is the Planning and Housing Department in the Ministry of Rural and Urban Affairs. This Department is responsible for dealing with the replanning of more than four thousand villages in the country. This is by no means an easy task especially as it has to be carried out by a single central department in Cairo. In the replanning schemes carried out so far, old villages were completely avoided and new sites were chosen for future extensions. See fig. (20). Unfortunately these schemes were put into effect without adequate surveys or consideration of the deep rooted problems of the rural structure. Moreover, we are confronted by a great shortage of trained planning personnel capable of dealing with this large number of villages and the complex problems to which their redevelopment gives rise. So far village planning has been dealt with in its narrowest sense. The village was looked upon as a problem limited to the area only of its built-up parts. Although many social surveys and much kindred research has been carried out over wide rural areas, economic and planning research, in contrast, has lagged behind. This has meant that social research has not yet been of any great practical use, except in the establishment of public and social services institutions. One great factor has been consistently ignored in village replanning in Egypt. This is the cultivated land itself which is the main source for survival not only for the rural population but of the whole country. Unless the standard of living of the population is raised as an outcome of an increase in the national income there can be little hope for any adequate plan for rural reconstruction. The problem with which Egypt is now faced is one of the land as much as it is of the people. In fact land and man are closely integrated in the case of rural Egypt, and village planning there should be based on this fact. The new plan should give a chance for progress and development not only for the community but also for science, technology and research.



EXAMPLES OF RECENT VILLAGE EXTENTION PLANS

FIG. 20

It is the duty of the planner to show the community with which he is dealing the facts and the consequences which may develop from the new plan. For any new plan to be carried out, this is the most difficult starting point as far as the Fellaheen are concerned. Then comes the main part for the fellaheen to play in this connection. Unless they are aware of the problem confronting the country, no concrete results can be gained. It is mentioned in the holy Koran that, 'God does not change what is in the people unless they change it themselves'.

Geddes said,(1) when talking about the transition in an Indian city, that the problem of city planning, as of chess, is to improve the situation by, as far as may be, turning its very difficulties into opportunities. Results then obtained are both more economical and more interesting, even aesthetically than those that are achieved by clearing the board and resetting all the pieces.

The main object of the new plan is to be human in its character and natural in its growth. The new plan is to deal with the Fellaheen and their community as a part of nature. The village is more sensitive an organism than the town and needs more delicate treatment. Every change within it would be reflected in the daily lives of its inhabitants.

Proposed Rural Planning System

Before approaching the problem of village planning in the Nile Delta one must examine the existing pattern of rural settlements. It is obvious that settlements of different sizes came into existence in the past naturally as the result of differing functions and to satisfy different needs. A similarly logical basis must be behind any deliberate reorganisation of the settlement pattern, and the problem is to establish relationships and distribute functions among those settlements which are suitably placed, in such a way as to meet the wider and more varied range of present-day human requirements.

The present pattern of rural settlements in Ashmoun shows the existence of a distinctive grouping of settlements. Every group comprises a country town of more than 5,000 inhabitants and a number of villages with their hamlets lying in the sphere of influence of this town. This sphere of influence is in the nature of marketing or the social services of the Collective Centre of the country town.

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(1) Tyrwhitt, J., Patrick Geddes in India, London 1947, P.41

The introduction of the co-operative farming system in the countryside will lead to the creation of a small number of new co-operative settlements or hamlets of a primarily residential nature, and also to the redevelopment of the existing villages and country towns to suit the new farming system. The siting of the hamlets will depend, to a great extent, on the system of land divisions (hods of 100 to 150 feddans) and the type of holdings they comprise. The siting of the new hamlets and the redevelopment of the existing villages and country towns must be, therefore, planned according to a definite system of relationship between the different types of settlement. It is, therefore, necessary to develop a system of planned relationship between the country town, the village, and the hamlet. A planning unit comprising the country town as a centre with a number of 'village clusters' round it could be the basis for a new planning system. Each 'village cluster' is made up of a large village - the mother village - and a number of hamlets round it.

The country town which will be the centre of the village clusters would serve as the market town, the administrative and commercial centre, the social and the cultural hub of the whole area. In this case the Collective Centre will provide most of these services.

The size of the planning unit, therefore, should be the same as that of the area served by a Collective Centre and comprising 15,000 inhabitants. This fact will give the Collective Centre more importance in the field of rural planning in the Delta.

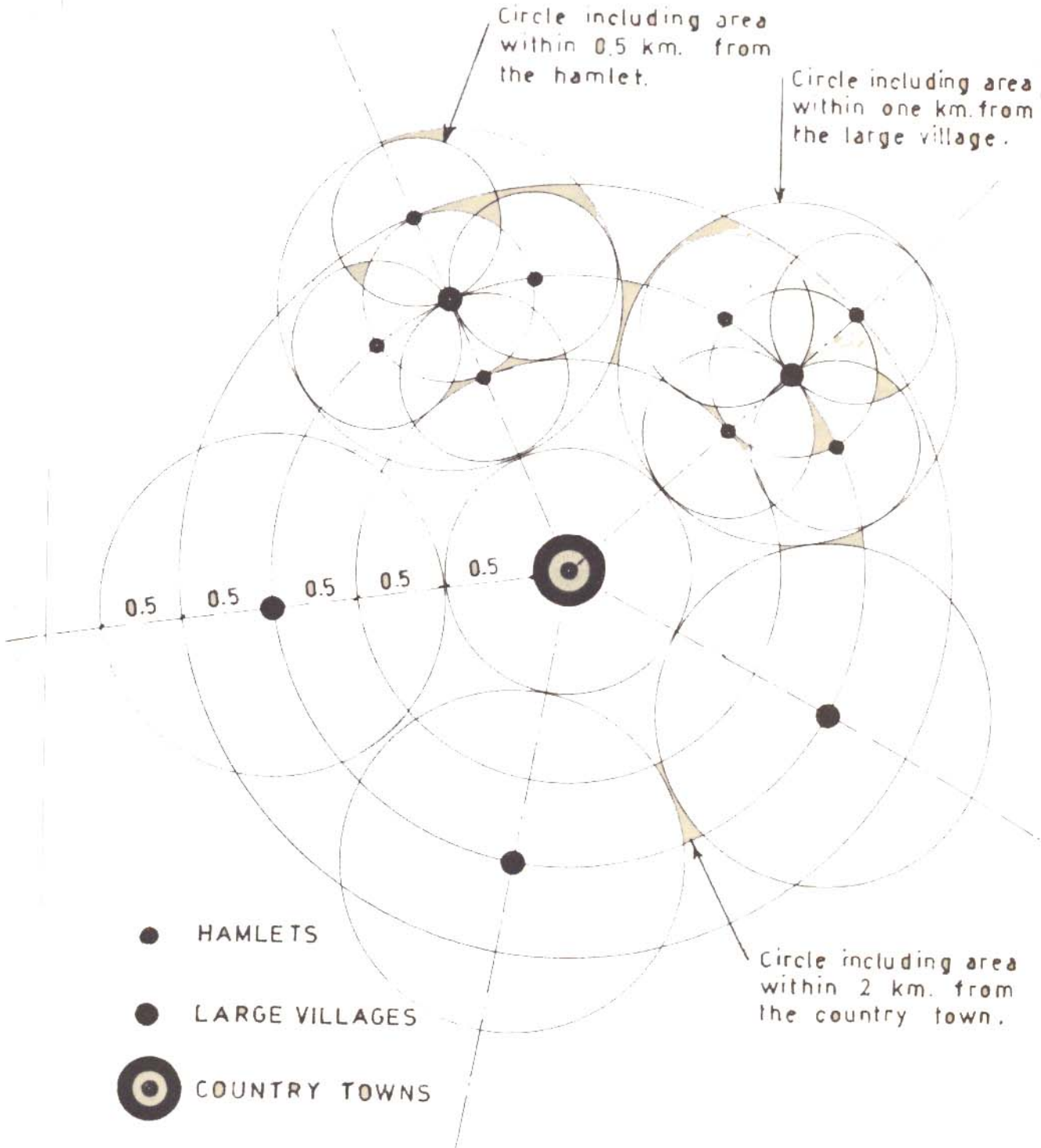
The planning unit will constitute an independent administrative division and comprise a rural industrial unit. Any scheme for rural redevelopment inside the boundaries of the planning unit could be carried out regardless of the existing village boundaries within the planning unit. The planning units' boundaries are to be considered as those of the existing areas served by the Collective Centres unless good reasons call for some alteration of the existing boundaries, having regard, for example, to the means of transport and communication. The general effectiveness of the new system will be largely dependent upon having adequate transport facilities between the large villages and the central country town and from there to areas outside.

Due to the high density of population in the Delta countryside, and its concentration in a large number of relatively well-populated centres at close intervals, the average village cluster in terms of total population is sufficiently high to support one or more primary schools on the basis of 1200 of total population per school as a general standard of provision.

The size of a cluster, (See fig. 21) in terms of physical extent, is to be based on the idea that ½ kilometre is the maximum reasonable distance for people to have to travel to work, shops, or schools in a rural area like that of the Nile Delta where means of communications are notably poor. From the settlements forming a ring around the larger one, the whole area of the cultivated land can be reached within the suggested ½ kilometre limit. This makes it possible for housing to be sited within, or closely related to, nucleated settlements, without making necessary an unreasonably long journey to work. It also makes it possible for a farmer to change his place of work, within a fairly wide area, without having to change his house. Moreover this system will make it possible to relieve the larger villages and country towns from the state of congestion which now characterises them.

In these proposals the idea of agriculture as the basic industry, the means of production being the farms and fields, has to be kept to the forefront. Thus the residential villages and hamlets are surrounded in each case by a 'production zone', highly developed for use by the basic industry of agriculture.

The creation of the planning unit will eliminate the difficulties which might arise if each village unit were to be redeveloped individually and treated as a separate administrative unit from the point of view of planning. In many cases a village may be situated near the administrative boundary of a neighbouring village, and farmers from the first village may well be working within the boundary of the second village. In cases like that it would be unfair to prevent the farmer from working on the land nearest to his house if he is already doing this. To achieve the co-operative farming system with the minimum difficulty the village built-up area would best be situated in a physical sense in the centre of the land cultivated by inhabitants of the particular village; this means that, wherever necessary, existing village boundaries can be ignored in seeking to achieve the primary purposes of the system.



RELATIONSHIP BETWEEN THE DIFFERENT SETTLEMENTS IN A PLANNING UNIT

THE DIAGRAM IS BASED ON 0.5 KM. UNITS

Fig. 21

In spite of the advantages which the new settlement pattern has to offer, the theory of dispersion has, on the other hand, its defects. The main defect of the scheme is the decentralization of services instead of their centralization especially in a rural area such as that of the Nile Delta which at present has such poor public services. In England, the general rural planning policy favours centralization and the creation of larger rural settlements so as to make it easier for the local authorities to provide them with the maximum practical measures of public services. But in the case of the Delta it must be remembered that in the rural settlement pattern the distances between the settlements are considerably shorter than those in an English rural area. In this case, the public services of the larger villages, such as schools etc., will be within easy access of the few dispersed hamlets. So far as piped services are concerned, such as water supplies and sewerage, the provision of such services is not likely to be on anything like the same scale as that contemplated in England; for example, greater reliance will be placed on the use of septic tanks even in the large villages and the pump and existing public water supplies will continue to be the main source of water supplies both for villages and hamlets for many years to come.

The Site Problem

The problem which first confronts the planner is whether to choose a new site for the village and build a good one there, transferring the population as it grows or whether to impose a new layout on the existing village. It is not practical to choose a new site for the whole village, the planner will have to decide whether part of the village can be destroyed and a new village centre planned, or whether the centre can be placed on undeveloped land at the side of the existing village. The object of moving the centre would be to develop the new village around the new centre. The few buildings worth preserving are to be considered in the new plan.

So far as sites are concerned, many suggestions have been put forward for creating new villages near the old ones thus involving the evacuation and demolition of the old villages. This is the method adopted at present by the planning authorities in the Government. This is not the best solution of such a complicated problem. As Geddes put it,(1) the objective should be to improve the situation by, as far as may be, turning its very difficulties into opportunities. The human side of the problem as well as the economic side should be considered with respect to land uses. There is no place in this context for the imposition of a theoretically conceived 'new village' plan in the form of a new and alien intrusion alongside the old village. There must rather be a strong and active belief in the theory of natural growth and development.

In facing such acute problems one must face the facts as they are before embarking upon any radical changes.

Village planning, as well as town planning, should be regarded as a dynamic process - a form of growth and progress. The under-developed community should be treated both physically and psychologically rather like a growing child. We must realise that the Fellah is devoted to his land and loves and worships the place where his ancestors worked, lived and died. The Fellah cannot accept the a sudden change in his life but he may well accept the logical development of a well-conceived plan as an expression of his strong belief in 'Qadar' (Fate).

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(1) Tyrwhitt, J., Patrick Geddes in India, Lund Hamphries, London, 1947.

The social and economic factors make it essential that the new plan of the mother village should be laid over the existing one. This is most suitable from the physical point of view where many buildings and services can be preserved to make the plan more practical and realistic, and where advantage can be taken of the existing fine trees and fruitful orchards. Moreover, a considerable quantity of building materials will be of use if the demolition of the old buildings is carried out carefully. On the other hand, the choice of a new site for a new village would involve many administrative and legal difficulties bearing in mind that new sites will cover many small holdings of very fertile land, which should be used to its maximum capacity.

In addition to these factors we find that the government has already built many social, health and cultural centres in many villages throughout the country, and plans are in being for very many others to be built. Moreover, the irrigation schemes which cover the whole country with a net-work of irrigation canals have been arranged to serve the pattern of existing villages. The same can be said of the transport and communication systems.

These factors and many others leave no doubt that the new plan of the mother village should be designed in the form of a redevelopment scheme for the existing site.

Due to the great value of the cultivated land the extent of the new plan should be kept to a minimum. Upward extension - two-storey houses - is the answer. In the case of the new hamlets to be built, their areas could be deducted from those of the large villages and country towns since suitable existing built-up sites within the villages could be made productive - since the existing buildings are themselves mainly earth.

Redevelopment Methods

The starting point in the re-development procedure is the land, the source of life for the rural community. From the survey carried out in this study one can classify land holdings into three categories : (1). small holdings less than five feddans, (2). medium sized holdings between 5 and 20 feddans and (3). large holdings of more than 20 feddans. It has been noticed before that holdings of less than 5 feddans are uneconomically cultivated, especially when dispersed among different plots. In this case consolidation of the plots will not, in itself, lead to a satisfactory result unless they are combined with other holdings in some sort of co-operative farming system, in order to get the highest output from the land.

The second category of holdings between 5 and 20 feddans can be considered sufficiently economical to be left for cultivation by their owners, though some consolidation of these holdings may be necessary wherever undue fragmentation has occurred. This group of holdings will constitute, therefore, a second feature in the agriculture structure and consequently of the new plan.

The third category of holdings over 20 feddans will be considered as large holdings which need labourers with housing accommodation usually outside the village proper.

Consolidation of dispersed plots or fragmented holdings must be carried out whenever possible for the sake of achieving the maximum possible output.

This first step in re-planning will dictate the new plan of the whole village according to the division of its land into the three different types of cultivation: a. co-operative, b. individual private holdings of medium size, and c. the larger land estates. With respect to the classifications of land comes the classifications of man. The population of the village will then fall into three land-owning categories, there being small landowners, medium landowners and big landowners and a fourth group in the form of labourers serving the large holdings.

The next step is to consider the structure and the character of the existing rural settlement, its housing conditions and the quarters occupied by each of the above mentioned groups. In this connection great attention must be given to the social structure of the community. From such an investigation we can decide how the classified land can best be managed and consequently establish the proper

relationship between man and place of work. In the light of this knowledge we can decide who should stay in the mother village and who would be better located on new sites for small villages or hamlets to meet the needs of the new arrangement of land holdings. The wishes of the people and their ability and readiness to move is an important factor on which the planner should be informed beforehand. As far as Ashmoun is concerned it should not be difficult to stimulate the necessary movements of population provided that these are carried out within the village boundaries on sites within easy reach of the mother village.

The planning of a new settlement outside the mother village will not be a matter of great difficulty as far as physical planning is concerned. The difficulties to be faced in this connection will be the requisition of land for the new sites, and the problem of finance and building materials for the execution of the scheme. The sites of couse will be quite small, probably no more than two feddans, and therefore the difficulty of land requisition should not prove a serious obstacle. The main problem, so far as physical planning is concerned, will be that of the mother village.

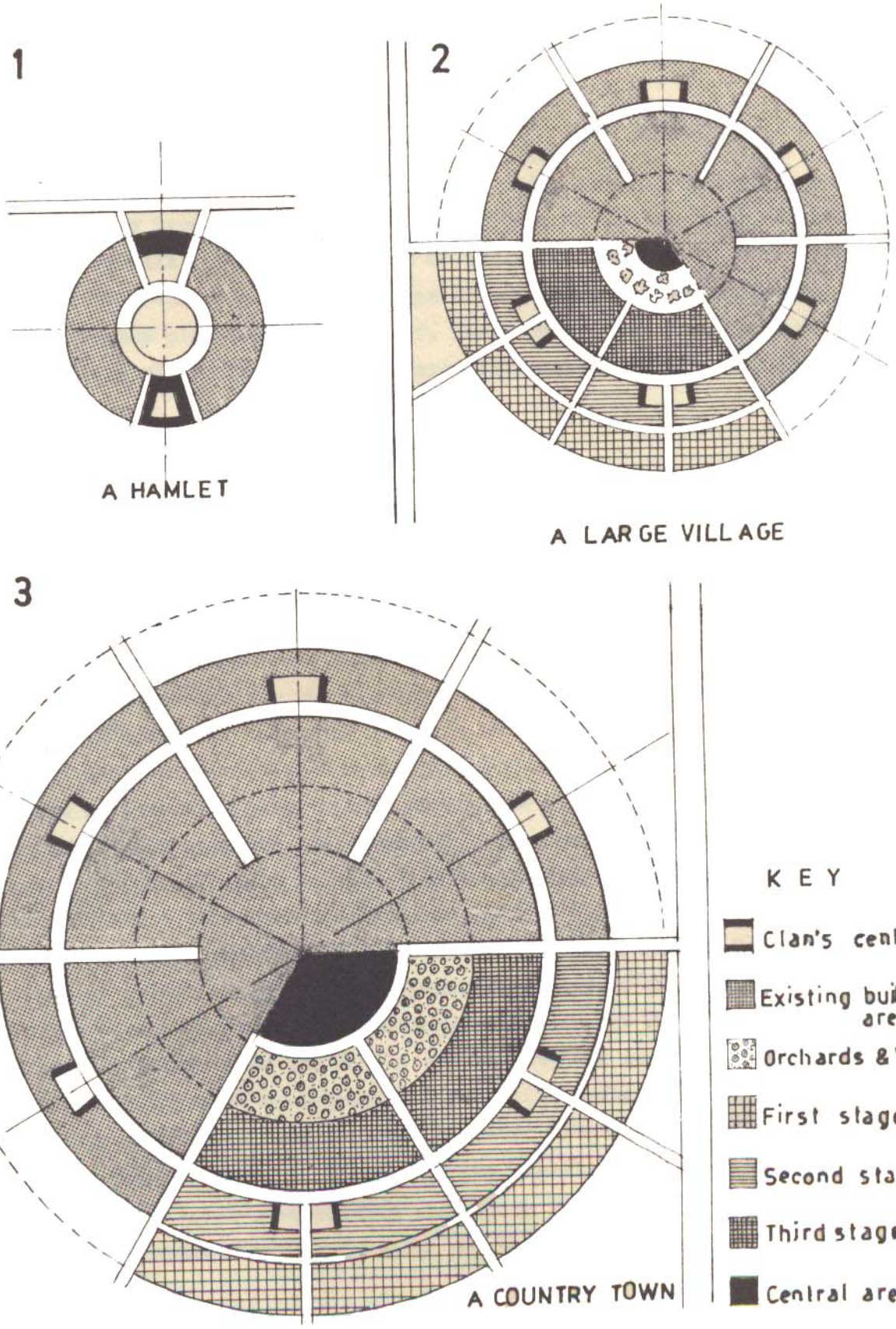
The inhabitants of the new hamlets will naturally come from the large villages and the country towns. This will help in the thinning out of the larger settlements and their reorganisation into more clearly defined quarters, also in reducing the fire risk and other defects of overcrowding which at present characterize the existing congested villages, and thereby offering the opportunity to create a more healthy environment for their inhabitants.

From the planning point of view the hamlets will fall under two categories. The first will be those occupied by labourers from the large farms and the second by new settlers from the large villages who adopt the co-operative farming system. The physical planning of both types will not vary much. In both types the communal buildings will be surrounded by the residential part of the hamlet.

The larger village is to undergo a different process of development. The existing ring road will remain as the chain linking the different clans or quarters centred together. Every quarter or sector will be divded into three parts; one part outside the ring road and two parts inside the ring road. (See fig. 22) The method of development will pass through three stages. The first is to develop

a new built-up area adjacent to the outer part of the village sector so as to accomadate overspill from this part. The area of the first part will then be redeveloped to accomodate people from the second part of the sector. The area of the second part of the sector will also be redeveloped to replace the third part which will eventually be left as an open space to comprise the new communal establishments which ultimately should be transferred from the outskirts of the village to its new centre. All the radial streets will consequently lead to the new central area. This means shifting the existing village's sectors one step to the outside of the built up area without very much change in the relationship between the clan centres and their corresponding built-up areas.

In the case of the country towns, the same steps could be adopted. But in this case the open space replacing the inner part of the village residential sector will create a belt of open space round a larger centre comprising the commercial, the administrative and the communal buildings. (See fig. 22) This belt of open space could be cultivated with fruit trees or vegetables to satisfy the needs both of the community and of certain types of the new industries to be introduced into the country town.



REDEVELOPMENT METHODS

FIG.22

The Character of the New Plan

The classification according to land tenure and consequent population grouping will dictate the type of housing required as well as its appropriate grouping which, in turn will determine the form of settlement plan. The character of the new plan will also depend on the type of settlement according to the system adopted in the planning unit, i.e. 1. The country town (in our case it will be the village of Shatanouf) 2. The large (or mother village) and 3. The hamlet or ezba.

a. The Hamlet

As far as the new hamlets and farm buildings are concerned these will fall into two types according to the nature of farm holdings in the area concerned. Where a single large ownership is involved they will assume basically these present forms as already described. They would, however, be run on lines similar to those adopted in the areas under control of the Land Reform Department which have been discussed under the heading of 'Land Reform' in Chapter II. and will house the agricultural labourers on large estates. The new type of hamlet which is to be created in cases where small landowners adopt the collective farming system by investing their small holdings in a large estate of about 150 feddans controlled and governed co-operatively, will be expressive of the communal life of its inhabitants. In this type the family - as a component of the new social structure - will, nevertheless, be able to enjoy a semi-independent life. While it provides the necessary labour for the co-operative farming, it enjoys the right of using its share in the general output of land. Every family can, within its capacity, practise any other activities for raising its standard of living. In other words the family should not feel wholly dependent on the land which is cultivated co-operatively but will be able to engage in other types of farming, such as raising poultry, breeding livestock, or working in any rural industry. Every family, in this case, can benefit from the different services rendered by the local co-operative society in the sphere of monetary help, by getting loans, cheaper manure and seeds, or in the marketing of its own share of the farm products.

Introducing the fellah to the co-operative farming system must come gradually through well examined stages and in careful steps till he appreciates his new status and feels the material results of the new system. The change in the fellah's life must be evolutionary rather than revolutionary, if the new system or type of life is to be well-established and to avoid unexpected setbacks as have happened in some socialist countries. The will of the fellah must be sought first.

This type of 'hamlet' could be situated in the middle of the land which its inhabitants cultivate or it could be attached to a large village or even to a country town as an integral part of its structure. In this latter case the hamlet would be regarded as a district of 'haii' in the large village with its inhabitants sharing the public services, activities and life of the larger village or country town.

The hamlet should have a village hall, a small mosque or church, a social club a small shop and a post office, and common stables, stores and threshing area according to the requirements of new type of farming. This is in addition to the administrative and residential building required.

In any new plan whether for the redevelopment of an existing ezba or the creation of a new hamlet consideration must be given to the prevailing northern winds. The communal stables and barns have to be situated in the southern part of the plan, while giving opportunity for the residential buildings to be adequately ventilated. This is a common factor in any planning scheme. On the other hand the factor of security must be adequately considered, as well as suitable arrangements for the prevention of the spreading of any fire which might break out in any part of the settlement.

b. The Large (Mother) Village

Most of the present villages lie under this category of rural settlements. The size of the large or mother village is something between 500 and 5,000 inhabitants. As they comprise the main bulk of the rural habitat, they must receive special consideration in the new planning system.

The present plan of the Egyptian village, in general, has been determined by

the factors mentioned before ; security, water, social structure and communications. These factors have influenced the shape of the village plan, both that of the circular compact type of village as well as that of the roadside type. The fellah built the village and lived in it for thousands of years. It became part of his life. The fellaheen grouped themselves in clans or districts sharing the sorrows and happiness of life. This was an instinctive, natural human behaviour which cannot, by any method, be readily converted into an open independent individual life. No more easily in fact than could the village ring road be stretched into a straight line. Similarly the social structure which has existed for so many generations cannot dissolve overnight.

Although the past must continue to influence the basic lines of any new village plan, modern techniques can be used to give it expression and in a form which looks forward to the future.

The new plan must reflect the life both of the individual villager and of the community as a whole. The fellah spends most of his life in the open air in his field. It is essential, therefore, to provide him also with a contrast which he can enjoy, and which he gains from the propinquity of home life and life in a closely-knit village both in terms of social contacts and actual physical arrangement of the village structure.

Simplicity and order are very clear in the fellah's life, and so it is in his village which is a part of his life. In the new plan there must be an orderly relationship of the parts, but the parts themselves should be simple, and then the total result will have the simplicity of character that belongs to the genuine village.

The new plan, on theother hand, must reflect the new economic and social structure according to the three different types of farming classified before. The size of these villages will be reduced due to the creation of the new settlements, the hamlets which will attract inhabitants from the existing villages. The clan or the neighbourhood dividions of the village will be the basis for the new structure of the community in plan. These divisions, on theother hand, will be the focus for the co-operative farming system as they already possess the character of communal life, by using a common village hall, a mosque, a threshing field (gorn) and in many cases, a pump. These elements willlbe the

focal points in the different quarters of the new plan. From this social sector most of the small landowners will come. Middle class landowners, owning between 5 and 20 acres will be also found as the leading figures in these neighbourhood units or clans. However in recent years there has been a tendency for these more influential villagers to detach themselves physically from the clan agglomeration by building new houses on the outskirts of the village; but they still do not detach themselves from the social life of the clans to which they belong. Large landowners, who own more than 20 acres, usually build their residential and farm buildings outside the village built-up area nearer to their cultivated lands.

In many cases the farmers of a particular clan or district usually work on fields on the same side as their quarters from the village area. This fact will reduce the difficulties of intermingling among different shareholders in the new co-operative farms.

Nevertheless, one must be prepared to encounter difficulties in putting the new plan into effect in some cases where the factor of location and ownership of land is not so conveneint. Cases may well arise where holdings within a certain area may affect farmers belonging to different quarters or clans. This might, however, have the virtue of cutting, to some extent, across the clan organisation and focusing attention more on the co-operative farming organisation, possibly to the benefit of both, because a little competition could be a stimulus to each, provided it does not reach disruptive proportions.

Consideration must be given to the economy of the plan as far as the cultivated land is concerned. Every inch of the cultivated land must be protected and preserved by keeping the built-up area to the minimum. Comparative studies must be carried out between the cost of land and that of the construction of an additional floor for the newly designed houses and public buildings. The growth of the plan can be directed upward by adding an additional floor in the case of an increase in the family size, as for example, as often happens, a son marries and brings his bride to the family home and does not really change his social status.

The large village should have one elementary or primary school or more according to its size. The village should also have a health centre, playing

fields associated with the community centre, one mosque or more according to the size of the village, and the village halls required by the different quarters of the village. The village should also be provided with agricultural services, a co-operative society and a water-works, in addition to the necessary administative, commercial and residential buildings.

Finally it must be remembered that a village is a living organism, not a static thing, and is continuously subject to change. Any new plan, must therefore, take proper account of this basic fact and be flexible and dynamic rather than rigid and static in its conceptions.

c. The Country Town

The third rural settlement in the new planning system is the Country Town which comprises the main social, commercial and cultural institutions of the planning unit. The size of these settlements or market centres lies between 5,000 and 10,000 inhabitants. Most of them lie in the category of 'villages', as far as the administration of the Nile Delta is concerned. But, on the other hand the majority of these settlements have already attained the character of towns to such an extent that the inhabitants of some of them have asked the authorities concerned to grant their villages the status of the 'Markaz' or a district town; as in the case of 'Shatanouf'. This fact confirms their status in the new planning system as Country Towns.

The main feature of this type of settlement is the greater importance of the centre as it comprises the commercial, social and cultural institutions of the planning unit. It will also comprise the main centres of rural industries and administrative activities. The focus of the plan will be the Collective Centre as already mentioned. The Country Town will develop a commercial centre different from that of the other villages which have their own shops distributed between the different quarters.

As any new plan must reflect the social and economic structure, a new type of people, other than the farmers will feature in the new plan. These are the people engaged in commerce, industries, business, cultural and social activities. They will naturally concentrate in the town centre. The farming population will be living in similar social and economic conditions as are to be found in the

case of the large villages. The different quarters or clans could be extended to the outer parts of the town leaving a considerable open area between them and the centre. The open area might then be cultivated with orchards or vegetables to provide the raw materials for the new rural industries to be introduced to the town.

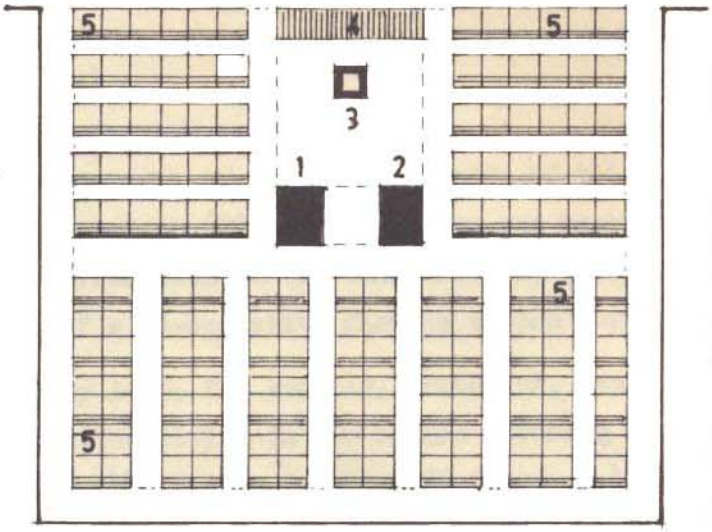
Housing and Size of New Settlements

As the new planning system and village replanning will involve the question of limited dispersion from existing settlements into new hamlets, the sizes of the existing villages will be consequently affected and reduced by the displacement of a portion of their inhabitants to the new settlements or hamlets. The question of the new sites will naturally come up as well as the question of the size of the new settlements and the areas they should occupy. In most cases these areas will have to be taken from the cultivated land from which losses must be kept to the lowest possible minimum. This factor on the other hand, will be affected by the type of housing to be adopted to suit the new farming systems and the new rural communities.

The house of the fellah in the new hamlets will be smaller in size than that of his colleague in the large village. The same will be true, even in parts of the large village, when some section of its inhabitants are to adopt the co-operative farming system but remain within the village proper. The provision for storage will be reduced to the minimum in the new co-operative houses whilst the stables will be apart from the house and run co-operatively as well as much of the storage space. In recent designs for normal village houses storage and stables occupy about 18 square metres in a house of 120 square metres, or 16 square metres in a house of 100 square metres.(1) (See figure 23) The co-operative farming system will, therefore, help the reduction of the residential built up area by about 15%.

A newly designed village neighbourhood (hai) of 800 people of 200 families occupying 154 houses at 1.3 families per house, would cover an area of about 30,000 square metres (i.e. about 7.5 feddans) This area includes a mosque of 300 square metres, a washing place of 100 square metres, five shops of 150 square metres, and about 13% (4,000 square metres) of the total area will be open space. It should be mentioned here that this village neighbourhood's plan is based on a 'terrace' house arrangement with streets of 8 to 10 metres wide, as this is the cheapest solution, as the author has found from previous research.

(1) These figures are derived from house types recently designed by the author. Similar houses have also been designed by the 'Fellah Department' of the Gov. (See fig. 33) The first type has a second floor of 32 square metres and the second has a second floor of 40 square metres. The conception of the second floor in the 2 types was adopted to accomodate large families, or as future vertical extension in the house plan.



VILLAGE NEIGHBOURHOOD

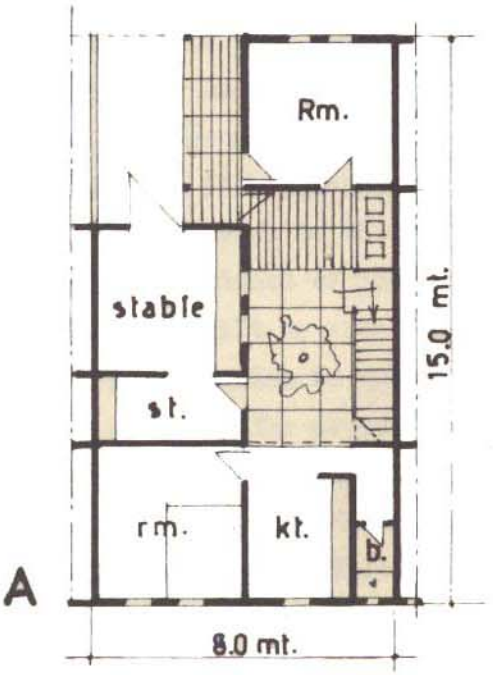
scale 1:2500

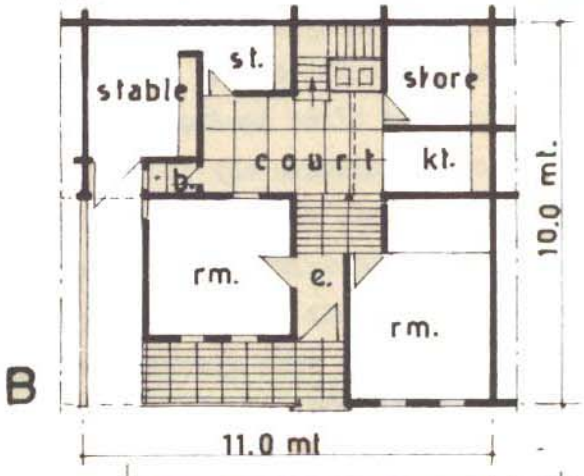
1. Mosque
2. Village hall
3. Washing place
4. Shops
5. Houses

Gross area = 7.5 feddans
Number of inhabitants: 800
Number of houses = 151

TYPES OF RURAL HOUSES

Type A of 120 square metres
Type B of 110 square metres
Type C of 56.3 square metres used in the Liberation Province, Om-Saber.
Type D of 95 square metres





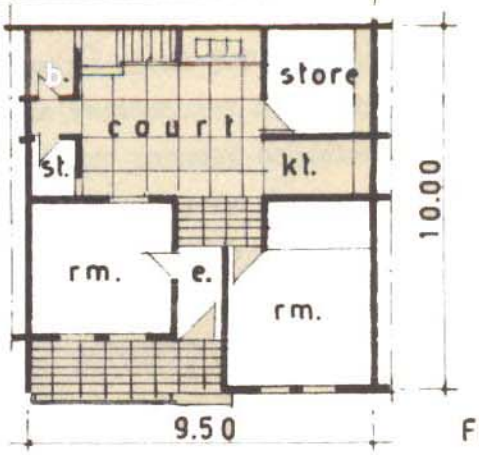


FIG. 23

(See fig 33)[1]

The built-up area of the housing group of this kind will be reduced from 16,940 square metres (100 square metres per house) to 14,399 square metres, bringing the reduction in the whole housing group of the village neighbourhood by about 5% if a co-operative farming system were to be adopted.

The country town, for example, Shatanouf, has a population of 5,300 persons in 1,327 families living in 900 houses covering an area of 45 feddans at a gross density of 1 person to every 35.66 sq. m.[2] This brings the density of the built-up area to 118 persons per feddan, with 5.9 persons (i.e. 1.5 families) per house. Due to the social characteristics of the rural community, 50% of the houses accommodate two families.

In any new plan this percentage can be reduced to 33% as to meet the tendendy towards the independence of the small families from the larger ones. This brings the average number of families per house to 1.3 as mentioned before. A gross density of 37.6 square metres per person in regard to the total built up area would be achieved in the newly-designed village neighbourhood and this figure could be reduced to 35.7 square metres in the co-operative settlement. The residential built-up area in the new neighbbourhood would be about 32.8 sq. metres per person which is quite close to that of the existing village (31.7 sq. metres per person) The area covered by streets in the new plan of the village neighbourhood is 8,470 square metres. Streets in the existing villages do not cover anything like this amount of land and only occupy about 15% of the residential built-up area. This means that the average area of the house in the existing villages very much exceeds the area of 110 or 120 square metres of the two types of houses designed by the author and the Fellah Department.

As the average number of occupants per house is about 5.9 persons, and as every person occupies 31.7 square metres of the residential built-up area, with about 15% covered by streets; this means that every person occupies 27.2 sq. metres of the actual built-up residential area. This gives the average area of the existing house to be about 180.5 square metres, i.e one and a half times that of the size designed by the author and the Fellah Department, despite the

(1) Research carried on in co-operation with the Building Research Centre. Cairo '55
(2) Allowing 5 acres for public building, the net residential density would be 31.7 sq. m. per person

fact that 1.5 families occupy a house in the existing village while this figure would be reduced to 1.3 families under the new plan. This is naturally due to the lack of proper design and planning.

A large village's centre would occupy about 12,500 square metres, 3 ½ acres (or 5 feddans including open space) and would comprise the following:-

a. A School and its playgrounds of 8.400 square metre (i.e. 2 feddans)
b. A community centre of 600 square metres
c. A village hall (madiyafa) of 600 square metres
d. A village mosque of 600 square metres
e. A mayor's (Omda) office with a police station and a telephone and post office of 700 square metres.
f. An agricultural department of 400 square metres
g. A water works of 400 square metres
h. 10 shops on 200 square metres
i. A co-operative society of 600 square metres
j. 10 houses for employees of 1500 square metres.

As a conclusion to these figures and calculations, we can say that the new development plans or the areas of the new hamlets will not cover more land than those already existing and probably less in the case of the co-operative settlement. This means that the area of the cultivated land as a whole will not be reduced, although disturbed, by the new planning system which involves the building ~~the building~~ of new hamlets, whose area, however, will eventually be deducted from those of the existing settlements.

Population growth has not been taken into account in this analysis since the rate of growth in the case of Ashmoun, is, in fact, negative. But in other areas where an increase in population is likely it can be met by a vertical expansion in the village plan as already suggested.

Finance and Labour

The improvement of housing conditions for people engaged in agriculture can be best achieved if people learn to help themselves. The basic approach to this achievement - and it can be reached with a moderate outlay of public funds - is to teach people how to improve their houses by applying their own labour to native materials.

Full co-operation of educational, labour, commertial and welfare agencies would seem to be required to handle such cases effectively. Technical guidance, loans and grants are all combined to give the new settlers their impetus towards financial competence. Loans are to be given to the Fellaheen on a very low interest and spread over a period of thirty years. The Co-operative Bank, the Agricultural Bank and other co-operative companies could finance the scheme.

Programmes to improve housing obviously need to be related to the local type of agriculture, and the local pattern of tenure. The improvement of the Fellah's annual income must be carried out first. A campaign for ~~the~~ better farming methods extension of irrigation, building of roads, encouragement of domestic industries as supplementary occupations, better enforcement of tenancy laws, and improved rural credit facilities should be combined with land reform.

The Indian Planning Commission, which deal with problems similar to those in Egypt, has recommended a co-operative village management of farm land.(1) All the land in a village would be treated as a single farm. Although individual ownership would be retained, the benefits of large-scale operations would be obtained. Were such a programme to include co-operative self-help for the improvement of village houses, it could improve standards of both production and consumption.

If the scheme is to take ten to twenty years to be completed, according to the size of the village and the efficiency of the programme, the rebuilding of each district of a village of five districts would take between two to four years.

If the number of the Fellaheen in the whole country is 16,000,000, the average

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(1) Radhakamal Mukergee, Planning the Countryside, Hind Kitabs. Bombay 1946

population per village will be 4,000 or 1,000 families of four persons per family. (The number of villages in the whole country is about 4,000)

The need for building 1,000 houses per village in twenty years give the figure of fifty houses per village, per year.

These figures illustrate the size of the problem from the labour and the financial point of view.

Building Materials

It is obvious that using local building materials is of great importance especially from the point of view of economy and labour. About 75% of the building materials will come from the old villages. The other 25% will come from outside.

The main material is mud or mud-bricks (See fig. 24) The material which has been used for thousands of years and which come from the soil like almost everything else, affects the Fellah's life. It is a good insulation material against the intense heat of summer and the bitter cold of winter.

The use of mud as building material is, therefore, very important, but in a new form either mixed with other material or treated by another external process like burning or pressure, or any other process which proves practicable and cheap, bearing in mind that processes can take place on the site and are easily carried out by the Fellaheen themselves and are to be preferred.

It is not suitable to use the mud in its natural form as building material. It is quite impossible for the Fellah to enjoy a clean residence with dust dropping continuously from roof and walls on to the clay floor.

Mud as a building material is very poor as a support or in cohering with any other material. This fact has a bad effect on roofing materials, doors, windows or other fittings.

It is very difficult to escape the fact that we need new building materials which can be produced from mud. Research is essential in this field, to produce the cheapest and most accessible building material.

Suggestions and experiments have to be carried out to produce a new material by the addition of certain proportions of asphalt, sand or cement to the mud. In

Drying out the mud bricks

Delivery of the mud bricks

Building operation

FIG. 24

Egypt, experiments have succeeded and proved that there is a kind of brick which, if the straw in its mud is removed and replaced by a certain petroleum compound, will prove the best for the purpose. Added to this is the fact that the manufacture of this type of brick and the building of houses with it is comparatively easy and the Fellah will be able to build his ~~own~~ own house with it at a low cost.

Stabilized earth is another experiment which may prove to be adequate for rural construction. Usually stabilized earth mixtures are made into blocks which are laid in mortar consisting of a weak (1 : 10) cement-sand or cement-lime - sand mixture, occasionally with some of the earth added. The mixture is rammed into moulds either by hand or mechanically. Portland cement is generally used as a stabilizer, in proportions of from about five to ten percent by volume.

In traditional constuction which is generally used for self-help housing, the improvement and better understanding of existing techniques is necessary. Floors and roofs may be of earth, or the roof may be thatched. The walls may be of monolithic or blockwork and finished with ~~local~~ colour washes or weak plasters.

The advantages of earth-cement work are :-

1. Most of the materials are already on, or close to the site
2. Compared with concrete blocks, less cement is used and no pallets for carrying the blocks are needed.
3. Compared with burnt clay bricks, no fuel is required.

Despite these advantages, the durability of earth cement is still doubted by some, and there is a tendency to look upon it as a temporary or experimental material. Good quality earth cement blocks are likely to weather as well as many of the wood-fired bricks and sand cement blocks being used.

External finishes still present something of a problem. The finish used should be equal in stregth to, or preferably a little weaker than the block so as to avoid cracking.

In the case of roofing, it is very difficult in a country like Egypt without much in the way of trees or metal production to provide a good roofing material. Prefabricated concrete blocks can be used if they are easy to manufacture locally, and they offer more protection against fire.

A programme to foster the use of local materials can be far-ranging and might

include better use of existing local building materials, use of waste products[1], cultivation of local block making machines under the supervision of the co-operative societies, and possibly the erection of a cement plant in every province or local kilns, to provide the new building programme with red bricks made by the local inhabitants.

In Egypt the dried thatch of maize can probably be useful as well as cotton sticks, in producing a local building material if added to earth or cement. This combination material which can be called 'fibre concrete', is very light, and can be cast into very large blocks or panel slabs by hand work. If co-operative groups of families are formed, and the appropriate equipment and designs are avilable the work can be laid out on a simple mass production basis with the blocks and slabs for several dwellings produced at a central site.

An effective survey of all available vegetable and mineral ingredients as well as of sources of the chief inorganic or mineral binders, should be undertaken.

The importance of measures of apparently minor importance should not be underestimated. The use of white-wash for outside walls with and some primitive equipment inside the house may be instrumental in enhancing the comfort as well as the aesthetic quality of the house.

Much can be done in the field of research. But as far as the Fellah is concerned he might be able to benefit economically if a building industry were established locally, and the cultivated land relieved of the excess labour which exists.

Producing new building materials in the rural settlement will have a psychological and sociological effect on the Fellaheen themselves. It will help to break the great bond between the Fellah and the soil, the mud and the water which is deeply rooted in his life, his house, his body and his soul.

Their houses will become cleaner, healthier, and of a quite different visual quality and dust and dirt in the village will be reduced to a minimum by using waste building materials in the paving of village streets.

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(1) For example the residue of sugar-cane, has been used to make a walling material known as ampasite.

Housing and Economic Progress

It has been mentioned in the report of 'Low Cost Housing in South and South-East Asia'[1] that, as economic activity and real purchasing power increases for low-income families, better living conditions are made possible, including better housing and community development. In the long run, this is the only basis for such improvement.

Furthermore, economic development as such may make housing conditions worse unless it is accompanied by social development such as in health and social security and education.

Housing and community development constitute a major economic activity in themselves, 'when the mason is busy everthing is busy' as an old age adage goes.

The mission includes in the report some proposals to be taken for improving village housing. These proposals are :-

a. Education and training in self-help housing.
b. Improving the system of making houses and community facilities.
c. The public agencies to make available the necessary materials.
d. Providing trained personnel
e. The establishment of appropriate regulations.

This work must be planned and programmed and carried forward by the government with the participation of the co-operative and other local goups, all as part of a national policy.

Aided Self-Help

Aided self-help can be understood as a method whereby a family, or families improve or build houses or communities largely with their own labour, in the ancient tradition but with governmental assistance for things which the family itself cannot provide.

The government helps to provide the technique, skills, materials and equipment and perhaps the money needed to meet the degree of improvement considered necessary.

The aided self-help principle has been applied in various forms to the improvement or building of homes in many places throughout the world.

(1) UNO Report of Mission of Experts of Low Cost Housing in South and South-east Asia,(1950-51)Housing and Townand Country Planning UNO Bulletin 6 1952

Standardised parts or elements provided, whenever possible through governmental or co-operative arrangements, constitute an excellent form of aid to any self-help scheme.

This system could be carried out by the Fellaheen in their spare time, the under-employment period which is about five months of the year.

The United Nations Report on 'Low Cost Housing in South and South-East Asia,'(1) concludes that aided self-help represents a stage in the transition from houses built solely through self-help which are no longer very useful, to houses provided wholly by a building industry, which still cost too much for most families.

'Aided self help on a large scale is very difficult, as it requires great organizing ability, the most skilfull human engineering, the greatest ingenuity, and much practice. Nevertheless it opens greater opportunities for providing more and better houses and communities than any other method and at far less money cost.'

The Agragami project in India is an example where aided self-help has succeeded (2)

The main principle of the scheme is that the villagers should participtate in it, and of it, and that they should pay their share of the costs. The government is nursing the project in the pioneer stages, but it is hoped that it will run itself on a co-operative basis in time.

The success of aided self help schemes depend on the following factors:-

a. Advance preparation of a comprehensive but flexible administrative and technical procedure.
b. Good public relations to ensure that (i) families understand and accept the scheme, and that objections are discussed, explained and overcome; and (ii) the local community approves and co-operates.
c. The careful selection of families
d. Technical and administrative leadership.

The procedure of how aided self-help schemes are carried out are dealt with fully in the U.N. Housing and Town and Country Planning Bulletin 6 - 1952.

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(1) U.N.O. Housing and Town and Country Planning Bulletin 6 1952
(2) UNO Housing and Town and Country Planning Bulletin 6 1952

Research

There is almost no limit to the field of research. Research is needed into a variety of materials and construction methods, as well as into the economic and social aspects of housing. Floors, walls, roofs, ventilation, light, noise, sanitation, cooking, cooling, initial cost, annual cost, public services, all require further investigation in order to determine the best and most economical methods.

Management and Programming

This is the most complicated problem which the scheme involves, especially in a country like Egypt where 200,000 houses need to be built every year if the scheme is to be completed in twenty years. The main objects are to provide :-

1. Trained field workers, two for every unit of villages according to the divisions of the Planning Units in the country.
2. To find how many houses the community can build.
3. To find how much the families can afford to pay and co-operate
4. To find how much the community can afford in loans and subsidies. Key problems have to be identified; what is possible and what is not possible.
5. Propaganda and guidance in the communities, so as to prepare public opinion for the new scheme.
6. The co-operation of the social and health centres in the village in the new scheme.

Families must be selected and registered, plots and occupation agreements signed, the loan of money, materials and tools recorded and repayment accounts opened.

The machinery of housing management has to be created so that repayments, rents, rates, etc., are collected, the transfer of houses between families registered, sub-letting and overcrowding control etc.

When the families have been selected and plots allocated a technical staff must be organised to guide or train them.

These steps are to be taken after the survey and new plans have been laid down.

The Planner and the Community

The planner's part is to produce the seeds for the planting of the new community; to undertake a full survey of the old village and put forward plans for the new one by applying his theories and technique.

The village council will then take charge of the scheme, assisted by the planner, the surveyor, the builder, the social officer, the doctor and the agricultural officer, who should take part from the very beginning as members in the planning committee of every planning unit.

If the planning is to be truly democtratic, as Cecil Stewart[1] says, it is patently the duty of the planner to interpret as best he can the wishes of those who are to be planned. It would be bad policy to produce a plan that dictates how people are to live no matter what they think themselves. But it is a sound policy to make people understand that only if they plan co-operatively will they live better. Just as they plan their individual lives, so they must take an active part in the planning of their own community.

The planner on the other hand, will be always behind the scenes. Therefore, he should live in the community for which he is to plan and lay the foundation stone of its new life, in order to study the human behaviour of the community in its environment.

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(1) Stewart, C. 'The Village Surveyed,' Edward Arnod and Co. London 1948.

CHAPTER XI

SHATANOUF PLANNING UNIT AND CENTRE

a. The Proposed Planning Unit

Before examining the country town of Shatanouf as a rural settlement we should examine first the planning unit of which it is the central town (see map no.39)

Shatanouf planning unit comprises, besides Shatanouf, the following villages:-

1. Kafr Mansour of 2102 inhabitants, and Ezbet Faidy of 110 inhabitants
2. Shi'sha' of 2200 inhabitants
3. Sarawa of 3249 inhabitants, with Ezbet Isa Zaid of 140, Ezbet El-Basts of 11, and Kafr Sarawa of 1615 inhabitants.

This with the country town of Shatanouf of 5433 inhabitants, bring the total population of the planning unit to 14,860 which is very close to the figure of 15,000 suggested as an appropriate population to be served by a Collective Centre and sufficient to justify the establishment of a rural industrial unit. There are however, two small settlements (Marya El-Gidy and El-Helwas) which are so close to the boundaries of the villages included in the Shatanouf unit that it would be logical to add them to this unit and this would raise the total population of the Shatanouf Unit to 17,208 persons.

The limits of the unit are determined by the Rossetta branch of the Nile and the village boundary of Darawa to the south, the Damietta branch of the Nile to the East. On the west and north the limits are determined by the boundaries of adjoining existing villages apart from the alteration referred to in the last paragraph. This area which is generally flat is the highest in the Ashmoun district.

The soil in this area varies between clay loam in the north and south, loam to the east and about the centre, and sandy loam along the Rossetta and Dametta branches. The last type form the 'Gezira' land in the south of the villages of Shatanouf and Sarawa. This is the land which lies between the river branch and the high cultivated land. It is cultivted once a year as it is flooded during

the months of August, September, and October during the flood season.

Through this area runs the main irrigation canal, El-Rayah El-Menufi, from south to north. The artesian water belts stretch to the east along the Damietta branch and to the south along the Rosetta branch. The area is served by a net-work of irrigation canals and drains.

The railway which serves the district of Ashmoun runs through the area with a station at Shatanouf, together with themain road along the water way of El-Rayah El-Menufi. In addition there are other roads and foot paths as shown on the map.

The area, as already mentioned, is served by three elementary schools in Shatanouf and one in each of the settlements of Kafr Mansur, Shi'sha' and Sarawa. Both Shatanouf and Shi'sha' have water works and a health centre. In addition there is a Collective Centre at Shatanouf.

These features are shown on the survey maps of the Ashmoun District.

Relationship between Settlements

What concerns us most in this chapter is the relationship between the different settlements of the Unit and the factors which determine this relationship. We find that the five large settlements lie on a line starting from Sarawa on the north east, and joining Kafr Sarawa, Shatanouf, Shi'sha' and Kafr Mansur at the south west end. Most of the hamlets (ezbas) are situated on the main canal of Rayah El-Menufi. The hamlets are owned by large land-owners whose ancestors determined their sites with regard to the main road which runs along the main canal south to the Barrage town and Cairo.

The main canal (El-Rayah El-Menufi) serves the area but it also separates the settlements to the east from those of the west, notably from the country town of Shatanouf. In fact, the people of Sarawa find it easier to do their selling and buying in the Sunday market of El-Ninaiya to the north because of the easier access to it. This fact puts Saraw village in an awkward position between El-Ninaiya for marketing and the country town of Shatanouf for its public services. A bridge over the canal would solve this problem. The same thing happens with regard to the villages of El-Hilwasi and Manyal Guweida which are connected to Shatanouf for marketing and to Kafr Quras, the centre of the northern planning

unit which they belong to for public services as well as for marketing. These facts and others concerning land ownerships and village boundaries call for a definition of the northern boundaries of the planning unit so as to include the two villages of El-Hilwasi and Manyal Guweida although their cultivated lands can continue as at present, to lie within the boundaries of the northern planning unit of Kafr Quras.

Direct access between the different large villages and the Unit centre of Shatanouf is not good at present and should be improved. The fellah can easily find his way along the field boundaries and the irrigation channels to any destination he desires; but this facility will, to a great extent vanish if land consolidation takes place, or the co-operative farming system is adopted.

It is now necessary to give a brief account of each settlement separately and its relation to the other members of the planning unit.

a. Shatanouf

Shatanouf, which is described at greater length later in this chapter, has a population of 5464 and is to be considered as the centre of the new planning unit, has to change its constitution from that of a large village to a central village or a country town as has been discussed before.

In Shatanouf 91% of the population own holdings of areas less than 5 feddans. 6½ own holdings of areas between 5 and 20 feddans and 2.5% own holdings of areas more than 20 acres while nobody owns holdings of 200 feddans or more.

b. Sarawa and Kafr-Sarawa

Although the two settlements are under one village administration unit based on Sarawa they are nevertheless two separate settlements. They are separated by a distance of over one kilometre. It is only in isolated cases that we find this division or combination of settlements in the Nile Delta. Normally each village unit comprises only one village and a few isolated hamlets.

The two settlements are under one village administrative unit and have an area of 1185.6 feddans with a density of 3.71 persons per feddan. The total population of the two settlements and two hamlets if 9015 inhabitants, 3249 of them in Sarawa and 1615 in Kafr-Sarawa. The total number of families is 1020

with an average size of 5 persons in the family. Nearly ¼ of the total land of the area comes under 'gezira' land or land at the river-side with basin irrigation. The total cultivated land is divided into 14 hods of varying areas between 70 and 100 feddans. This area is delimited by the Rayah El-Menufi canal on the west, the Damietta branch on the east, El-Ninaiya village boundary on the north, and Darawa village boundary on the south.

While Sarawa village stands in the middle of the fields with access to the main road along the Darawa canal to the east and to Rayah El-Menufi canal to the west, there is no direct access between the two settlements. Kafr-Sarawa, on the other hand, is situated very near to the Rayah El-Menufi canal, with the railway running just south of it but without a station. Foot paths are to be found along the boundaries of the different hods (land divisions) and along the small channels and distributors.

The two settlements have the same fortress type of plan and each is suffering from the same and usual defects of the Egyptian village.

In the two villages 92% of the population own holdings of less than 5 feddans 5% own holdings of areas between 5 and 20 feddans, 3% own holdings of areas more than 20 feddans, while nobody owns holdings of 200 feddans or more.

c. Shi'sha'

Shi'sha' is about one kilometre south-west of Shatanouf and is surrounded by a number of irrigation canals; Ashmoun El-Mustagidda and El-Naggar to the south, Sabal canal to the east running northwards, and Gannabiet Shi'sha' canal to the west also running northward. As the banks of the canals provide roads in the area, Shi'sha' is served by a system of roads along these canals. The main roads are those which run along the El-Naggar canal to the west and that running along Ashmoun - El-Mustagidda canal almost parallel to the Rosetta branch. The village itself is separated from this branch by about a kilometre of a stretch of 'gezira' land. Shi'sha' still has no direct access road to Shatanouf.

The area of Shi'sha's land is about 748.8 feddans, one third of which is a 'gezira' land. The major part of the land is divided into 6 hods. The total population of the village is 2200 inhabitants of 393 families with an average of 6 persons per family at a density of 2.88 persons per feddan.

The vil age has a typical fortress circular plan having its natural growth to the north. It is striking to notice that the village lies on the border of the land of Shatanouf due to the natural separation by three canals. Shi'sha's school itself lies within the boundaries of Shatanouf, and people from Shi'sha' also work within the boundaries of Shatanouf village.

The village enjoys more services than others of its size as can be seen from the public service map of Ashmoun.

Th Shi'sha' 88.5% of the population own holdings of areas less than 5 feddans 10% own holdings of areas between 5 and 20 feddans, and 1.5% own holdings of areas more than 20% feddans while no-one owns more than 200 feddans.

d. Kafr Mansur

Kafr Mansur, is about one and a half kilometres west of Shi'sha'. The village lies between El-Naggar canal to the north and the Ashmoun El-Mustagidda canal to the south. The village consequently benefits from the roads which run along these canals. Two main roads are linked with a third which runs through the village giving it the roadside type of plan. To the north there is the hamlet of Ezbet M. Faidi; although separated from Shi'sha' by the El-Naggar canal it still is an integral part of the village as far as public services and commerce are concerned. To the south there is another stretch of 'gezira' land.

The area of the village's land is about 457.6 feddans. The total population of the village is 2212 inhabitants of 386 families of 6 persons per family, a density of 4.83 persons per feddan. The village land is divided into 7 'hods'.

In Kafr-Mensur 91% of the population own holdings of areas less than 5 feddans, 6.5% own holdings between 5 and 20 feddans, and 2.5% own holdings of areas more than 20 feddans, while nobody owns holdings of 200 feddans or more.

b. THE UNIT CENTRE

After getting a general picture of the district or Markaz it is now time to consider the rural settlement itself and, for this purpose, the country town of Shatanouf is examined.

Shatanouf is a rural settlement of 5021 persons and has the main characteristics of the Nile Delta country town. The main feature which distinguishes it is its physical setting with the Gannabiet-Shatanouf canal dividing it into two parts (Shatanouf to the west and Kafre-Shatanouf to the east), united by a common centre disposed on both sides of the canal and giving the place a somewhat more defined visual urban character than other Delta settlements of comparable population size. Otherwise, it does not differ much from any other village or country town in the Delta. It is suffering from the same ills from which its four thousand fellow villages are suffering.

Situation

With a total area of a little less than nine square kilometres the Shatanouf 'village' unit lies in the extreme south of Markaz Ashmoun about 25 kilometres noth of Cairo, with the Rosetta branch to the south and the Damietta Branch running parallel to its eastern boundary at a distance of over two kilometres to the east. Shatanouf occupies some of the highest land in Ashmoun and is surrounded by six other villages, three to the east and three to the west.

The 'village' is an administative unit including in additon to Shatanouf (the country town) four 'ezbas' or hamlets. These are:-

1. Ezbet M. Farid of 107 inhabitants (47 male and 60 female)
2. Ezbet Eddaker of 50 inhabitants (25 male and 25 female)
3. Ezbet Hassan Yousef of 42 inhabitants (20 male and 22 female)
4. Ezbet Zaki Yousef of 208 inhabitants (102 male and 106 female)

and one isolated farm-house also classisfied officially as an 'ezbet'.

Physical History

Shatnouf is situated on the oldest part of the Delta. Like most other Egyptian villages there are no traces or evidence to give a historical account of its background. It is only its situation which indicates that it is one of the oldest rural settlements in the Delta. On the map of the world drawn by El-Sherif El-Idrisi, who died in 560 H. (viz 1150 A.D.) Shatanouf was then called Shantub.

An archaeologist whom the author consulted,(1) said that the village's name may have originated from an ancient Egyptian word, Shat-nafer, which means 'lake side'. This indicates that the village might have been situated on a lake side or on the edge of the marshes which used to cover a great area of the Delta in its earliest stages of formation.

Morphology:

The main feature one can see from the air is the division of the village into two parts by the canal which runs from south to north, and which have been given different names, the western part being called Shatanouf and the smaller eastern part Kafre-Shatanouf.(2) (See figure no. 25)

The compact plan of the village is typical of that of the Egyptian village, with its tightly built-up area and confused pattern of narrow streets and lanes. (See map no. 40)

The village stands in the centre of the square shape which the roads and canals form. The plan in general is that of the road or canal-side type of village, with most of the shops and cafés situated along the two main streets on both sides of the canal.

The directions of the growth of the plan are clearly shown to be north and southwards along the canal's sides. The main growth is directed to the north, (see map no. 41) This direction is affected by the following factors:-

a. The attraction of the refreshing northern breeze.

b. The existence of the railway station in the north.

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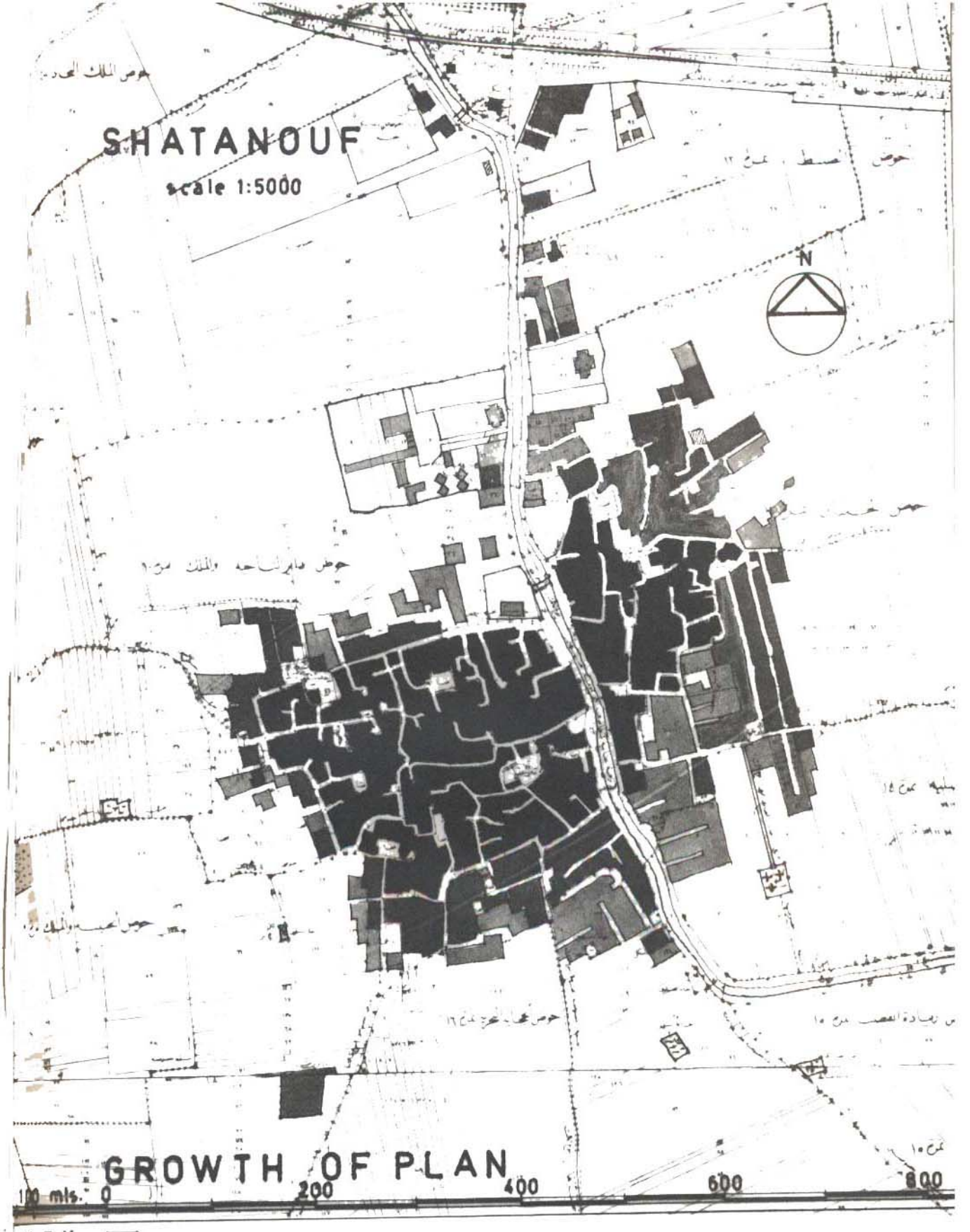
(1) Dr. Asfour, Faculty of Arts - Alexandria University.
(2) The term 'Kafr' is sometimes used as a quarter or district.

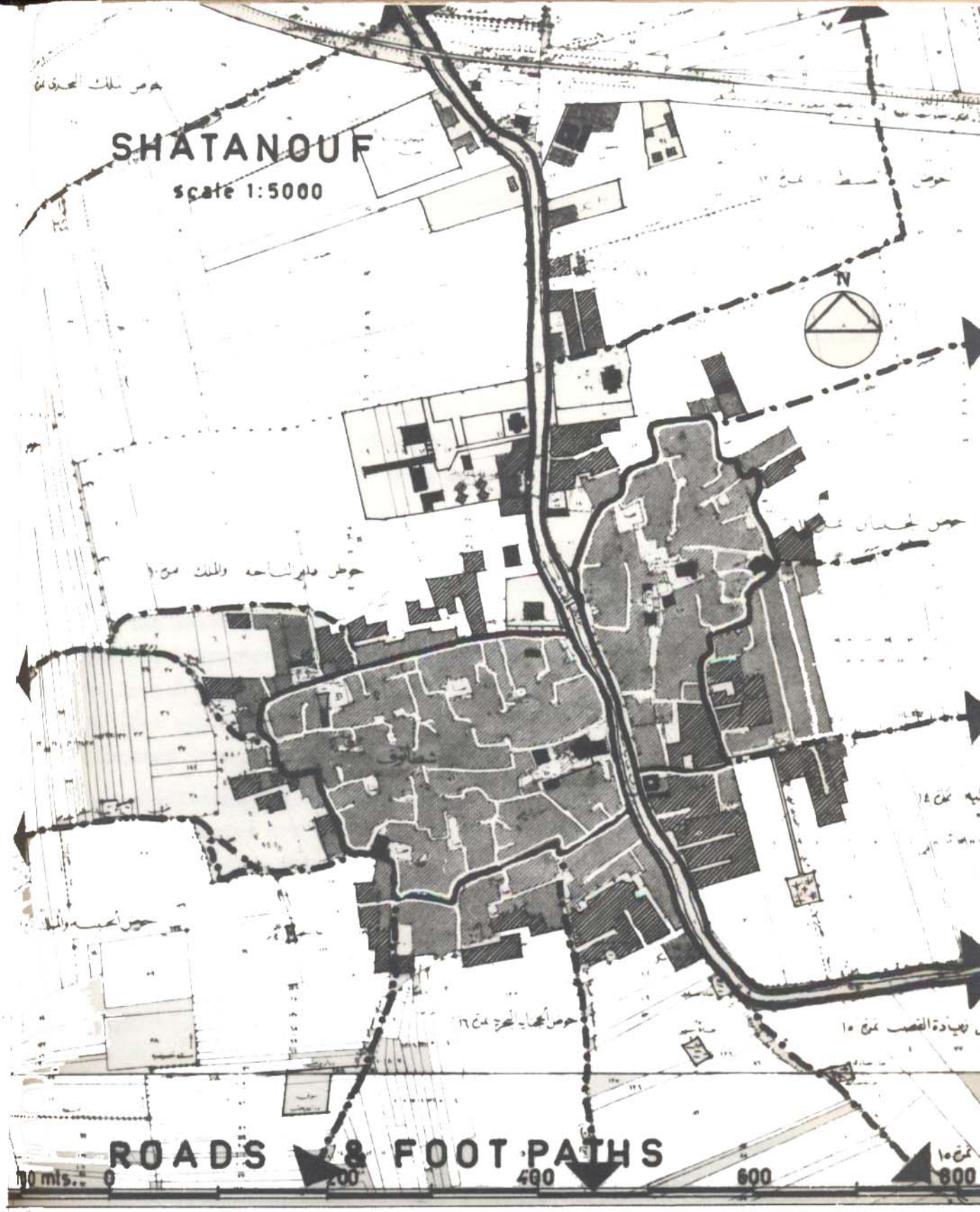
FIG. 25

SHATANOUF


SHATANOUF
scale 1:5000
shona
PS.
OP.
fm
N
club
t&p.o.
collective unit
sch.R.
ch.
m.
vh.
w
vh.
sch.
vh.
m
sch
sch
LAND USES
MAP NO.40
100 mts. 0
200
400
600
KEY
Public buildings
Residential areas
Shops
w: water work
m: mosque
ch: church
Market place
Cemetries (moslim)
Cemetries (copts)
sch: school
fm: flour mill
Orchards
Fields
PS: Police S
Open spaces
vh: village hall


SHATANOUF
scale 1:5000
N
GROWTH OF PLAN
100 mts. 0
200
400
600
800
KEY
The village core before 1922
Extension between 1922 & 1932
Extension between 1932 & 1955

MAP NO. 41


SHATANOUF
scale 1:5000
N
ROADS & FOOT PATHS
200
400
600
800
KEY
Ring road & other roads
Footpaths

MAP NO. 42

c. The direction of the canal which is the main source of rural life.

d. The existence of most of the village institutions in the northern part. These are the police stations, the 'shouna'(1), the social centre and the flour mill.

Communications

The village is served by the railway which runs between Cairo and Tanta via Kanouf and Shebin-el-Koam. This is the only railway in the whole Markaz. The railway station of Shatanouf,(2) serves about nine villages besides Shatanouf itself. There are nine trains which stop at this village, coming from Cairo to Tanta daily, Eight trains run from Tanta to Cairo daily and all trains stop at Shatanouf.

The village is also situated between three roads; one to the east running from south to north, another to the west running in the same direction and the third to the south running from east to west. The village is almost equidistant By about one kilometre from all three roads. It is about two kilometres from the Dametta Branch of the Nile and about one and a half kilometres from the Rosetta Branch. (See map no. 34) The village is also at a distance of a little more than one kilometre from Rayah-el-Menufi which is the third water way in the area.

Road conditions and bus services have already been mentioned in the study of Markaz Ashmoun. Bus routes are very few and the services are irregular. Due to the flatness and the open nature of the country side, the roads run each direction without encountering any serious obstacles or sharp bends.

Other means of communication consist of eight donkey and camel tracks which carry the bulk of the goods transport. (See map no. 42)

Landscape

It is also noticeable that the pattern of the holdings is divided into plots creating a spider's web pattern around the village. (See figl 25)

The village looks like an 'organic' pattern lying on a flat green surface divided into tiny rectangles varying slightly in colour according to the different

(1) An open space with few sheds used as a storage place of agricultural products (See fig. 31)

(2) See fig. 28.

crops they hold. The whole area is dotted with tree-groves especially around the village buildings and along the roads, the tracks and the canal side.

A brownish-grey colour dominates the village buildings relieved only by occasional white washed buildings dotted here and there.

Soil Types

There are three kinds of soil in the village vicinity. Pure clay in the north west changing to clay loam and then to loam and then clay loam in the south east, except for a small part in the south-west of the area which contains sand loam The soil is of high fertility and contains a very low proportion of soluble salt.

Land Utilization

The land is almost wholly given over to agriculture(1), every available square inch being cultivated. This is one of the main reasons why the village plan is so compact. The land is the main source of livelihood for the whole nation, and so it should be carefully conserved.

The total cultivated area is about 1815 feddans, but as a result of the rotation system the actual cropped area amounts to about 3043 feddans. The total uncultivated lands amount to 245 feddans which means 11.2% of the whole area. (See appendix . This area at present includes 40 feddans of built up area, plus 5 feddans given to the collective Unit. (See appendix No. 14)

The general productivity of the village unit is the highest in the Markaz and one of the highest in the whole country. The annual rent value for the year 1950 - 51 was about £E 30 to £E 40 per feddan.

From the cultivated land there are more than 190 feddans under orchard, but of the total area of 1830¾ feddans of cultivated land, a little more than 190 feddans are under orchards and include sixteen feddans of orange trees, five feddans of mangoe trees and ten feddans of guava trees, the rest being given over to other fruit trees.

The cattle-breeding industry is very small in the village. The live-stock in the area is kept for helping the farmers in their work, ploughing, irrigation and

(1) The area of the village and the 'ezbas' buildings plus the road and canals areas reduce the cultivated area to 88.0% i.e.11.2% of the whole area is cultivated.

transport. In the village and the five large farms there are: 520 cattle, 200 donkeys, 44 camels, mules and horses, and 350 sheep and goats.

General Internal Characteristics

Inside the village all is dust and disorder. There is no plan or system and not a single straight line. The alleys, strewn with dung and rubbish are extremely narrow being about 6 ft. wide, However, in some places they widen to about 20 ft in such places as the school, the 'Omda' house and in the business quarter which contains the shops and cafes. (See fig 26 and fig. 27)

Here and there one finds a small open space where some trees grow. These places are convenient for the activities of the mat-makers, shoe-makers and the copper pot polishers who come to the village every month or two. Itinerant vendors ply their trades up and down the tortuous village lanes, uttering their characteristic cries. Other open spaces take the form of 'gorns' which are threshing floors belonging to the different clans of the village.

The village activities concentrate along the canal sides where most of the shops and cafés are situated. To the north there is the cheerful sight of the Collective Centre and the new houses built near it which give hope for the future of the rural areas in the whole country. (See fig. 29)

The mosques and the church are the main public buildings around which the social life of the villagers concentrates.

Cemeteries and Ponds

One of the main features of the old village plan were the cemeteries inside the built-up area sited near the graves of the holy men of the village - an echo of the old tradition of the Ancient Egyptians who used to bury their dead near their houses. But this feature in the village plan has disappeared by chosing sites outside the built up area for the cemeteries. In 1947 the Government ordered the removal of all cemeteries from inside the villages to places outside it. The bones of the dead were carefully removed to the new sites. Inside the built-up area of Shatanouf were seven cemeteries all for Moslems. At present there are five cemeteries for Moslems and two for Copts all situated outside the built up area to the south, southwest and southeast. Sites for cemeteries are chosen on the higher lands or where the soil is dry and more than usually sandy.

SHATANOUF

6. Shatanouf
canal

Water tower
&
washing places

Washing up
in the canal

FIG. 26

The great mosque of Shatnouf

New houses for C.U. officials

IN SHATANOUF

A square in Shatanouf

FIG.27

In Shatanouf there were once four ponds but now all have been filled in and most of their sites added to the built-up area. Since 1945 this has been common practice in all the villages of the Nile Delta.

Housing

The housing conditions in Shatanouf are appalling apart from some few houses owned by well-to-do landlords. The social welfare officer of the village carried out a social survey covering housing in 1951. From his survey the following results have been obtained:-

1. Of the 900 houses in the village, he was only able to inspect 256 houses[1] Of the total inspected 254 (99%) were built of mud brickes, In 249 cases (97%) the floors were of beaten earth, one house (0.4%) had a wooden floor and six (2.4%) had concrete floors.

   In twenty three cases (9.2%) the roofs were made of reed and timber, thirty-three (13.2%) wholly of wood and mere reed and wood for the rest (87.6%)
2. Twelve houses, (4.8%) consisted of one room only. Though three to four rooms were common, some houses had up to ten rooms (about 15% of the houses had more than four rooms)[2]
3. Few cases of crop and fuel stores were recorded. These can be neglected for as one farmer stated, 'These days we have nothing to store'.
4. Only in five cases (2%) was a bed to be found. A mere straw mat was the common 'bed'. In 100 cases (40%) sanitary ammenities were recorded.
5. Most of the houses were owner-occupied, there being only 22(8.8%) occupied by a tenant.

Although the data collected was not complete, it certainly gives a general picture of a state which is very similar to that recorded in the case of Sangerg (Menoufiya), another village on which social research was carried out by the Rehabilitation Department of the Ministry of Social Affairs.

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(1) This was because of uncooperation or absence of their inhabitants.
(2) In the whole village there are about 3,000 rooms, with an average of 3.3 rooms per house - General Census 1947.

This survey produced the following facts:-

1. 3% of the houses are adequate or could be repaired
2. 97% of the houses are not adequate for human habitation and should be rebuilt.

Public Buildings

Each of the main clans living in Shatanouf has tended to occupy its own quarter of the village. There are five such main clans - four being of the Muslim faith (the clans of El-Shahaina in Kafr Shatanouf and El-Zakaima, El-Shawahna and El-Khadira in Shatanouf) and one of the Christian Coptic belief (El-Nasara) (see no. 43) Each clan has its own place of worship comprising two main mosques and two smaller ones known as 'Zawiya' whilst the Copts have their own church. Furthermore, each main clan has its own village hall.

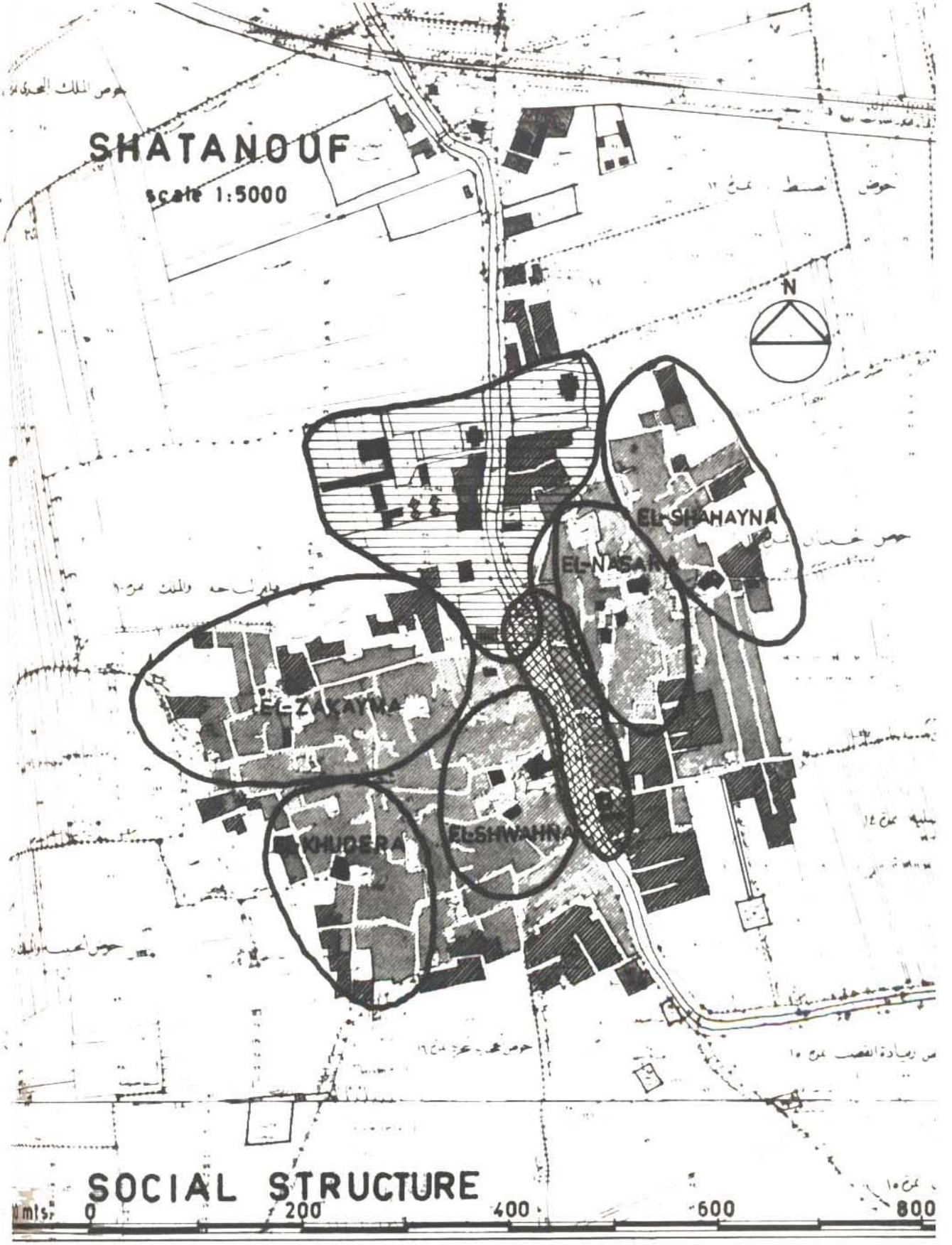
There is a main social centre or club serving the whole area, also a health centre and a clinic. The administrative and public service buildings comprise the 'omar' or mayor's residence, and adjoining it is the post, telegraph and telephone office. In the northern sector are the police station also the railway station and the station master's house. Also in the north is the 'shona' or public service area whilst the market and market buildings lie to the south (See figs 28 and 31)

A mosque, on the north, on the opposite bank of the canal to the social centre is the Collective Unit on a site of 5 feddans and comprising a school and experimental fields, a meeting hall, a small hospital of 15 beds, an animal dispensary and a dairy production centre. (See figs 28 and 29.)

A public baths and wash-house adjoins the water tower just south of the Collective Unit (See fig 26.)

These buildings are either adequate or require some repairs, but all of them are serving their function properly. In any new plan, these buildings would have to be preserved, not only because they are adequate, but because rebuilding them would be very expensive. These are the buildings which would be responsible for retaining some of the existing character of the village.

I am not adequate for their function except that of the


SHATANOUF
scale 1:5000
N
EL-SHAHAYNA
EL-NASAHA
EL-ZAKAYMA
KHUDERA
EL-SHWAHNA
SOCIAL STRUCTURE
mts: 0 200 400 600 800
KEY
Commercial centre
Administrative & Civic centre
Clans & Quarters

MAP NO. 43

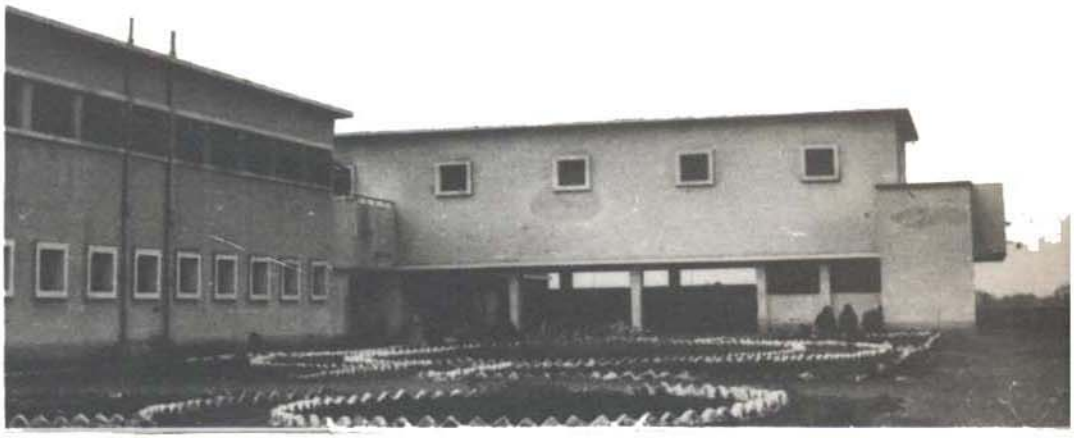
The Railway Station

The Agricultural Co-op. Society

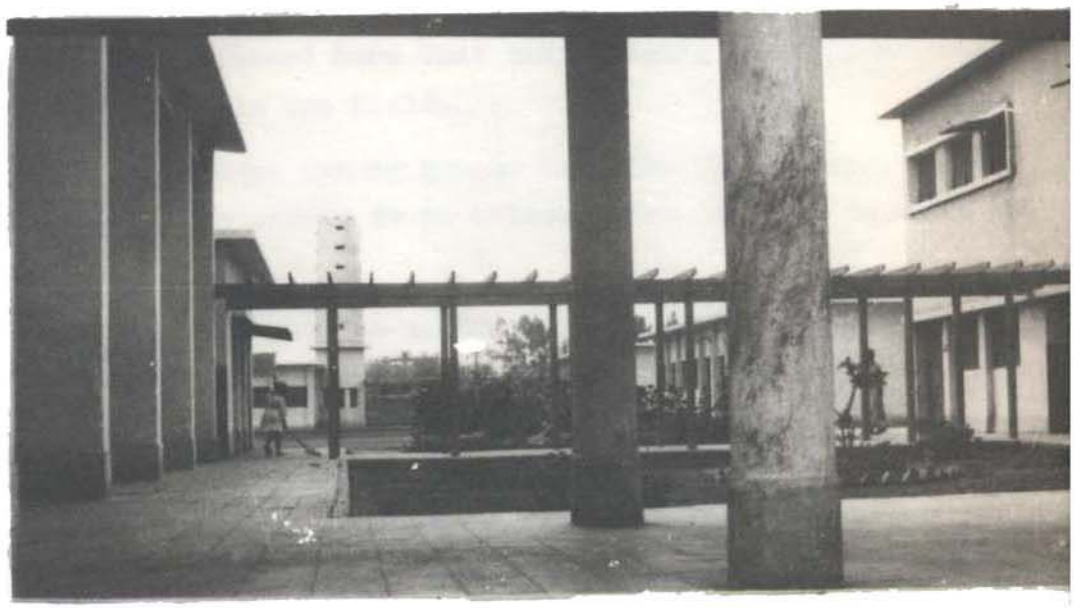
IN SHATANOUF

The C.U. school

FIG. 28



The C.U. clinic



Inside the Collective Unit

IN SHATANOUF

The way to the Collective Uni

FIG. 29

Collective Centre. They should be removed from the inside of the village to the outside along side their experimental fields. This would also effect a physical and psychological separation between the school child and his home, a desired separation which at present encourages the child to leave the present schools as soon as he possibly can.

Shopping Centre

There are more than fifty shops in the village, half of this number is concentrated on both sides of the canal. These include most of the cafés and shops selling cloth, fruit, grain and meat. The Co-operative Society building also forms part of this group, (See fig. 26) The rest are scattered all around the village, serving the different clans and districts. (See map no. 40) Most of these are grocers and are just sufficient to satisfy day-to-day needs of the village community. It should be mentioned here that the Fellah's bread is homemade, and his green-grocery comes from his own field.

Clothing, hardware, fish and meat can be bought from the village market which is held every Saturday. Few people go to Ashmoun (The town) or to Cairo for this purpose.

The Co-operative Society stores play an important part in helping the Fellaheen to buy their goods at reduced prices. As well as grocery and grain, it sells also clothing, hardware and a limited variety of medicines.

Most of the shops are part of the shopkeeper's houses and their hygienic conditions are often very poor.

The Market and the Economy of the Centre

Shatanouf's market which is held every Saturday attracts sellers and buyers from about ten neighbouring villages and 'ezbas' (See fig. 32) Shatanouf itself lies in the sphere of influence of the Barrage Town's market which is held every Wednesday (See map no. 35).

The site of the market place does not give the village any special economic or commercial character. Few members of the village community have taken advantage of the opportunity which the market offers to develop local industries and handicrafts. The majority of the inhaibtants are farmers using the market as a

A 'tumboushe'

A plough

IN SHATANOUF

A 'tabour'

FIG. 30

A general view of the Collective Unit

Shatanouf slums

IN SHATANOUF

The 'shona'

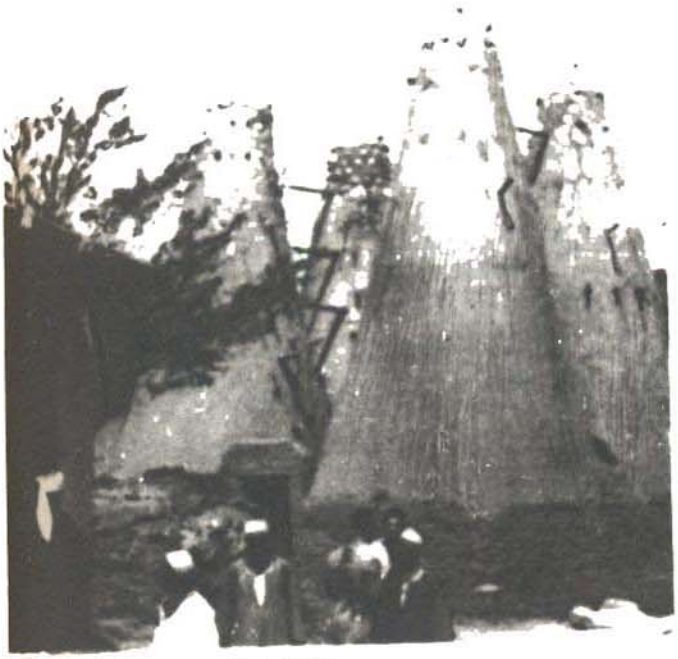
FIG. 31

IN SHATANOUF

New pigeon tower
in the C. Unit

In Shatanouf market

In Shatanouf market



Old pigeon tower

In Shatanouf market

FIG 32

place for selling their agricultural produce and buying their basic needs of living, (clothing, kerosene, meat, fish, hardware, grain and sometimes cattle and sheep).

The site of the market place is always chosen with regard to ease of access by the different ways of communications. It is alwasy situated in a central position between a group of villages and at the same time near one of them as in the case of Shatanouf. The market place is owned by the local Authorities who charge 2 P.T. from anyone who wishes to sell his goods.

The market place is usually a place of exhibiting different crafts and trades. We find the shoemaker beside the blacksmith and the tatto-artist beside the butcher, and the market place provides the village with a fair measure of entertainment.

The Market day is an important occasion in the life of the village community from either the social or the economic point of view.

Public Services

1. Water

The main source of water is the canal which runs though the village. Although there is a big water-works in the village and small pumps here and there, the Fellaheen usually find it more convenient to dip their jars and pots in the canal water. (See fig. 26) The canal side is attractive as a washing place for the women, where they meet, chat and watch their children washing themselves or swimming in the canal.

To lessen the effect of these bad and unhygienic conditions there should be a public washing place in every district in the village, getting its water from the central water works. Small swimming pools might be built as near as possible to the washing places to attract the children in summer time and to be under the supervision of their mothers. Where the canal runs through the village it might be advisable to separate it physically from the village by means of a masonry parapet or wall along its banks on both sides.

b. Sewage Disposal

Only a few buildings are served by water closets discharging into septic tanks About 5% of the houses have borehole latrines whilst the remainder rely on earth closets and even more primitive means. Some public conveniences for men only are also available at the mosques, but these are in a very insanitary condition and call for immediate attention.

Dr. M.M. Agamieh in his research on the 'Rehabilitation of the sanitary conditions in an Egyptian village' (Kom Bera in the province of Giza) recommended the establishment of borehole latrines in every house in the village. (1) He concluded that chemicals should be used to reduce the high population of insects. This may cost 50 P.T. (ten shillings) per capita per year. He estimated the total expenditure at 74 P.T. (fifiteen shillings) per capita per year.

c. Electricity

Apart from the Collective Centre which has its own electric generator the rest of Shatanouf has no electric lighting or power. Street, houses and public buildings are lit by kerosene lamps. However, it is hoped that Shatanouf will be one of the first villages to benefit from the rural electrificiation scheme in the near future.

Recreation

The Social Centre provides the village with playgrounds for football and basket-ball. Indoor games take place in the social centre building.

The 'gorns' (threshing places) when not actually in use are attractive playgrounds for children of the different clans or districts especially on moonlit nights. This is another feature of community life in the village, children of every clan or district have their own activities. They sometimes compete with children from other districts.

The Social Centre arranges football matches with the nieghbouring villages whenever this is possible.

The Fellah knows little of the cinema or theatre except that once a year the

...t of Health Guidance shows films in the village. Also the 'People's ...tre' Company gives one of its performances or plays in the village once every ... or so. A story-teller might visit the village once or twice a year to ent- ... the Fellaheen in one of the village halls. The fellah might visit the ...ma in a nearby town or village once a year if he has been able to save the ...ivalent of ten shillings.

The Fellah is meticulous in his observance of religious ritual and offers his ...yers five times a day in the mosque or at a praying place on the edge of an ...igation channel which is called a 'massalia'. The Fellah is prepared to ...vel many miles to attend celebrations on the occasion of the birthday of a dead ...y 'sheikh', and then returns home laden with 'baraka' (holiness) and religious ...fts.

c. POPULATION

There has been a steady increase in the population of the Shatanouf area, its population reaching 5433 persons in 1947 but the rate of increase is gradually slowing down. The area of the land never increases. The result is a high pressure on the land which is about 2.6 persons per feddan on the gross area of the village. The pressure over the cultivated land is 3.8 persons per feddan (available for small holders) In addition, there is an excess of labour of about 695 persons in the whole village. This is calculated on the basis of four labour units. This excess of labour might be cured in the following ways :-

1. Emigration to places where new land is, or is to be, reclaimed. The nearest to Shatanouf is the new province in the west of the Delta (The Liberation Province) where 15,000 feddans have been already reclaimed.
2. Increasing and improving local industries.
3. The gradual introduction of partial mechanization in agriculture so that the farmer would not depend on his children as cheap labour and consequently lead to a lessening of the demand for children which would probably result in a reduction in the birth-rate.

In 1947, the population of Shatanouf itself was 5,021 , of which 2,501 were male and 2,520 female. The total built-up area of 45 feddans gives a density of 118 persons per feddan.

The population in 1957 is expected to be about 5,230 and in 1977 it is expected to about 5,440 if we neglect the factor of emigration which is likely to reduce this increase to a certain extent. At the present time there are 900 houses in the village inhabited by 1,300 families of an average size of 4 persons, i.e. 1.45 families per house. This is a prominent feature in the Fellah's social life and the rural habitat. The number of rooms in the village amounts to 3,037, i.e. there are 1.8 persons per room, which in itself is not an unreasonable average figure.

The population structure according to age and sec is shown in the following table and also as a pyramid diagram in Fig. 33.

Table 51 Population: Sex and Age Groups in Shatanouf.

Age	Male	Female	Total
0 - 5	401	397	798
5 - 9	377	318	695
10 - 14	377	290	627
15 - 19	236	230	466
20 - 24	165	225	390
25 - 29	182	216	398
30 - 39	381	413	794
40 - 49	279	276	555
50 - 59	174	168	342
Over 60	173	186	359

From the following table, showing marital status of persons over the age of 16 years, it will be seen that only 13.2% are single persons and there is consequently a very high proportion of married people.

Table 52 Marital Status in Ashmoun. 1947

Case	Male	Female	Total
Single	317	119	436
Married	1153	1209	2362
Divorced	53	34	67
Widowers	39	310	349
Total	1542	1672	3214

From these figures it will be seen that the population is a relatively young one, 62.2% being under the age of 30 years.

Occupational Structure

The table (No. 55) illustrating the different occupations of the population shows, as one would expect, that the majority of the people are occupied in agriculture. They were born and grew up in the village, the same as their fathers,

grand-fathers and great-grandfathers did before them. They were born on the village's soil and grew up with in in their work, in their homes, in their food and in their way of life. No outsiders have ever dared to change them. They have been raised with and by nature.

There are, of course, quite a number of people, as there is in any sizeable settlement in the world who provide the different services needed for the livelihood of the community, from trade or handicraft to social service and other types of work.

Table No. 55. shows population classified according to type of occupation. (See fig. 33)

Table 55 Population and Occupation in Shatanouf

Type of work	Male	Female	Total
Agriculture	1369	1341	2710
Local industries	92	1	93
Building and construction	14	-	14
Communication	25	-	25
Trade and commerce	112	48	160
Domestic Services	45	484	529
Social Services	122	14	136
Unspecified	209	163	372
Unemployed	330	276	606
			4645

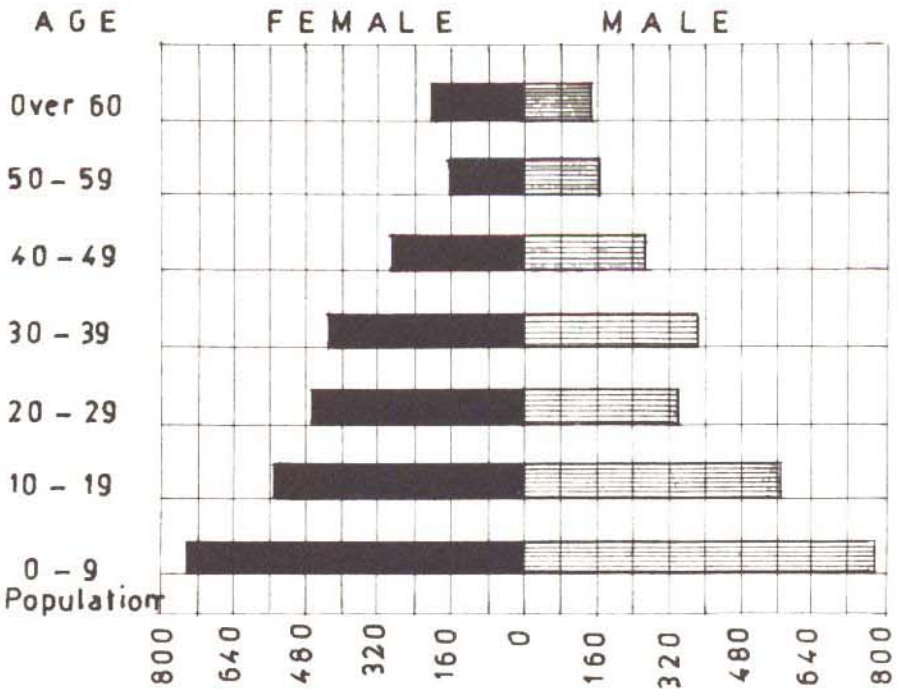
These figures are taken from the 1947 Census and require increasing by about 4% to give the present day picture.

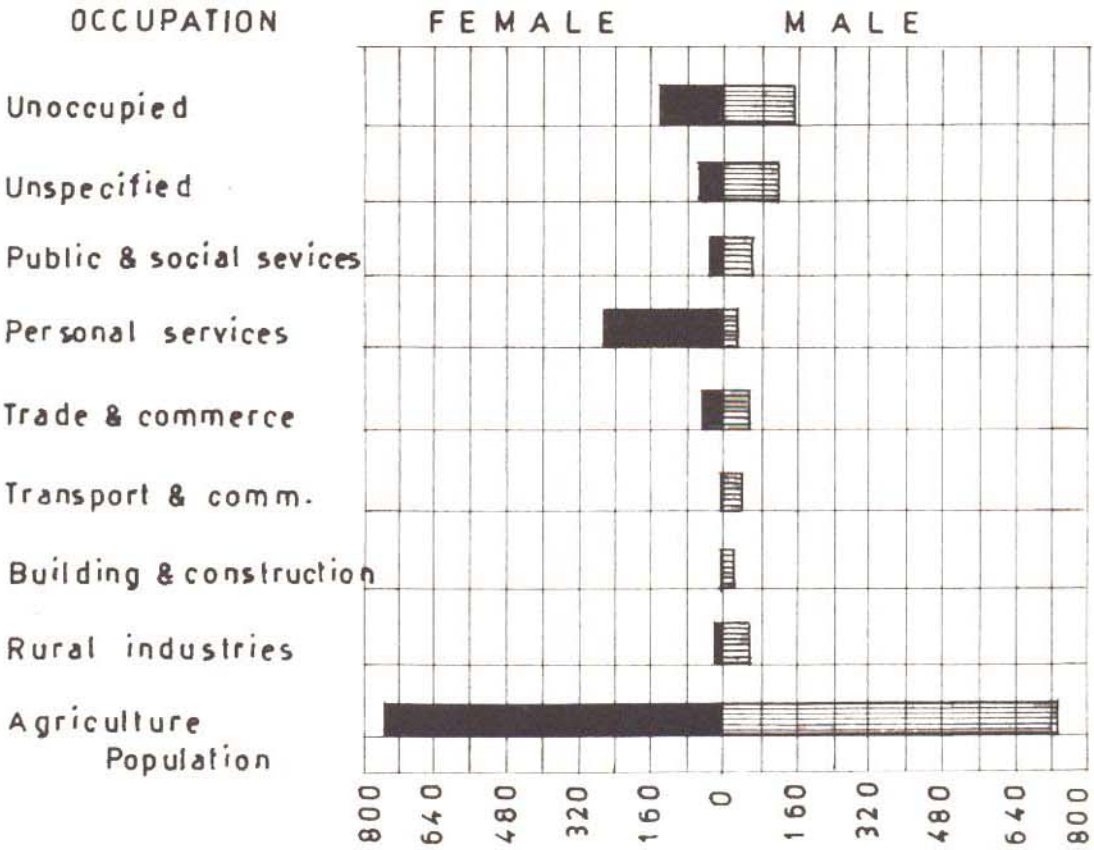
Economic Status of the Population

The following table shows how the land is distributed among the inhabitants of the village:-

Table 54 State of Tenure in Shatanouf

Percentage of Population	Area owned
25.5%	Less than ½ feddan (acre)
27.0%	½ - 1 feddan
20.0%	1 - 2 "
7.0%	2 - 3 "
10.0%	3 - 4 "
2.2%	4 - 5 "
5.0%	5 - 10 "





POPULATION PYRAMID & OCCUPATION IN SHATANOUF

Fig. 33

Table 54 continued.

Percentage of Population	Area owned
2.3%	10 - 20 feddan
1.0%	over 20 "

On the other hand, if the population is divided into three income groups as follows:-

1. High income group owning more than 20 acres.
2. Middle income group owning from 5 to 20 acres.
3. Low income group owning less than 5 acres.

we get the following results :-

1. The High income group represents 1% of the population
2. The Middle income group represents 7.3% of the population
3. The Low income group represents 91.7% of the population.

These facts give a clear idea of the very low economic conditions of the life of the Fellaheen in Shatanouf. This fact will have a great bearing on any new plan for the village and prior consideration must be given to economic factors.

d. EDUCATION

The system, the policy and the type of schools are the same as anywhere else in the Ashmoun district or the countryside of Egypt and these have already been discussed in Chapter X.

There are four schools in Shatanouf. The first belongs to the Collective Centre (See fig. 28) - a mixed school of 600 children of the compulsorty educational stage. The second is a 'model' school - a mixed school for 160 children. The third is Sheikh Ali Shahin's primary school with 120 children. The fourth is El-Kafre primary school with 120 children. All the schools are for the first stage of education which is compulsory for children between 7 and 12 years of age.

To obtain the exact number of children who require education we have to find the number of those in the age group of 7 to 12 years. Between 5 and 9 years of age there are 380 boys and 320 girls, and between the ages of 10 and 14 there are 340 boys and 290 girls. This implies that there are about 360 boys and 305 girls between the ages of 7 and 12.years, i.e. 665 children. This number is calculated according to the 1947 census and is expected to be increased by about 10% in 20 years time and therefore the capacity of the schools should be sufficient for 396 boys and 355 girls, a total number of 731 children. This does not mean that the existing schools with an official total capacity of 1000 children are adequate since it must be appreciated that the Collective Unit School does not only serve the village of Shatanouf but also other villages comprising 10,000 inhabitants as every Collective Unit serves a community of 15,000 inhabitants, so that the theoretical total number of places for Shatanouf children is only 600.

Another feature of the village education is the campaign against illiteracy Evening classes are held in the school's buildings and anyone who wishes may attend.

The following table gives the number of literate and illiterate people in the village in 1947 :-

Table 55 Educational Status in Shatanouf

Case	Male	Female	Total
Illiterate	1660	2088	3748
Literate	626	199	825
Unknown	22	40	62

It should be mentioned here that the accepted definition in Egypt of a 'literate' is a person who can write his own name. Therefore the number of those who are illiterate in the normal sense of the term is doubtless much greater than the official figure shows.

Among the total literates only between five and ten persons of higher education can be found. These very often leave the village for the big towns and cities where they can find higher paid jobs or get a position in a government office. The village is then left without much benefit from the élite it has produced, except in holiday time when some students participate in the welfare activities of their village.

e. HEALTH

Shatanouf is lucky enough to have a clinic, a health centre, a private clinic and a small hospital of 14 beds attached to the Collective Centre. About 75% of the population are suffering from bilharzia as a result of using the canal water as drinking water without purifying it. The majority of the population is suffering also from other disesases, especially the children.

The sun and the fresh air help the Fellah to survive. Bad health is the result of the educational and economic problems of the rural community.

The health problem is so great that it is impossible to deal with it here, but we should bear in mind the poor housing conditions in which the Fellaheen live, for this shares the responsibility for their bad health. The village, as a whole, as well as its houses, lacks good ventilation, sunshine and sanitary amenities.

f. THE REDEVELOPMENT OF SHATANOUF

The redevelopment method to be applied to Shatanouf is that already described r the case of a country town, but nevertheless, the redevelopment of Shatanouf turally must have regard to the development as a whole of the Planning Unit of ith Shatanouf in the centre.

The first step in this connection is to plot the three different types of ldings as already defined, viz. (1) under 5 feddans, (2) 5 to 20 feddans and (3) er 20 feddans. From an examination of the register of holdings in Shatanouf it s found that these categories might best be defined more accurately in the case this villages, as (1) under 4 feddans, (2) 4 to 19½ feddans and (3) over 19½ fed- ans. All holdings of less than 4 feddans should be given a special colour, rms and holdings between 4 and 19½ feddans should be given another colour. The st of the cultivated land will then come under larger holdings of more than 19½ ddans. At the same time roads, railways, and canals should be shown on this p as well as all land divisions (hods) (See map no. 45)

Any consolidation required for dispersed and fragmented holdings should first e carried out in respect of the holdings of between 4 and 19½ feddans comprising the family farms; and then in respect to the larger estates. This is by no means n easy task. The state of land ownership creates the most difficulty problem rom the physical planning point of view. This problem involves other factors, uch as soil types, land fertility and value, rotation systems, heredity, and ther social and psychological factors, such as have already been discussed in hapter VII.

The following examples of ownerships taken from the three different types of oldings in Shatanouf illustrate this fact.

In the case of the land which is to come under co-operative farming we get he following examples :-

a. ownerships of single plot: e.g. Owner No. 475(1) who owns plot No.20 in 'hod' no. 7. His total ownership is 11 'Karats' and 23 'Sahms' -

(1) Taken from the official list of land holdings distribution in Shatanouf in 1946.

a little less than half a feddan. His case should not present any difficulty when establishing the co-operative farm.

b. Ownerships divided among separate plots but in the same 'hod' e.g. Owner No. 477 who possesses three plots (part of No. 42, part of No. 45 and No. 7) in the 'hod' no. 8. The area of the first plot is 9K., 20 S., that of the second plot 14 K., 5 S., and that of the third plot 3K.,16S This total ownerhip amounts to 1F.,3K.,17S.

In this case also there should not be much difficulty provided that the whole of the 'hod' concerned comes under the co-operative system. If not, he might exchange his land with another owner to their mutual advantage.

c. Ownerships divided among separate plots in different 'hods': e.g. Owner No. 476 who owns the following plots :-

Area of plot	Plot No.	Hod No.
11K, 18S	22	8
2K, 12S	91	8
6K, 13S	105	9
11K, 3S	46	14
17K, 1S	98	14
1K, 14S	5	18
10K, 10S	21	18
14K, 20S	27	18
Total		
3F.3K, 19S.		

This means that most of this land is in 'Hod' Nos 18 and 14. The owner in this case might join two co-operative farms if this system is to be applied to both 'hods' otherwise he would have to resort to the procedure of exchange.

In these three cases consolidation of individual ownerships is not to be applied. The problem will be limited to that of deciding which co-operative farm the fellah is to join by investing his total ownership in the co-operative venture.

The second category of ownership is that comprising family farms of 4 to 19½ feddans. In this case consolidation must be applied to fragmented ownerhips, if the holdings are found to be more than one plot. An example of this is Owner No 492 who owns 8 plots in three different 'hods' as follows:-

Area of Plot F.	K.	S.	Plot No.	Hod No.
	12	5	44	7
	5	25	part of 91	13
	1	15	95	14
1	0	13	part of 96	14
1	2	22	part of 23	14
1	11	7	part of 24	14
	23	22	109	14
1	1	4	25	14
6	11	15		

In this case the total ownership could be consolidated in 'hod' no. 14 alongside plot Nos. 24, 109 and 25 as can be seen from the survey map. Exchange could be agreed on between individual owners or between an individual owner and a co-operative farm.

Farmers of this catergory could join a co-operative farm if no consolidation of their holdings could be achieved.

The same dispersion happens in the case of the large ownerships over 19½ feddans as in the case of Owner No. 184 who owns the following areas:-

Area of Plot F.	K.	S.	Plot No.	Hod No.
	3	0	part of 36	7
6.	18	21	part of 26	17
5	23	14	part of 34	18
12	11	2	part of 51	18
13	14	0	part of 24	20
17	9	2	part of 16	20
7	11	10	part of 10	22
3	19	12	part of 8	22
1	3	11	part of 43	23
-	16	2	part of 31	19

Area of plot F.	K.	S.	Plot No.	Hod No.
	16.	2	part of 49	19
		16	part of 47	19
72	1	1		

In this case consolidation should occure preferably in 'hod' no. 20 where about 30 feddans of the total ownership is to be found, or perhaps in two neighbouring 'hods'.

In the Shatanouf area most of the holings, both small and large, are fragmented or dispersed.

To illustrate the scale of the task one must point out that the procedure of dividing the land into the three categories of farming systems or of consolidation will affect not only the total area of Shatanouf but also the total area of its planning unit. This is the great task facing the rural planner in the Nile Delta. Although it looks rather a complicated problem, the possibilities of its solution are quite feasible and hhave already been proved capable of application. It is a matter which demands both time and patience, all of which in the end prove very well worth while in a country such as Egypt.

In the village area of Shatanouf holdings of less than 4 feddans are situated mostly immediately around the town itself, whilst the larger holdings of more than 19½ feddans are to be found in the North and the South of the area. Inbetween are the holdings of areas of between 4 and 19½ feddans. The total area of the cultivated land is 1828 feddans owned by 624 owners. From the 624 owners 550 (88%) own less than 4 feddans. They own about 548 feddans (30%) with an average of one feddan per owner. Out of the total number of owners, 61 (9.7%) own holdings between 4 and 19 feddans amounting to 419 feddans (22.5%) giving an average of 7 feddans per owner. The large bulk of the cultivted land is of holdings of more than 19 feddans and is owned by 14 owners (2.3%) The total area in holdings of more than 19½ feddans amounts to 870 feddans (47.5%) with an average

of 63.5 feddans per owner.

It is also clear from the survey map that most of the communities to be working in co-operative farms will be naturally housed in the main country town. The need may arise for the building of a few hamlets in the North and South of the village area to house agricultural labourers working on the large estates. The people who are to stay on their family farms will not want to change their residence and so will stay in the country town.

All the hamlets 'ezbas' found in the area, except that of El-Gazzar to the North of Shatanouf, are situated on the main road alongside the Rayah El-Menufi canal. This was mainly due to the easy connection with Cairo where most of the land owners used to live. This situation conflicts with the idea of the settlement pattern of the rural Planning Unit recommended earlier in this study, as there is no direct access between the above mentioned hamlets and the country town as the centre of the planning unit. Attention must be paid to providing the necessary direct access between the country town and any new designed hamlets. It is also tobe recommended that, where convenient, two or more new ezbas should be grouped together to form a hamlet of reasonable size. Examples of this grouping can be seen in the case of the proposed hamlets in the southern and northern parts of the Shatanouf area.

The boundaries of the existing land divisions (hods) are to determine the limits of the areas of the new hamlets as well as areas to come under the co-operative farming system. Advantage must be taken of the existing canals and roads which usually run along the banks of these canals. These canals and roads also act as natural boundaries for the new larger land divisions. (See map no.45)

The size of the new hamlets will be determined according to the areas which will be cultivated by their occupants. In the case of hamlets serving a co-operative farming area, a cultivable area would be between 100 and 150 feddans. If we allow 5 feddans for a family of 8, this will bring the size of the hamlet to something between 160 and 240 inhabitants. The limits of the co-operative farm will also be determined according to the planned rotation system.(1) drawn

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(1) Discussed in Chapter II

up by the agricultural adviser who will also be consulted on the consolidation problem.

At present most of the land divisions (hods) seem to be adequately served except those of El-Saubonk El-Sharqui (88.68f) El Mulk El-Bahari (79.8f.) and El-Hamed Wa Al-Garba (67.36f) to the North west. In the south there are the 'hods' of El-Haggniya El-Qibliya (110.88f) El Touta El-Qibliya (82.08f) and El-Touta El-Bahariya (70.72f) in the Gazira land. To the east there are the Hod El-Santa (99.28f) and a part of Hod Ziyada (about 70 f.)

Hod El-Saubonk El-Gharbi (99.8f) in the north can be adequately served by Ibbet El-Gazzar and Manial El-Guweda village outside the boundaries of Shatanouf area. Hod El-Nazili (81.08f) in the south can be adequately served from the village of Shi'sha' disregarding village boundaries. Part of Hod El-Hamed Wa Al-Garba can be served from the village of El-Helwasi which is to be included in Shatanouf PlanningUnit (See map no. 45)

The railway which runs across the village area divides the area into two parts. It is undesirable for the farmer to cross this railway on his way to work.

Land comprising large estates in the southern part of the village area could be served by two new hamlets. The first for Hod El-Haggniya El-Qibliya (110.88f) and the second for the two hods El-Touta El Bahariya and El-Touta El-Qibliya both of 152.8 feddans of 'gezira' land. The size of the first hamlet will be 176 inhabitants and the second will be 240 inhabitants. Both should be situated on the higher land near the junction of Waslet-Ashmoun El-Mustagedda canal and El-Nagager canal and could, in fact, be combined to form a small village of 416 inhabitants. (See map no. 45)

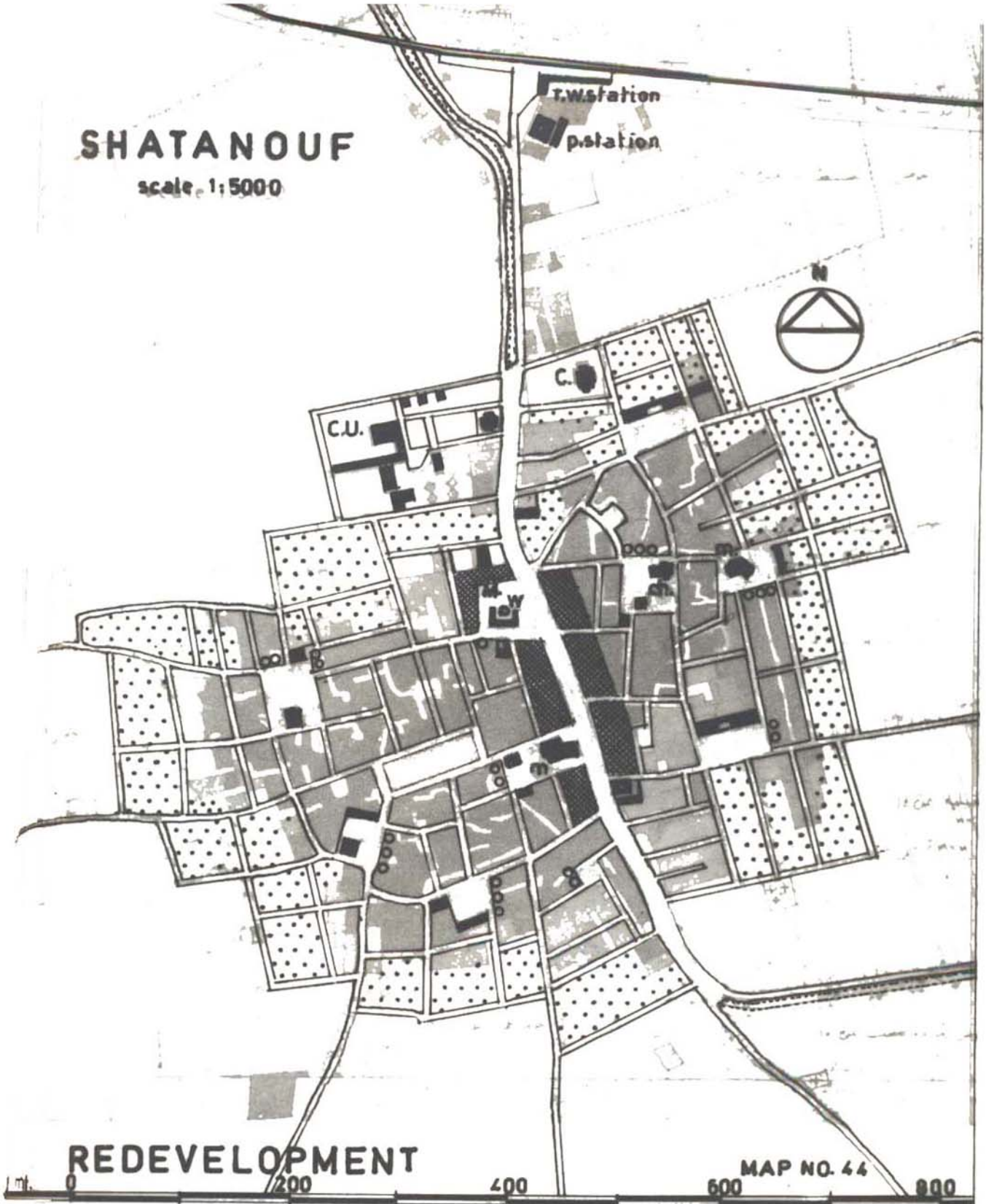
Two other hamlets should be built along the Rayah El-Menufi canal, the first near the junction with El-Naggar canal. This hamlet will serve about 70 feddans under co-operative farming. The second co-operative hamlet could be situated just north of the railway and serve about 70 fed ans. The size of each hamlet will be about 120 inhabitants.

Another new hamlet combining two 'ezbas' could be built in the north to serve an estage of 88.68 feddans of Hod El-Sanbonk El-Sharqi, and another of 114 feddans in Hod El-Qibbala. The size of this hamlet will be about 330 inhabitants. (See map no. 45)

This procedure will lead to the establishment of six 'ezbas' housing a total of approximately 1,000 inhabitants from the country town of Shatanouf. This will result in a decrease of 35,660 square metres (about 17%) from the built up area of Shatanouf. The population of Shatanouf will be consequently reduced to 4,300 inhabitants. Although this figure will put Shatanouf under the 5,000 figure it will still be considered as a countr town.

The redevelopment in general of the main country town of Shatanouf could be carried out along the lines already discussed in this thesis, though some variation in the form will be nedessary by reason of the present division of the village into two parts separated by the Gannabiet Shatanouf Canal (See map no. 45) This canal is a serious nuisance at the moment as it runs right though the centre of the town and now that pure drinkable water, and washing places are provided in selected parts of the town the existence of this canal inside the built up area is no longer desirable. The canal could either be diverted to run east of the settlement between its connection with El-Naggar canal to a place just south of the railway station or be converted along the stretch running through the town, thereby creating a widened mainshopping street, and allowing for a greater degree of unification of the eastern and western section of the town. The latter solution appears to be the more practical one and has been adopted on the redevelopment plan.

This, is naturally no more than a general outline of what could be done in the field of replanning. Many other factors should be taken into consideration; mainly those relating to size of plots, form of land tenure, and other social actors. This will need precise figures and facts to make the final plan realistic. This can only be achieved by considering the planning unit as a whole. Areas taken by new roads, canals or areas added to the cultivated areas as a result of canal filling up, must be taken from or given to the co-operative farming society and not the individuals whose holdings are directly affected. This means that the process of replanning should be inspired by the same co-operative spirit which one hopes will prevail in the new community.


SHATANOUF
scale 1:5000
T.W.station
p.station
N
C.
C.U.
M
m
w
REDEVELOPMENT
MAP NO. 44
1 mt.
0
200
400
600
800
KEY
Public buildings
Existing residential areas
Development areas
Commercial centre
Local shops
Open space
M: New market place, m: Mosque, C: Club, w: Water tower.

C O N C L U S I O N

In the case of an agricultural area such as the Nile Delta, forming part of a ...try which is suffering from over-population and with only limited resources capable of being developed to find employment for and ensure the subsistence of its ...ing population, it would be difficult to over-estimate the need for effective ...l planning. Such planning can contribute much towards the reorganisation of the ...l area and help to achieve the maximum benefit from the cultivated land which is ...main productive factor in the country.

Unfortunately, raising the production of the cultivated area to its maximum, ...essary though this is, will not in itself suffice to meet the pressing population ...blem of the country. In some ways, if pursued as a separate unrelated policy, it ...ld even tend to aggravate the problem by raising the efficiency of productio , ...ucing the damend for agricultural labour and thereby adding to the surplus of ...ulation. In this connection it is well to remember the words of Professor André ...ilip in his concluding address to the Conference on Regional Planning and Develop... held in London in September 1955 when he said :-

'.. the accent must be put on the development of agriculture because the majority of the countries concerned are agricultural ones. We must aim at a higher standard of living for the farmers, which will make it possible for them to save. Large scale saving is a very long process, but this in turn will make possible industrialization. We must realise that modern technical methods of agriculture are very frequently not the answer to our problems, especially so in the case of heavily populated countries. We have to take into account that the agricultural practices, and habits and customs in backward countries have taken centuries to evolve and be adapted to the peculiar conditions of the country. We have to call in agricultural experts, but we must not forget that plans should never be imposed from the outside, but should develop from the inside.'

Improvements in agricultural production can indeed pave the way towards other ...velopments and improvements, but certainly in the case of Egypt such an agricultural policy must be coupled with other schemes designed to absorb as many as possible ...f the surplus population. As Professor Philip implies the process of industrialization should follow, or as far as possible march side by side with the process of ...grarian reform. In Egypt's case other possibilities also have to be considered, ...uch as reclamation of some of the countryside's vast areas of desert or migration ...o the Syrian region of the United Arab Republic

Agricultural planning, therefore, should be considered as an integral part of a and country planning. This is particularly necessary in the case of the Nile ta. This region will experience radical changes in the coming fifteen years as a sequence of the construction of the High Dam Scheme south of Aswan. This scheme l make possible the addition of two million feddans of arable land to the cultiv- d area of the Nile Delta. Such a major development calls for effective realisa- n through a properly conceived regional plan integrating the consequent new devel- mt s with the existing development of the Delta Region.

It is hoped that the suggestions put forward in this thesis will help in some towards the realisation of such a plan. From the National Planning point of view plan should be based on an economic programme with defined targets to be achieved the social, educational and hygienic fields. For example the target for nutrition ght be to increase individual intakes from 2,480 calories per pe son per day to 00 or 3,750 calories according to occupation. The present average expectation of e of 38.6 years is appallingly low and another national target might well be to mpt to raise this figure to about 45 years through the development of both prev- ive measures and curative measures. The abolition of illiteracy is another nati- l target which calls for various forms of provision requiring organisation both the regional and local levels. The definition of these objectives as well as rs and the consequent definition of the various standards which will govern the inment of the different objectives will naturally be determined by the National ning Committee.

Below the national level the country calls for division into a number of dif- nt regions, one of which would be the Nile Delta. These regions would then be lved into a number of Planning Dis ricts which in turn would be further subdiv- l in the rural areas into defined Rural Planning Units each embracing between 10 15 villages and hamlets, these units serving as the basis for the distribution location of the Rural Industrial Centres each catering for a population of 100/ ,000 inhabitants and of the Rural Health Centres each serving a population of t 100,000 persons.

The adoption of the three systems of farming, i.e. co-operative farming, ly farms and large estates, besides being adequate to secure the maximum output the cultivated land, will be, at the same time, a sound foundation for the new

ciety which the present regime is working to introduce a co-operative, socialist democratic society. In view of the localised nature of the work involved in ing this foundation it seems clear that the work could best be organised at the el of the Rural Planning Unit as advocated in these pages.

The Rural Planning Unit should be the basic unit for field work and physical ning. At this level the planner can tackle the problem of the rural settlement elf and consequently the problem of the rural house. It is at the level of the al Planning Unit that co-operative should prove most fruitful between the archit-, the builder, the engineer, the sociologist, the agriculturist, the doctor, the cher and the scientist in their co-operative task of building a new environment a new life in the countryside.

Planned co-operation is the key to rural reconstruction. This does not merely ly co-operative finance and marketing of crops, but also co-operation in cultiv- n and irrigation, and improvement of rural industries and communications - rural astruction in the widest sense of the term. Rural reconstruction and co-operative abilitation must het be separated.

The corporate life of the rural masses is to be revived not only in the vill- but also around groups of villages. here must therefore be strong intermediary ies between the District authorities and the organssof the village. Here again Planning Unit would seem to be the most appropriate size of administrative unit this liason.

It is thus through methods of concentration and co-ordination that the entire ge of activities coming under rural reconstruction can be successfully directed integrated. This is essentially the meaning of rural planning.

The Fellah's life with its inefficiency, simplicity, fear and ignorance, is e of undivided whole, and the only form of rural programme which can hope to suc- ed is one which can improve him from all sides, economically, socially and morally.

Unless there is an established national policy for rural reconstruction no- ing much of lasting value can be achieved. This is a matter of life or death for a ation which is suffering from overpopulation and if tragic disaster is to be avoided time should be lost in directing much of the country's technical skills and other sources into the framing and execution of some such far-reaching policy for rural reconstruction.

A P P E N D I C E S

APPENDIX I

Egyptian Weights and Measures

Length:	1 Kasaba	=	3.55 metres
Area:	1 Feddan	=	4200.83 square mt.
	1 Kirat	=	175.0345 " "
	1 Kasaba sq	=	12.6025 " "

Dry measure	1 Ardab	=	.198 cu. mt. = 5.4474 bushels
	1 Kela	=	1/12 ardab = 0.0165 cu. mt.
Weight:	1 ratle	=	.449 kilogram = .99 lb
	1 oke	=	1.248 " = 2.7514 lb
	1 kantar	=	44.928 " = 99.049 lb

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1 Bentar of cotton seed weighs about 315 ratles
of which cotton weighs about 100 ratles

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1 Draiba of rice before husking = 18 kantars

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1 Kantar of ginned cotton weighs 100 ratles = 99.049 lb

1000 Ardabs of cotton seed = 118 tons
100 " " wheat = 68 quarters
100 " " beans = 66 quarters

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equal parts of clay and sand make loam

APPENDIX 2

LAND AND POPULATION IN EGYPT

Total population	24,000,000
Rural Population	18,000,000
Population engaged in Agriculture	13,000,000
a. Total net cultivated area	6,000,000 feddans
b. Total cropped area	9,000,000 feddans

1:- Ratio of total population = 4 persons per feddan or 2.66 persons per cropped feddan

2:- Ratio of rural population = 3 persons per feddan or 2 persons per cropped feddan

3:- Ratio of population engaged in agriculture = 2.12 persons per feddan or 1.44 persons per cropped feddan.

4:- Ratio of adult male rural population (over 15 years of age)

(the no. of population in 1939 was 2,194,000)
(" " " " " 1959 was 3,440,000) engaged in Agriculture

∴ The Ratio = 0.57 person per feddan
or 0.38 person per cropped feddan.

Ratio of total rural adult (which is 6 million persons)
The Ratio = 1 person per feddan
or .66 per cropped feddan.

5:- Estimated agricultural labour is approximately 2 million

The ratio is 0.33 persons per feddan
or 0.22 persons per cropped feddan

APPENDIX 3

MAIN TOWNS IN THE NILE DELTA

	Town	Approximate Population
1.	Tanta	141,000
2.	Mansura	102,000
3.	Damanhour	90,000
4.	Zagazig	90,000
5.	Damietta	60,000
6.	Rosetta	40,000
7.	Baltim	14,000
8.	Fuwa	29,000
9.	Disuq	39,000
10.	Kafra El-Sheikh	17,000
11.	Bilquas	70,000
12.	Mehalla El-Kubra	72,000
13.	Kafra El-Zayait	24,000
14.	Kifta	40,000
15.	Tala	51,000
16.	Menuf	45,000
17.	Shebin El-Kom	46,000
18.	Matariya	35,000
19.	Simbilla-wein	30,000
20.	Mit-Ghamra	35,000
21.	Benha	35,000
22.	Qalyub	36,000

APPENDIX 4

Population : Sex and Age Groups in the Nile Delta (Provinces only) 1947

Age	Male	Female
Under 5	464,333	488,623
5 - 9	499,944	500,550
10 - 14	492,316	422,730
15 - 19	326,688	225,461
20 - 24	233,519	251,991
25 - 29	277,013	311,852
30 - 39	501,852	528,121
40 - 49	338,954	355,627
50 - 59	187,493	214,420
over 60	181,654	265,500
Total	3,503,785	3,634,881

APPENDIX 5

Population and Occupation in the Nile Delta

The Different Categories of Occupations in 1947 by Province and Governorate in the Delta are shown in the following table :

Location	Occupied Pop.	Agriculture	%	Mining	%	Manufacture Industries	%
Cairo	1,622,095	22,867	1.4	1,776	0.2	181,547	11.2
Alexandria	688,223	13,435	1.9	511	-	22,278	11.2
Canal	177,251	8,117	4.0	30	-	11,448	6.4
Damietta	39,170	1,418	3.6	21	-	7,237	18.4
Beheira	931,928	646,551	69.2	139	-	30,336	3.3
Gharbiya	1,721,883	1,085,399	62.8	15	-	85,252	5.0
Daqahliya	1,055,388	623,436	59.4	10	-	38,685	3.7
Sharqiya	990,591	559,122	65.8	171	-	27,778	2.8
Menufiya	891,211	592,506	66.3	16	-	30,062	3.4
Qalubiya	513,877	296,954	57.7	950	-	32,787	6.4

Location	Transport	%	Commerce	%	Social Services	%	Personal services	%
Cairo	51,028	3.2	139,474	8.6	147,721	9.1	755,256	47.0
Alexandria	30,898	4.5	66,680	9.7	44,127	6.4	324,804	47.0
Canal	13,834	7.6	15,629	8.8	17,689	9.5	78,653	44.4
Damietta	1,332	3.4	3,031	7.8	1,742	4.5	16,920	43.2
Beheira	8,596	0.9	27,360	2.9	19,043	2.0	124,054	13.9
Gharbiya	17,382	1.0	60,072	3.5	43,536	2.5	282,774	16.4
Daqahliya	10,905	1.4	39,930	3.8	28,043	2.7	173,385	16.5
Sharqiya	6,970	0.7	33,134	3.3	41,948	4.2	146,621	14.7
Menufiya	5,457	0.6	31,394	3.5	22,286	2.5	109,893	12.3
Qalubiya	5,370	1.4	19,164	3.7	16,184	3.1	69,542	17.4

Location	Building and Construction	%	Other Occupations	%
Cairo	33,447	2.1	288,979	17.8
Alexandria	11,102	1.6	119,388	17.3
Canal	2,656	1.5	29,195	16.5
Damietta	367	0.9	7,092	18.1
Beheira	4,459	0.4	71,375	7.7
Gharbiya	9,519	0.5	141,035	8.2

Appendix 5 continued:

Location	Building and Construction	%	Other Occupations	%
Sharqiya	4,896	0.5	78,951	8.0
Daqhliya	6,414	0.6	134,580	12.8
Menufiya	3,772	0.4	95,825	10.7
Qalubiya	3,406	0.7	49,416	9.6

APPENDIX 6

Co-operative Farming in Action

Co-operative communities were known in the eighteenth century and even as early as the sixteenth century. The motives behind the establishment of these communities were religious or socio-reformistic.(1) The communities with religious background seemed to have survived longest. In the United States, 260 co-operative communities are known to have been established. According to statistics(2) compiled on 130 settlements, 91 lasted less than a decade, 59 less than five years, 50 only two years, and 32 only one year. The causes of dissolution seem to have been the familiar story that begins with enthusiastic idealism and ends in disollusionment and failure. Infield said that lack of systematic planning is perhaps the first lesson to be learned from the collective communities of the past. The problem of leadership and selecting members seems to have been almost completely ignored.

The modern co-operative settlements have developed into a form of new socio-economic organization used by governmental, or semi-governmental agencies to improve rural conditions. The aim may be the total reorganization of society, as in Soviet Russia, China, and other communist countries; the rehabilitation of the low-income farmer, as in Mexico; or it may be occupational redistribution as in Palestine. In all these cases, the primary motive is mainly economic.(3)

In Russia there have been two principles governing the execution of the Land Reform of 1906(4). The so-called 'otrub' system consisted in the combination of all scattered plots of land belonging to one peasant household in one place, or, if this was not possible, at least of the arable fields, while the homestead remained in the village. The so-called 'chutor' system on the other hand, aimed at dividing the whole village into dispersed and individual homesteads. Many practical difficulties were apparent during the execution of the latter scheme. The 1917 revolution came with the conviction that the soil ought to belong to

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(1) Infield, H.F. Co-operative Communities at Work, Kegan Paul, London 1947.p.1
(2) Ibid
(3) Infield, H.F. Co-operative Communities at Work, page 51
(4) Gutkind, E.A. 'Revolution of Environment' Kegan Paul,London 1946,p.373-411

ss who till it. A decree of 1918 provided for three forms of collectivisation. first, under which all the land, buildings and agricultural undertakings were ded over, was the Commune. Work, consumption and income were distributed equ- y among all members without regard to the invested share. The second type of arian collective was the 'toz'; in this case temporary work only was organised pooling the necessary tools and labour for a special purpose. In the third type working capital consisting of tools and farm buildings were collectivised. llings, gardens, poultry and pigs remained individual property. This was a type collective where the agricultural workers, poor and middle-income peasants luntarily united to build large collective farms by pooling their means of prod- tion and labour in order to achieve a high productivity and a large marketable rplus.

These three types have been gradually taken over by the Kolkhozy - collective ms. The Kolkhoz's production was not wholly co-operative(1) Each memeber, in dition to participating in the cultivation of the communal lands, was free to rk a small farmstead of his own, usually one of an acre or two, and he was all- ed to sell privately as much of its products as he could spare.

This is not the place to explain the nature, the formation, the management, r the achievements of the Kolhkoz; but it is important to mention that the Kolh- oz was a part of the country's planned economy. Theoretically the establishment as under indirect compulsion.

The Kolhkoz was known in Russia long before its adoption in some other ountries. In Australia in 1943, the Federal Government decided to emulate the Soviet scheme of collective farming in certain of its aspects.(2) This does not ean that co-operation will necessarily lead to an emulation of the political ystem of Soviet Russia. Co-operative communities can be established, and will function underany political regime.

As Infield has indicated, the genuine and basic difference between the Kolhkoz nd other Government-sponsored co-operative communities is found in the scope of

(1)Infield, H.F. 'Co-operative Communities at Work' Kegan Paul London 1947.page 95 - 116
(2)Ibid

application and the degree to which it is backed by the political system of country. In addition to serving economic ends, such as the increase of farm duction, it has helped to achieve a political aim, the socialization of the untryside.

In Mexico, there are two types of co-operative farming; in one the land is tributed among the members and farmed individually; in the other the land is ed and cultivated co-operatively.(1) There is a great similarity between the arian reform which has been applied in Mexico since 1936 and that operating in pt since 1952 although their general rural gackgrounds differ. The 'Ejido' in ico has achieved more success and good results in a shorter time. This was nly due to the absence of popula tion pressure on the land.

In palestine the Jewish rural settlement, the Kvutza was run on the same lines the Russian or the Chinese Commune, both production and consumption being co- trative.

These schemes and others in other socialist countries have met many human and ctical difficulties and many have been revised according tothe outcome of tain conditions and results.

The Chinese has recently (January 1959) introduced an adventurous experiment this fields (2) They planned an agricultural commun with little or no industry rming an agro-town of up to 100,000 persons. The town comprises five neighbour- oods (residential districts) Every residential district has five work teams each four 'living groups.' The 'living group' comprises 100 households of 500 people opued rounds a mess hall which is also used for other public purposes. The mess all forms the public control centre of the 'living group.'

The residential district provides the next layer of communal services. Each sidential district is to have a supply store, tailor's shop, shoemaker, club ourses, primary and middle schools and administration building, a broadcasting tation and a cinema. The residential districts are grouped round a civic centre

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(1) Infield. H.F. 'Coperative Communities at Work' Kegan Paul.London 1947 p.76-94
(2) The Manchester Guardian, 18th April, 1959 (Article)

rm the agro-town which is to be supplies with the requisite public amenities services. The whole area will be turned into a garden city with the planting fruit trees.

This sytem creates a new aspect in town and country planning in the sense of gizing the rural communities. The relationship between home and work is not, ever, made clear in terms of time, distance and mode of transport, and it would r that this system will entail the destruction of village life and the creat- of new communities. Home life if still regarded as continuing in a modified , but the basic group is no longer the family but the 'living group' of about persons.

The success or failture of this system is very difficult to predict. More is l to be learned about the different motives behind its creation.

Communal and collective farming have also their background in the Arab East[1] mmal forms of ownership have lingered in the remote parts of the Syrian Region the poor villages of the 'Alawis' and among the Buduin settled in the districts 'Hauran' and 'Palmyra'. The land of the village was divided each year among all families of the village in proportion to the numbers of male inhabitants; when individual died or left the village his rights reverted automatically to the munity, and when a new child was born he automatically acquired a share in the ly's right to land.

In Jordan, and the Syrian Region still another form of semi-collective owner- p exists, known as 'mushaa' (shared) which is the custom of re-allotting land unequal shares, to which is the customary right of ownership attached. When tribe settled originally, the arable land of each village was allotted between bers equally, each member owning a piece of land in different zones of the vill- ; to maintain equality between the members, the land was re-allocated at inter- ls. In the course of time as a result of intermarriage the shares held by each ily became unequal, but the custom of periodic re-allotment still continued us- lly at intervals of three years, after each crop rotation period. As a result

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1) Doreen Warrimer. 'Land and Poverty in the Middle East' London 1948. page 14

mber of the village owns a share of the total land in the sense of a claim to ion of the total, not to a specific area, and he holds it in scattered stips e village area, which he interchanges for others of equivalent area, every 2 ars.

ever, this system has disappeared in most of the a ea. This system misses antages alike of individualism and co-operation. When this custom ceases, the tor's land still remains scattered in small strips over the area of the vill- e system is still neither fully individual nor fully collective. According to afourd[1] (the former director of the Land Survey Office in Syria and Lebanon) gmentation of holdings means a loss of about 30% in efficiency - 10% due to t me in moving about between the different strips, 10% due to loss of land, due to excessive seeding.

ser book 'Land and Poverty in the Middle East' Miss Doreen Warriner mentioned om the standpoint of planning large-scale development it would be, of course, sirable to keep the communal basis of land ownership to permit the joint or lve cultivation of large areas. In Europe it is difficult t overcome the 's deeply ingrained traditional individualism, but in the Arab world there is tradition; on the contrary, tradition is all communal. To allow the communal break up into a large number of very small fragmented holdings means that the t of large-scale operations recedes. But, in practice, it would be difficult erve the communal tradition for the purpose of introducing any form of collec- ltivation by keeping on the 'mushaa' custom. Once a 'mushaa' village has saturation point owing to the growth of the number of owners, the conflicts the villagers prevent any agreement between producers and it would be impos- o make any transition to a more complete communal organization from this form. unal types of organization are t be developed they will need to make a new arough a co-operative movement.

is obvious that the survivial of any system of co-operation of the nature of iscussed is dependent on continuing governmental support and stablility of al conditions, since whatever power is given to agencies in charge of reset- , it is clear that their authority will never equal that of the Government of ntry.

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[1] Doreen Warriner,'Land and Poverty in the Middle East' London 1948. page 7

Asfar as the Government in Egypt is concerned in introducing new schemes ar
licies to the rural community, it has a full control on theirrigation systen
d itsoperations as well as having gained experience in the execution of the
nd Reform Law. The Government has also a full control on the cropping of land
it determines the areas to be cultivated with cotton, wheat or clover on eac
lding by ordering the farmer to cultivate a certain percentage of the area of
s land with a certain crop. This percentage was about 33% in the case of cott
and 33% for wheat. This percentage also differs from one year to the other
well as from one district to another according to the economic and financial
ituation of the country and the ability of the Government to buy the excess
ops of cotton or wheat every year having regard to world markets. These fact
ve reason to believe in the ability of the state to carry out any scheme of th
nd envisaged for the reorganisation and development of the rural areas of
gypt.

APPENDIX 7

Prospects in the Syrian Region

Due to the fact of the establishment of the United Arab Republic, the economy of both regions, Egypt and Syria will be affected each by the other. The Syrian Region which is under-populated will be a natural refuge for the surplus of the over-populated Egypt.

The Syrian Region has an area of 66,046 square miles, 19.4% of which is arable land and orchards, 30.8% is permanent meadow and pasture, 2.3% is of forests and woodland, and 47.5% is waste. This means that the cultivated land is about 7.5 million feddans while the number of the population engaged in agriculture is about 1.8 million (45%) out of the total population of 4 million inhabitants of the Region. This gives the rural inhabitants an area of more than 4 feddans for every person to cultivate besides more than 6 feddans of permanent meadow and pasture.

In 1955, 2.4 million feddans were under wheat cultivation, 12 million feddans under barley and 700,000 feddans under cotton which latter produces 60% of the national income of the Region. Mechanization is widely used in the northern Provinces of Humah and Gezira.

About 20% of the Region's area is suitable for cultivation but is not yet exploited. Its fertile nature is in great need for man-power and capital for reclamation. The fellah's experience will give him a great advantage and privilege in the Syrian Region.

Immigration into Syria could be arranged according to the stages of reclamation and the natural rate of increase of the population number in this region. If the 7.5 million feddans were to need a period of 15 years to be reclaimed, they might also need about 3 million people to cultivate this reclaimed land, on the assumption that every family of an average number of four persons will get 10 feddans to cultivate. If the rate of increase in the Syrian population continues at about 2.5% per annum, the total increase in the 15 years needed for reclamation will be about 1.5 million, 45% of which could come from the indigenous agricultural population. This means that 675,000 should come from the Syrian Region and 2,325,000 from the Egyptian Region, mostly from the Delta. An average movement of 155,000 persons per annum would then be possible. This means that the equivalent of more than 39% of the annual increase in the Egyptian population could be transferred to the Syrian Region every year giving a considerable relief to the population pressure on land in Egypt.

APPENDIX 8

Markaz Ashmoun Villages

The villages in the Markaz are of the following sizes and structure as given by 1947 census :-

Village No.	Village Name	Population	No. of hamlets	Total population
1 - (18)	Darawa	5255	16	9257
2 - (35)	Sarawa and K Sarawa	3249	3	5015
3 - (29)	Shatanouf	5021	5	5433
4 - (30)	Shi'sha'	2200	-	2200
5 - (48)	Kr. Mansour	2102	1	2212
6 - (56)	Manyal Arus	2563	2	2612
7 - (13)	El Kawadi	2282	4	2361
8 - (9)	El Ghanamiya	1219	1	1347
9 - (6)	El Barraniya	4411	12	5437
10 - (8)	El Khor	1623	6	1993
11 - (16)	Buhet Shatanouf	2356	7	2892
12 - (7)	El Hilwasi	1483	-	1483
13 - (54)	Manyal Geweda	865	-	865
14 - (14)	El Ninaiya	1160	3	1515
15 - (28)	Sihwag	989	-	989
16 - (40)	Quras	1520	-	1520
17 - (47)	Kafr Quras	1767	2	1823
18 - (11)	Abu Raqaba & Kf.Abu Raqaba	1239	2	2134
19 - (36)	Talya	7180	15	9129
20 - (52)	Mahallet Sobk	3857	-	3857
21 - (41)	Kr. Abu Mahmoud	1743	2	1832
22 - (42)	Kafr El Hima	2037	4	2913
23 - (33)	Shanawai	1872	2	2413
24 - (21)	Saqyet Abu Shara	4611	4	4806
25 - (26)	Samalai	2570	4	2707
26 - (27)	Santaris	5723	5	6260
27 - (23)	Sobk El-Ahad	7876	8	8956
28 - (4)	Villages belonging to Ashmoun Town		24	3898
29 - (AB)	Abu Awali	2283	6	2939
30 - (43)	Kafr El-Saiyid	393	3	599
31 - (34)	Shushai	2209	8	2986
32 - (11)	El-Qanatrin	1398	3	1862
33 - (55)	Manyal Duweib	1772	1	1845
34 - (10)	El-Faraoniya	1874	9	3168

Markaz Ashmoun Villages (Cont'd)

Village No.	Village Name	Population	No. of hamlet	Total population
3- (46)	Kafr El-Faraoniya	2446	8	3135
4- (12)	El-Kuttamiya	1245	7	1484
5- (25)	Samman	1510	5	1811
6- (15)	Barashim	1254	-	1254
7- (38)	Qalata El-Sughra	2615	-	2615
8- (39)	Qalata El-Kubra	2500	-	2500
9- (49)	Kom Ayad	695	-	695
10- (32)	Shanshur	8377	1	8510
11- (24)	Samadoun	8878	15	10316
12- (17)	Gireis	6596	7	7616
13- (45)	Kr. El-Gharib	856	-	856
14- (51)	Migirya & Kr. Megahid	3949	2	3999
15- (50)	Libeisha	1690	3	1765
16- (20)	Ramlet El-Ingib	2714	9	2923
17- (5)	El-Ingib	1840	1	2040
18- (53)	Minshat Gireis	1571	2	1638
19- (57)	Mu'nisa	2921	2	2934
20- (44)	Kafr El-Tarayna	2375	-	2375
21- (19)	Dalhamu	2126	3	3042
22- (37)	Tahawai	6114	4	7702
23- (22)	Sawyet El-Manqadi	2519	1	2556
24- (31)	Shamma	6338	-	6338
27- (3)	Ashmoun the District Centre	19149	(See no. 28)	19149
27	Villages and Towns		232 Hamlets	208511

APPENDIX 9

DENSITY OF POPULATION AND EXCESS OF LABOUR IN MARKAZ ASHMOUN

The following table shows the number of population and the total area of every village together with the density, person per feddan, and the excess of labour in each village.

Village No.	Population	Area in feddans	Density P / F	Excess of Labour
1 -	9257	2538	3.64	1990
2 -	5015	1352	3.71	1005
3 -	5433	1815	2.99	895
4 -	2200	749	2.88	520
5 -	2212	458	4.83	590
6 -	2612	978	2.67	580
7 -	2361	1019	2.32	95
8 -	1347	333	4.04	100
9 -	5347	2891	1.88	1165
10-	1998	894	2.23	5
11-	2892	1165	2.49	795
12-	1483	416	3.32	525
13-	865	333	2.3	275
14-	1515	749	2.02	325
15-	989	478	2.06	290
17-	1823	499	3.65	600
16-	1520	312	4.87	735
18-	2134	770	2.77	1335
19-	9129	3141	2.87	3160
20-	3857	957	4.03	1460
21-	1832	770	2.37	880
22-	2913	1248	2.33	490
23-	2413	582	4.14	555
24-	4806	1290	3.72	1205
25-	2707	938	2.99	895
26-	6260	1622	3.85	1710
27-	8956	2870	3.10	1035
28-	3898	4784	0.81	(See No.57)
29-	2939	1186	2.49	885
30-	599	146	4.11	205
31-	2986	1186	2.52	1530

Density of Population and Excess of Labour in Markaz Ashmoun

Village No.	Population	Area in feddans	Density P / F	Excess of Labour	
32 -	1862	707	2.63	645	
33 -	1845	749	2.47	957	
34 -	3168	790	4.00	725	
35 -	3135	957	3.27	1965	
36 -	1484	582	2.55	523	
37 -	1811	795	2.28	611	
38 -	1254	374	3.35	650	
39 -	2615	603	4.33	653	
40 -	2500	749	3.33	594	
41 -	695	208	3.34	405	
42 -	8510	2246	3.78	2790	
43 -	10316	3499	2.94	3000	
44 -	7616	2392	3.22	1865	
45 -	856	208	4.11	546	
46 -	3999	1102	3.62	1340	
47 -	1765	520	3.40	633	
48 -	2923	978	3.00	1500	
49 -	2040	1082	1.88	1640	
50 -	1638	749	2.09	1070	
51 -	2934	1040	2.82	2052	
52 -	2375	458	4.47	715	
53 -	3042	1206	2.52	955	
54 -	7702	2163	3.56	1400	
55 -	2556	996	2.57	815	
56 -	6338	1352	4.68	3130	
57 -	19149	123	155.43	7230	including 28
	208511	65062	3.24		

APPENDIX X

Population and Occupation in Markaz Ashmoun Villages:

The classification of the population according to sex and occupations in the different village areas is shown in the following table while giving the different occupations the following numbers :-

1 : Agriculture
2 : Rural Industries
3 : Building
4 : Transport and communications
5 : Trade and commerce
6 : Personal services.
7 : Social and Public Services.
8 ; Unspecified
9 : Unemployed

N.B. Population over five years old

Village No. and Population	Sex	Occupations								
		1	2	3	4	5	6	7	8	9
1 - 4657	M.	1671	828	36	219	212	128	359	638	566
3463	F	1718	24	-	2	40	907	3	130	639
8120	T.	3389	852	36	221	252	1035	362	768	1205
2 - 2168	M.	1507	31	6	33	50	19	65	185	272
2148	F.	1546	-	-	-	12	198	1	39	352
4316	T.	3053	31	6	33	62	217	66	224	624
3 -2308	M.	1369	92	14	25	112	45	122	209	320
2327	F.	1341	1	-	-	48	484	4	165	286
4635	T.	2710	93	14	25	160	529	126	372	606
4 - 896	M.	689	20	9	-	22	7	25	60	64
946	F.	729	4	1	-	3	90	1	36	82
1842	T.	1418	24	10	-	25	97	26	96	146
5 - 966	M.	716	11	1	-	23	15	24	55	121
5 7	F.	644	-	-	-	16	107	1	36	143
191	T.	1360	11	1	-	39	122	25	91	264

b.

Village No. and Population	Sex	Occupations								
		1	2	3	4	5	6	7	8	9
6 - 1081	M.	674	32	4	7	42	7	48	138	129
1172	F.	729	4	-	-	12	199	3	51	174
2263	T.	1403	36	4	7	54	206	51	189	303
7 - 1047	M.	703	17	3	2	45	12	40	71	154
1017	F.	656	7	-	-	3	150	2	50	149
2064	T.	1359	24	3	2	48	162	42	121	303
8 - 617	M.	498	4	2	-	2	15	13	65	28
617	F.	454	1	-	-	-	44	4	57	57
1234	T.	952	5	2	-	2	49	17	122	85
9 - 2322	M	1568	45	10	1	52	18	88	222	318
2427	F.	1642	6	-	-	26	281	1	37	434
4749	T.	3210	51	10	1	78	299	89	259	752
10- 812	M.	623	7	-	3	15	4	26	64	80
903	F.	671	2	-	-	12	80	-	38	100
1715	T.	1284	9	-	3	27	84	26	102	180
11- 1198	M.	841	31	9	11	41	11	42	109	103
1264	F.	881	6	-	-	9	183	1	57	127
2462	T.	831	23	9	11	50	194	43	166	230
12- 635	M.	412	14	3	1	7	7	25	95	71
650	F.	419	9	-	-	8	76	1	52	85
1285	T.	831	23	3	1	15	83	26	147	156
13- 338	M.	236	3	-	-	18	6	15	27	33
416	F	283	5	-	-	17	46	2	12	51
754	T.	519	8	-	-	35	52	17	39	84
14- 639	M	422	18	-	21	8	4	24	60	82
667	F.	455	2	-	-	4	71	-	30	105
1306	T.	877	20	-	21	12	75	24	90	187
15- 408	M.	278	4	-	-	6	5	17	49	49
440	F.	298	-	-	-	8	57	1	29	47
848	T.	576	4	-	-	14	62	18	78	96
16- 630	M.	469	3	8	-	13	1	21	63	52
688	F.	519	1	-	-	-	65	-	51	52
1318	T.	988	4	8	-	13	66	21	114	104
17- 729	M.	478	28	7	3	18	8	25	79	83
824	F.	572	5	-	-	24	61	3	24	135
1552	T.	1050	33	7	3	42	69	28	103	218
18- 824	M.	455	35	9	4	50	18	36	125	92
1016	F.	641	-	1	-	12	192	1	62	107
1840	T.	1096	35	10	4	62	210	37	187	199

Village No and Population		Sex	Occupation								
			1	2	3	4	5	6	7	8	9
19	3887	M	2718	71	40	16	138	32	73	318	481
	4014	F	1605	7	1	-	27	644	2	49	679
	7901	T	5323	78	41	16	165	676	75	367	1160
20	1663	M	1207	22	7	-	20	14	43	124	226
	1724	F	1290	-	-	-	-	145	-	60	229
	2387	T	2497	22	7	-	20	159	43	184	455
21	729	M	495	8	1	1	23	4	19	76	102
	856	F	623	-	-	-	13	78	1	38	103
	1585	T	1118	8	1	1	36	82	20	114	205
22	1229	M	844	17	4	15	52	5	50	90	152
	1275	F	797	-	-	-	10	200	-	51	217
	2504	T	1641	17	4	15	62	205	50	141	369
23	1043	M	743	10	3	-	16	8	23	70	170
	1043	F	734	-	-	-	12	81	1	49	165
	2085	T	1477	10	3	-	28	89	24	119	335
24	1991	M	1323	64	6	19	100	15	42	205	217
	2157	F	1376	-	-	-	48	372	1	82	278
	4148	T	2699	64	6	19	148	387	43	287	395
25	1105	M	744	39	3	2	41	10	38	117	111
	1241	F	808	1	-	-	23	172	4	94	139
	2346	T	1552	40	3	2	64	182	42	211	250
26	2693	M	1464	67	15	82	188	40	87	432	318
	2678	F	1536	6	-	1	37	459	1	233	405
	5371	T	3000	73	15	83	225	499	88	665	723
27	3690	M	2328	109	23	8	169	36	113	473	431
	4015	F	2653	17	-	-	63	584	2	195	501
	7705	T	4981	126	23	8	232	620	115	668	932
28	1639	M	1242	8	2	-	10	5	32	96	244
	1779	F	1364	2	-	-	11	87	-	3	312
	3418	T	2606	10	2	-	21	92	32	99	556
29	1226	M	863	16	4	-	19	10	31	120	163
	1343	F	958	1	-	-	16	125	1	22	220
	2569	T	1821	17	4	-	35	135	32	142	383
30	245	M	198	5	4	2	5	-	13	5	13
	279	F	195	21	-	-	1	26	1	-	25
	524	T	393	26	4	2	6	26	14	5	38
31	1224	M	896	13	1	-	10	4	36	103	161
	1361	F	1043	1	-	-	1	91	1	43	181
	2585	T	1939	14	1	-	11	95	37	146	342

d

Village No. and Population		Sex	Occupation								
			1	2	3	4	5	6	7	8	9
32	780	M	555	6	-	-	18	9	6	76	113
	828	F	661	3	-	-	22	27	1	42	72
	1608	T	1216	9	-	-	40	33	7	118	185
33	757	M	455	16	2	-	24	3	26	161	70
	862	F	553	2	-	-	13	101	1	67	125
	1619	T	1008	18	2	-	37	104	27	228	195
34	1316	M	896	28	7	6	37	7	29	106	200
	1382	F	932	1	-	-	27	129	1	69	223
	2698	T	1828	29	7	6	64	136	30	175	423
35	1320	M	859	19	3	1	34	7	24	153	230
	1415	F	1008	3	-	-	13	103	1	40	247
	2735	T	1867	22	3	-	47	110	25	193	467
36	637	M	387	19	3	36	13	3	16	82	78
	650	F	347	1	-	-	6	168	-	77	51
	1287	T	734	20	3	36	19	171	16	159	129
37	724	M	476	9	1	2	24	4	17	95	96
	848	F	613	-	-	-	9	70	1	48	107
	1572	T	1089	9	1	2	33	74	18	143	203
38	531	M	375	11	3	-	14	2	13	48	65
	564	F	403	-	-	-	6	65	1	50	49
	1095	T	778	11	3	-	20	67	14	88	114
39	1116	M	687	25	1	-	31	7	29	170	166
	1186	F	828	1	-	-	9	125	-	47	176
	2302	T	1515	26	1	-	40	132	29	217	342
40	1017	M	601	20	16	-	32	12	66	201	69
	1145	F	814	1	-	-	5	159	1	77	88
	2162	T	1415	21	16	-	37	171	67	278	157
41	317	M	223	2	-	-	3	-	9	43	37
	299	F	206	-	-	-	-	27	-	33	33
	616	T	429	2	-	-	3	27	9	76	70
42	3573	M	2204	104	16	8	130	67	122	473	449
	3683	F	2404	11	-	-	23	461	6	207	571
	7256	T	4608	115	16	8	153	528	128	680	1020
43	4237	M	2698	149	26	18	192	54	115	389	596
	4612	F	2972	29	-	-	78	749	1	167	616
	8849	T	5670	178	26	18	270	803	116	556	1212
44	3314	M	2109	224	13	27	265	43	91	179	363
	3331	F	2152	18	-	-	96	690	2	13	360
	6645	T	4261	242	13	27	361	733	93	192	723

Villiage No. and Population		Sex	Occupation								
			1	2	3	4	5	6	7	8	9
45	351	M	260	2	-	-	7	2	11	34	35
	395	F	304	1	-	-	-	29	-	20	41
	746	T	564	3	-	-	7	31	11	54	76
46	1685	M	1093	27	2	1	82	15	40	175	250
	1714	F	1126	1	-	-	41	219	2	58	267
	3399	T	2219	28	2	1	123	234	42	233	517
47	767	M	551	16	3	-	10	7	22	63	95
	759	F	548	-	-	-	11	68	2	4	126
	1526	T	1099	16	3	-	21	75	24	67	221
48	1251	M	772	48	14	35	55	14	47	175	91
	1265	F	857	3	-	-	30	183	2	103	87
	2516	T	1629	51	14	35	85	197	49	278	178
49	860	M	665	5	3	-	19	10	23	59	76
	928	F	716	-	-	-	9	82	2	30	89
	1788	T	1381	5	3	-	28	92	25	89	165
50	671	M	528	3	2	-	10	6	10	50	62
	733	F	534	-	-	-	4	41	1	38	115
	1404	T	1062	3	2	-	14	47	11	88	177
51	1081	M	674	32	4	7	42	7	48	138	129
	1172	F	729	4	-	-	12	199	3	51	174
	2253	T	1403	36	4	7	54	206	51	189	303
52	1015	M	679	77	4	-	10	11	16	73	145
	1019	F	671	7	-	-	18	123	1	54	145
	2034	T	1350	84	4	-	28	134	17	127	290
53	1304	M	936	8	2	-	15	10	20	114	199
	1368	F	983	-	-	-	19	105	1	54	206
	2672	T	1919	8	2	-	34	115	21	168	405
54	3325	M	2225	234	29	9	127	25	53	210	413
	3254	F	2135	15	1	-	165	365	4	54	515
	6579	T	4360	249	30	9	292	390	57	264	928
55	1101	M	801	13	1	-	49	6	26	95	110
	1151	F	822	7	-	-	66	88	1	30	137
	2253	T	1623	20	1	-	115	94	27	125	247
56	2639	M	1888	72	10	5	67	30	85	226	256
	2732	F	1944	4	-	-	79	306	7	126	266
	5371	T	3832	76	10	5	146	336	92	352	522
57	7843	M	2637	867	81	182	1153	313	555	1005	1050
	8499	F	2420	55	-	2	197	3739	57	781	1248
	16342	T	5057	922	81	184	1350	4053	612	1786	2298
	88330	M	55007	3700	478	806	4003	1177	3130	9138	10891
	91582	F	57933	302	4	5	1527	14694	141	4210	12766
	179912	T	112940	4002	482	811	5530	15871	3271	13348	23657

APPENDIX 11

Distribution of Population in Markaz Ashmoun according to Sex and Age

The following table shows the distribution of population in the different villages of the Markaz according to sex and age as given in the 1947 census :-

V.No.	Sex	Pop.	-5	5-9	10-14	15-19	20-24	25-29	30-39	40-49	50-59	60-o.	
1	M	5188	559	504	538	714	466	214	693	589	378	327	8
	F	4028	576	528	467	367	379	322	535	413	255	278	8
	T	9216	1135	1032	1005	1081	745	734	1228	1002	633	605	16
2	M	1700	249	194	179	179	128	137	218	170	127	113	6
	F	1700	233	217	169	144	136	136	227	184	127	119	8
	T	3400	482	411	348	323	264	263	445	354	254	232	14
2b	M	829	112	91	90	104	62	50	119	80	60	61	-
	F	786	105	107	60	63	45	60	108	109	65	64	-
	T	1615	217	198	150	167	107	110	227	189	125	125	-
3	M	2738	402	378	337	241	165	184	388	286	179	174	4
	F	2736	398	320	290	231	225	217	416	277	170	187	5
	T	5474	800	698	727	472	390	401	801	563	349	361	9
4	M	1083	187	124	99	139	71	75	149	126	60	51	2
	F	1117	171	138	104	153	54	92	161	112	68	58	6
	T	2200	358	262	203	292	125	167	310	238	128	109	8
5	M	1122	156	125	121	163	77	76	142	113	85	64	-
	F	1090	143	131	122	113	60	97	140	123	84	74	3
	T	2212	299	256	243	276	137	173	282	236	169	138	3
6	M	1255	174	159	186	121	78	66	158	136	96	81	-
	F	1357	185	164	153	132	77	76	211	139	100	120	-
	T	2612	359	323	339	253	155	142	369	275	196	201	-
7	M	1204	160	149	188	131	72	66	154	151	75	58	-
	F	1154	137	127	135	103	52	77	179	143	88	113	-
	T	2358	297	276	323	234	124	143	333	394	163	171	-
8	M	667	50	64	70	121	54	63	95	78	40	31	1
	F	680	63	75	93	77	55	52	105	81	41	39	-
	T	1347	113	138	163	198	109	115	200	159	81	70	1
9	M	2737	346	315	371	267	169	198	390	327	162	188	4
	F	2870	376	321	349	236	169	222	416	340	201	226	14
	T	5607	722	636	720	503	338	420	806	667	363	414	18
10	M	871	125	117	100	105	71	49	112	97	57	38	-
	F	955	119	125	102	72	66	85	138	98	80	69	1
	T	1826	244	242	202	177	137	134	250	195	137	107	1
11	M	1253	200	144	152	149	75	87	162	118	91	74	1
	F	1280	185	151	148	127	103	81	185	145	77	78	-
	T	2533	385	295	300	276	178	168	347	263	168	152	1

b

V.No.	Sex	Pop.	-5	5-9	10-14	15-19	20-24	25-29	30-39	40-49	50-59	60-o	
12	M	896	116	128	124	94	55	68	112	81	61	56	1
	F	946	127	115	106	88	55	96	133	94	70	62	-
	T	1842	243	243	230	182	110	164	245	175	131	118	1
13	M	394	56	46	55	39	30	30	42	43	25	28	-
	F	471	55	65	52	44	31	37	74	46	37	29	1
	T	865	111	111	107	83	61	67	116	89	62	57	1
14	M	743	104	97	100	75	49	65	99	72	48	34	-
	F	772	105	99	87	58	59	87	85	84	73	34	1
	T	1515	309	196	187	133	108	152	184	156	121	68	1
15	M	480	72	64	68	40	27	30	59	54	38	28	-
	F	509	69	52	53	42	37	43	81	60	31	41	-
	T	989	141	116	121	82	64	73	140	114	69	69	-
16	M	726	96	90	79	79	49	66	115	76	39	37	-
	F	794	106	98	92	71	65	69	131	71	46	45	-
	T	1520	202	188	171	150	114	135	346	147	85	82	-
17	M	854	125	124	73	97	56	53	121	94	59	51	1
	F	969	145	105	70	81	57	53	156	101	85	106	10
	T	1823	270	229	143	178	113	106	277	195	144	157	11
18	M	663	91	107	70	62	43	44	107	90	30	18	1
	F	801	103	96	74	60	48	68	160	76	42	72	2
	T	1464	194	203	144	122	91	112	267	166	72	90	3
18b	M	306	54	57	26	26	18	17	42	29	18	19	-
	F	364	46	54	45	29	30	24	41	36	30	29	-
	T	670	100	111	71	55	48	41	83	65	48	48	-
19	M	4501	614	608	581	474	288	321	562	455	312	280	6
	F	4628	614	649	499	323	330	398	621	500	334	340	20
	T	9129	1228	1257	1080	797	681	719	1185	955	646	620	26
20	M	1902	239	241	195	216	109	167	235	241	147	112	-
	F	1955	231	266	196	173	134	162	249	270	156	118	-
	T	3857	470	507	391	389	243	329	484	511	303	230	-
21	M	834	118	127	82	78	56	27	119	77	91	58	1
	F	968	128	117	102	111	58	50	129	105	69	98	1
	T	1802	246	244	184	189	114	77	248	182	160	156	2
22	M	1431	202	178	160	166	66	88	170	183	105	111	2
	F	1482	207	204	79	189	72	78	215	187	106	142	3
	T	2913	409	382	239	355	138	166	385	370	211	253	5
23	M	1197	154	162	141	159	72	98	165	104	70	82	-
	F	1216	174	142	115	105	81	116	151	104	99	129	-
	T	2413	328	304	256	254	153	214	316	208	169	211	-
24	M	2312	321	296	275	249	126	143	291	277	201	160	-
	F	2494	337	258	251	234	180	201	372	303	222	136	-
	T	4806	658	527	526	483	306	344	663	580	423	296	-

V.No.	Sex	Pop.	-5	5-9	10-14	15-19	20-24	25-29	30-39	40-49	50-59	60-o.	
25	M	1293	188	145	120	125	87	110	167	133	123	95	-
	F	1414	173	165	133	131	113	112	185	179	107	115	1
	T	2707	361	310	253	253	256	200	222	352	312	210	1
26	M	3127	434	435	377	302	181	208	386	301	250	250	3
	F	3133	455	459	337	251	194	268	416	353	231	156	13
	T	6260	889	894	714	553	375	476	802	654	481	406	16
27	M	4320	617	591	502	471	252	272	531	556	323	303	2
	F	4666	635	538	488	405	315	358	646	540	393	341	7
	T	8986	1252	1129	990	876	567	630	1177	996	716	644	9
28	Villages belong to Ashmoun Town are included with the Town in 57												
29	M	1417	183	167	188	153	77	95	163	214	108	63	6
	F	1533	188	205	180	135	89	104	246	199	93	91	3
	T	2950	371	372	368	288	166	199	409	413	201	154	9
30	M	286	40	33	41	21	18	23	46	28	17	18	-
	F	314	35	39	32	21	30	28	45	31	25	28	-
	T	599	75	72	73	42	48	51	91	59	42	46	-
31	M	1387	182	194	145	131	95	106	193	144	86	111	-
	F	1539	201	195	160	117	107	116	236	161	105	140	1
	T	2925	383	389	305	248	202	222	429	305	191	251	1
32	M	901	121	166	87	115	52	69	113	64	50	64	-
	F	961	133	118	71	84	78	79	138	108	69	83	-
	T	1862	254	284	158	199	130	148	251	172	119	147	-
33	M	864	107	104	102	123	53	57	122	72	49	74	1
	F	981	119	127	103	92	56	85	151	77	102	61	8
	T	1845	226	231	205	215	109	142	273	149	151	135	9
34	M	1533	217	235	188	168	103	110	175	140	93	103	1
	F	1635	253	222	164	144	122	156	188	181	103	101	1
	T	3168	470	457	352	312	225	266	363	321	196	204	2
35	M	1514	194	206	192	158	59	93	213	203	95	98	3
	F	1621	206	194	170	196	85	128	236	222	77	107	1
	T	3135	400	400	362	354	143	221	449	425	172	205	4
36	M	720	108	98	82	72	34	45	98	85	47	51	-
	F	707	84	73	82	66	40	57	103	99	54	49	-
	T	1427	192	171	164	138	74	102	201	184	101	100	-
37	M	835	111	114	95	98	52	51	103	94	61	55	1
	F	976	128	116	101	102	53	74	125	120	69	86	2
	T	1811	239	230	196	200	105	125	228	214	130	141	3
38	M	602	71	73	60	68	36	55	92	75	31	41	-
	F	652	88	60	51	65	36	65	91	95	45	55	1
	T	1254	159	133	111	133	72	120	183	170	76	96	1
39	M	1280	164	186	119	140	71	78	121	150	118	121	12
	F	1335	149	150	149	112	66	77	140	191	133	152	16
	T	2615	313	336	268	252	137	155	261	341	251	273	28

d

V.No.	Sex	Pop.	-5	5-9	10-14	15-19	20-24	25-29	30-39	40-49	50-59	60-69	
40	M	1174	157	157	136	98	82	77	172	117	99	79	-
	F	1326	181	148	144	120	66	102	174	154	141	86	-
	T	2500	238	305	280	218	148	179	346	271	240	175	-
41	M	355	38	46	48	32	22	24	46	41	31	27	-
	F	340	41	44	31	11	16	31	46	60	33	27	-
	T	695	79	90	79	43	38	55	92	101	64	54	-
42	M	4202	610	565	454	372	252	265	538	477	350	316	3
	F	4368	662	590	420	295	258	308	649	496	394	287	9
	T	8570	1272	1155	874	667	510	573	1187	973	744	603	12
43	M	4975	754	704	562	471	295	316	643	495	361	372	2
	F	5309	711	698	547	431	334	434	762	606	383	400	3
	T	10284	1465	1402	1109	902	629	750	1405	1101	744	772	5
44	M	3792	486	472	452	461	224	281	512	402	277	225	-
	F	3813	484	445	350	335	291	305	548	468	316	268	2
	T	7605	970	917	802	796	515	586	1061	870	593	493	2
45	M	402	51	55	38	35	29	31	73	46	27	17	-
	F	454	59	59	46	43	26	64	61	48	25	23	-
	T	856	110	114	84	78	55	95	134	94	52	40	-
46	M	2001	316	294	236	208	179	94	206	248	141	118	1
	F	1998	284	242	190	171	115	102	298	293	129	163	11
	T	3999	600	536	426	379	254	196	504	541	270	281	12
47	M	890	123	133	83	104	34	58	118	106	79	52	-
	F	875	116	115	67	73	53	55	134	114	83	65	-
	T	1765	239	248	150	177	87	113	252	220	162	117	-
48	M	1439	188	190	144	156	88	104	197	175	95	101	1
	F	1484	219	164	154	105	106	90	224	184	113	123	2
	T	2923	407	354	298	261	194	194	421	359	208	224	3
49	M	991	131	119	105	101	67	64	128	122	76	78	-
	F	1049	121	125	91	74	72	76	179	115	88	108	-
	T	2040	252	244	196	175	139	140	307	237	164	186	-
50	M	782	111	80	77	92	58	70	108	76	57	53	-
	F	856	123	91	100	81	50	69	132	94	64	52	-
	T	1638	234	171	177	173	108	139	240	170	121	105	-
51	M	1451	211	197	129	161	80	76	152	176	114	123	32
	F	1483	219	190	81	126	63	81	208	172	138	154	51
	T	2934	430	387	210	287	143	157	360	348	252	277	83
52	M	1199	184	167	139	126	58	74	157	137	74	83	-
	F	1176	157	145	104	105	73	109	169	129	74	107	4
	T	2375	341	312	243	231	131	183	326	266	148	190	4
53	M	1820	229	255	263	200	86	148	214	205	112	102	5
	F	1944	256	246	243	184	132	138	266	224	112	138	5
	T	3764	485	501	506	384	218	286	480	429	224	241	10
54	M	3527	489	434	370	442	262	249	484	353	207	234	3
	F	3453	519	361	358	341	241	251	479	348	246	301	8
	T	6980	1008	795	728	783	503	500	963	701	453	535	11

V.No.	Sex	Pop.	-5	5-9	10-14	15-19	20-24	25-29	30-39	40-49	50-59	60-o.	
55	M	1265	164	147	177	161	69	81	153	144	79	90	-
	F	1291	160	149	137	129	75	94	191	171	95	108	2
	T	2556	304	296	314	290	144	175	344	315	174	198	2
56	M	3112	473	432	338	322	189	221	426	344	209	158	-
	F	3226	494	397	294	246	205	249	527	396	195	222	1
	T	6338	967	829	632	568	394	470	953	740	404	380	1
57	Ashmound the Town and villages belonging to it :												
	M	11101	1603	1501	1433	1138	753	727	1437	1211	685	605	8
	F	11978	1686	1624	1398	1051	880	963	1683	1279	761	634	9
	T	23079	3289	3125	2831	2189	1633	1690	3120	2490	1446	1239	17
	M	102442	14137	13357	11942	11103	6489	7012	13306	11181	7178	6615	122
	F	106012	14457	13217	10989	9268	6997	8227	15096	12108	7752	7647	254
	T	208454	28594	26574	22931	20271	13486	15239	28402	23289	14930	14262	376

APPENDIX 12

Irrigation Channels in Markaz Ashmoun.

The following table shows the different irrigation channels in Ashmoun and the areas they serve.

Channel	Length Km	Area Feddan	Channel	Length Km	Area Feddan
Riah - Menoufi	22.00	3000	Waslet Ashmound	1.675	1785
Naggar	28.20	4050	Gaun. El-Nagger	10.55	1500
Sabbal Kibli	1.20	6000	Shisha	4.40	1250
Sabbal Bahri	2.60	1000	Rommana	5.45	920
Masruf No.	6.68	3000	El-Kor	4.70	1000
Masruf Ro.	5.47	1400	El-Ansari	3.00	5434
El-Hallabi	5.10	1200	Ashmoun	17.135	3914
El-Ninaia	22.96	6200	El-Nokra Gharbi	9.50	1100
Gann Sam	50.00	11200	Abu-Awali	5.50	2850
Gann Meg	6.26	1500	Gann Shatanouf	8.57	500
Gann El-Ina	6.60	1200	Om-Saida	3.00	565
El-Shansh	17.00	6600	Im-Shatanouf	3.40	4145
Fazzar El-Gibli	1.70	600	Gann El-Hia K	12.99	7800
Fazzar El-Shark	9.02	3200	Gann El-Amria	11.08	2400
K. Mahmoud	1.10	1400	Gann El-Hin.B.	9.40	1400
Darawa & R	20.80	7800	Gann.El-Migas	5.58	1500
El-Nagg	10.00	2391	Fazzar El-Kibli	6.20	1500
			El-Nokra	6.80	2570

APPENDIX 13

Primary Schools in Markaz Ashmoun

a. Primary schools for boys.

Name of School	No. of classes	No. of students
1. Shama	5	228
2 Tahaway	4	189
3. Abu Ali in Manial Arous	10	346
4. Samilai	6	207
5. Sentris	6	244
6. Sentris El-Gadida	10	315
7. Talya	7	254
8. Ashmoun El-Gadida	1	201
9. El-Wadi in Ashmoun	8	312
10. El-Nil in Ashmoun	8	312
11. El-Nahda El-Gadida in Ashmoun	8	308
12. El-Ahd El-Gadid in Samadoun	10	447
13. Samadoun	8	327
14. Darawa	6	258
15 Shatanouf	5	158
16. El-Khattabiya in Sobk El-Ahad	5	191
17. El Emary in Sobk El-Ahad	5	184
18. El-Arab in Shanshour	10	398
19. Shanshour	8	371

b. Primary Schools for girls:

Name of School	No. of classes	No. of students	
1. Ashmoun	5	197	males 9
2. Salah El-Din in Ashmoun	7	261	37
3. El-Shafi'i in Ashmoun	11	427	
4. Sentris Establishment	9	308	
5. Shama	6	141	34
6. Tahawah	5	153	
7. El-Kawadi	6	172	15
8. Semla	6	207	
9. Talya	5	204	
10. Samadoun	6	192	
11. Shatanouf	5	171	
12. Sobk El-Ahad	7	208	
13. Shanshouf	8	301	

This besides two private schools under Governmental supervision

1.Gireis El-Hurra:5 classes 171 boys. 2.Sobk El-Ahad El-Hurra:3 classes 24b.28g.

c. Mixed Primary Schools:

	Name of School	No. of classes	No. of students M.	F.
1	El-Ingib	6	151	49
2	Collective Unit in Tahaway	10	253	123
3	Dalhuma	6	135	53
4	Ramlet El-Ingib	6	125	124
5	Ramlet El-Ingib, R.W. station	2	65	4
6	Saqiet El-Munqadi	5	99	49
7	Kafr El-Tarraniya	7	158	57
8	El-Barraniya	9	310	75
9	El-Hadayeq	11	316	165
10	El-Helwasi	5	111	65
11	El-Gannamiya	6	128	100
12	El-Qanatrin	7	167	90
13	El-Neinaiay	6	171	52
14	Collective U. Sqiet Abu Shara	10	195	105
15	Collective Unit in Talya	8	153	126
16	Saqiet Abu Shara	4	115	36
17	Shi'sha	7	192	79
18	Shanaway	7	174	94
19	Shoushay	6	221	41
20	Sarawa	6	194	64
21	Ezbet El-Ahali	6	109	79
22	Kafr Abu-Mahmoud	6	152	57
23	Kafr El-Hima	6	117	59
24	Kafr Sarawa	6	166	66
25	Kafr Qoras	7	176	62
26	Kafr Mansour	6	162	114
27	Manial Arous	6	70	123
28	Abu Awali	5	114	54
29	Collective Unit in Greis	9	219	102
30	Collective Unit in Shatanouf	8	213	86
31	C.U. in Sbok El-ahad	11	235	166
32	Gereis	5	131	74
33	Darawa	6	136	106
34	El-Khour	6	143	61
35	Shatanouf	5	129	41
36	Buhet Shatanouf	7	217	97
37	Migera	9	319	73
38	Minshat Gireis	4	93	71
39	Mo'nesa	6	128	38
40	Mahallet Sobk	9	228	75
41	Abu Rakaba	5	118	71
42	El-Faraouniya	7	223	55
43	Kafr El-Faraouniya	6	211	45
44	Barashim	7	189	53
45	Libesha	7	144	71
46	Manial Duweib	7	170	65
47	Qoras	6	146	75

APPENDIX 14

Land Utilization in Shatanouf

The following table shows the areas of the different 'hod' - block - divisions in Shatanouf and the areas occupied by buildings or public services constructions (1946) :

Name of the 'hod'	No. of 'hod'	Cultivated area in fed.	Area under other items	Notes
El-Sambuk West	1	98.80	0.08	
El-Sambuk East	2	88.68	-	
El-Qabbalah El-Bahriya	3	113.60	15.60	
El-Qabbalah 1st.division	4	96.52	-	
El-Qabbalah 2nd.division	4	54.00	14.88	
El-Sambuk Qibli	5	58.32	2.08	
El-Sambuk Bahari	6	79.80	10.60	
El-Hamed 1st division	7	21.92	0.20	
El-Hamed 2nd division	7	67.36	0.20	
El-Melk El-Qibli	8	83.04	2.80	
El-Genneya and El-Melk	9	66.24	0.98	
Dayer El-Nahya and El-Milk	10	22.04	3.36	
			19.20	Built-up area West (1)
			3.52	Threshing area 'gorn'
El-Gakban	11	29.12	0.60	
			14.52	Built-up area East
			1.30	Threshing area 'gorn'
El-Sant	12	99.30	15.08	
El-Ziyarah El-Bahariya	13	87.84	19.32	
El-Ziyarah El-Qibliya	14	65.80	10.80	
Ziyadet El-Qasab	15	47.12	6.88	
El-Hagganiya El-Bahariya	16	67.56	4.15	
El-Nezeily	17	81.04	18.44	
			0.08	School and a house
El-Hagganiya El-Qibliya	18	110.88	20.56	
El-Nagayel El-Barhariya	19	49.68	23.32	
El-Nagayel El-Qibliya	20	87.04	2.12	
El-Touta El-Bahariya Gz	21	70.72	7.00	
El-Touta El-Qibliya Gz	22	82.08	4.28	
El-Gazira - section 2	23	91.84	2.32	
			11.60	State land
Total		1830.34	245.08	

(1) At present the built up area is about 28 f.in west; about 17 f. in East.

B I B L I O G R A P H Y

BIBLIOGRAPHY

1. Agamieh, M.M.

   Rehabilitation of the Sanitary Conditions in an Egyptian Village. (article)- Housing and Town and Country Planning U.N.O. Bulletin 6. 1952

2. Allen H.A.B.

   Rural Reconstruction in Action, experience in the Near and Middle East. New York, 1953

3. Allen H.A.B.

   Rural Education and welfare in the Middle East, London 1946

4. Ammar, H.

   Growing up in an Egyptian Village. Routledge and Kegan Paul Ltd., London 1954.

5. Ammar, H.

   Field Work in the Countryside (arabic text) Education and Training Centre, Serse El-Layan, 1955

6. Annuaire Statistique

   Egypt 1947 - 1948

7. Atlas of Egypt

   Survey Department - Cairo 1928.

8. Ayrout, Habib

   The Fellaheen. A. Schindler, Cairo 1945

9. Ball, J.

   Contribution to the Geography of Egypt, Government Press Cairo 1939

10. Balls, L.

    Egypt of the Egyptians, London 1915

11. Beshara. A.N.

    The Geographic Background of the Distribution and Character of Manufacturing Industry in Egypt. (Ph.D. Thesis, Durham University 1956)

12. Bigland, E.

    Journey to Egypt, Jarrolds, London, 1947.

13. Blackman, W.S.

The Fellaheen of Upper Egypt, London, Cambridge University Press, 1927

14. Bonne, A.

State and Economics in the Middle East, Routlege and Kegan Paul London 1955.

15. Breasted J.H.

The Conquest of Civilization,(The earlier Nile-dwellers)London 1932.

16. Bronowski, J.

Developments in Under-developed countries (article), Housing and Town and Country Planning, U.N.O. Bulletin 8, 1952

17. Budge, Sir. E.A.W.

Short history of the Egyptian People, London 1914

18. Census 1947

Ministry of Finance, Cairo 1949

19 Census Book of Modiriyet El-Munifiya (1947)

Ministry of Finance, Cairo 1952

20. Colonial Office

Report of a Survey of Problems in theMechanization of Native Agriculture in Tropical African Colonies.

21 The Cultural Department - Ministry of Education

Egypt: A Historical Synopsis - Cairo 1956.

22. Dube, S.C.

India's Changing Village, Routledge and Kegan Paul.London 1958

23. The Economist (July 28, 1958)

Brave Egyptian World (article)

24. Education and Training Centre (Serse El-Laayan)

Dalil El-Quariya (Village Guide) - arabic text, Cairo 1956

25. Edwards, A.B.

Pharaohs, Fellahs and Explorers, London 1891

26. El-Ani Shakir

Report of mission 'Community Organization and Development Series' Middle East. Social Affairs Department, U.N.O. New York.

27. The Engineers (magazine - arabic text)

Special addition, June - July 1956 - vol. VI, Cairo

28. Erman, E.

Life in Ancient Egypt, London 1922

29 Fairman. H.W.

13. Blackman, W.S.

The Fellaheen of Upper Egypt, London. Cambridge University Press, 1927

14. Bonné, A.

State and Economics in the Middle East, Routledge and Kegan Paul London 1955.

15. Breasted, J.H.

The Conquest of Civilization (The earlier Nile-dwellers) London 1938.

16. Bronowski, J.

Developments in Under-developed countries (article) Housing and Town and Country Planning, U.N.O. Bulletin 6, 1952

17. Budge, Sir. E.A.W.

Short History of the Egyptian People, London 1914

18. Census 1947

Ministry of Finance, Cairo 1949

19. Census book of Moderiyet El-Menufiya (1947)

Ministry of Finance, Cairo 1952

20. Colonial Office

Report of a Survey of Problems in the Mechanization of Native agriculture in Tropical African Colonies.

21. The Cultural Department - Ministry of Education

Egypt : a Historical Synopsis - Cairo 1956.

22. Dube, S.C.

India's Changing Villages, Routledge and Kegan Paul, London 1958

23. The Economist (July 26, 1958)

Brave Egyptian World (article)

24. Education and Training Centre (Sers El-Layan).

Dalil El-Qarya (Village Guide) - arabic text, Cairo 1956

25. Edwards, A.B.

Pharaohs, Fellahs and Explorers, London 1891

26. El-Ant Shakir

Report of mission "Community Organization and Development Services" Middle East. Social Affairs Department, U.N.O. New York.

27. The Engineers (magazine - arabic text)

Special addition June - July 1956 - vol. VI. Cairo

28. Erman, A.

Life in Ancient Egypt, London 1927

29. Fairman, H.W.

Town Planning in Pharaonic Egypt (article)
Town Planning Review, Liverpool University Press, April 1949.

30. Fawzy, M.

NAWAG: A Pilot Experiment for Solving The Problem of Fragmentation in Egypt. Public Relations Department Agrarian Reform, Cairo 1958.

31 F.A.O. (U.N.)

Inter-Relationship between Agrarian Reform and Agricultural Development, Rome, September, 1953

32.F.F.A.O. (U.N.)

Consideration and Progress for the Successful Introduction of Farm Mechanization, Rome, 1954.

33. F.A.O. (U.N.)

Agriculture in the World Economy, Rome 1955.

34. F.A.O. (U.N.)

The Consolidation of Fragmented Agricultural Holdings, Washington 1950

35. F.A.O. (U.N.)

Farm Mechanization, Washington 1950

36. Francis, R.

Agriculture in Egypt, Government Press, Cairo 1949

37. Francis R.

Social Welfare in Egypt, Government Press, Cairo 1952

38. Gardner-Medwin

United Nations Resettlements in the Far East (article) Town and Country Planning Review, Liverpool University Press, Janury, 1952.

39. Giedion, S.

Mechanization takes Command, Oxford University Press, New York, 1948

40. Gutkind E.A.

Community and Environment Kegan Paul, London 1952.

41. Gutkind E.A.

Creative Demobilisation, Case Studies in National Planning (Vol II) London 1942.

42. Gutkind E.A.

Revolution of Environment. Kegan Paul, London 1946.

43. Gutkind E.A.

The Expanding Environment, Free Press, London 1953.

44. Hamdans. G.

The Population Atles of the Mid Delta, Reading University Thesis 1953

45. Hilberseimer, L.

The Regional Pattern, Paul Theobald, Chicago, 1949.

46. Housing in the Tropics (articles)

Bulletins 4, 6 and 8 of Housing and Town and Country Planning. U.N.O. 1952.

47. Hurst, H.E.

The Nile, Constable, London 1952.

48. Hutch, D.S.

Towards Freedeom from Want, India and Mexico. New York, 1949

49. Infield H.F.

Co-operative Communities at Work, Kegan Paul London 1947.

50. Inter Centre of Regional Planning and Development

Report of the Proceedings of the Conference held in London, September, 1955.

51. Issawi, C.

Egypt at Mid Century an Economic Survey, London Oxford University Press, 1954.

52. Jasny, Naum

Socialized Agriculture of the U.S.S.R. California Stanford University Press.

53. Keith Jeremiah

A Full Life in the Country - Batsford, London 1949.

54. Kendal, H.

Village Development in Palastine during the British Mandate. Crown Agents for the Colonies, London 1949.

55. Lacouture, J. and S.

Egypt in Transition, Methuer- London 1958.

56. Luzach, J.K. Hug

L'Habitat Rural en Egypte, 1930
Le Delta du Nil, E.K.N. Schindler, Le Caire, 1935.

57. McCallum

Physical Plannning. The Architecture Press, London 1946.

58. MacIver, R.M.

Societ , Rinehart and Company, Inc. New York, 1947.

60. The Manchester Guardian

China Back-Pedels on Communes, article 18th April 1954.

61 Marii.S.

Agrarian Reform in Egypt . Government Press, Cairo 1957.

62. Ministry of Finance and Economy.

Bulletin of Agricultural and Economic Statistics, May 1951.

63. Ministry of Social Affairs. Fellah Department

A Research in the Housing State of :-
El-Rubamaia, Sharkia; Naage El-Quara, Asswan; and Sengirg, Menoufia. Cairo 1953.

64. Ministry of Socials Affairs, Egypt

A Social and Economical Study in Beni Hilal, Sharkia, Cairo 1954

65. Ministry of Social Affairs, Fellah Department

Models for the Village Buildin s, pamphlet, Cairo 1950

66. Ministry of Social Affairs, Egypt

Report on Social And Rural Welfare.

67. Murzy. K.A.H.

The Economic Wealth of the Middle East. M.E. ag.D. Co.London 1944

68. Nahhas, G.

The Fellah (Articls) (Arabic Text) Cairo 1946.

69. Nasr. Dr. N.S.

A Study of Agricultural Geography in the Nile Delta, Cairo 1955

70. National Bank of Egypt

Observation of the Urbanization and Distribution of Agriculture Population in Egypt. Economic Bulletin - vol. VIII No.3.Cairo 1955.

71. Oxford Economic Atlas of the World

Clarendon Press, Oxford, 1954.

72. Permanent Council on National Production

A Report on the work of the council, Government Press, Cairo 1955.

73. Permanent Council of Public Services

A Report on the Work of the Council, Government Press, Cairo 1956.

74. Petrie. Sir. W.M.F.

The Making of Egypt. A.Sc. of Arc. in Egypt, 1939

75. Randhawa. M.S.

Developing Village India, Orient Longmans, Bombay, 1951

76. Radhakamal Mukergee

Planning the Countryside. Hind Kitabs, Bombay 1946.

TEODOROVIC R

77. Rovitch, B. Tudor

Housing Problems in Rural Egypt (Arabic Text) Education and Training Centre, Berse, El-Layan, Egypt, 1955.

78. Said. M.

Agricultural Economy (Arabic Text) 2nd Edition - Cairo 1953.

79. Shah, K.T.

National Planning Principles and Administrations (National Planning Committee Series) Bombay 1948.

80 Sharp, T.

The Anatomy of the Village Penguin Books, 1946.

81. Scott Report

Report of the Committee on Land Utilization in Rural Areas, H.M.S.O. London. 1942.

82. Sidky, A.

Egypt's Agrarian Policy under the New Regime. Cairo 1954.

83. Sidky A. and El-Sadre

The Planning of El-Tahreer Province, Report - Cairo 1953.

84. Sirry and Keeling

Soil Salinity and Fertility, Cairo 1938.

85. Stamp L. Dudley

Our Underveloped World. Faber, London 1940.

86. Stewart, C.

The Village Surveyed, Edward, Arnod & Co. London 1948.

87. Tyrwhitt. J.

Patrick Geddes in Inida, Lund Humphries, London 1947.

88. U.N.O. Social Affairs Department

Report on : Technical Assistance for Social Services. New York.

89. U.N.O.

Report of Mission of Experts of Low Cost Housing in South and South East Asia, (1950 - 1951) Housing and Town and Country Planning, U.N.O. Bulletin 6 1957.

90. U.N.O.

Progress in Land Reform (Second Report) New York 1956.

91. U.N.O. Department of Economic and Social Affairs.

Process of Industrialization in Under-developed Country. New York 1955.

92 U.N.O.

Rural Progress Through Co-operatives, New York 1954.

93. U.N.O. Department of Economic and Social Affairs

Assistance to the Needy in Less-developed areas. New York 1956.

94. U.N.O.

Report of the Mission on Community Organization and Development in Selected Arab Countries in the Middle East. November 1953.

95. U.N.O.

Measures for the Economic Development of Under-developed Countries New York, May, 1951.

96. U.N.O.

Supplement to World Economic Report. Summary of Recent Economic Developments in the Middle East, New York, 1952 - 1953.

97. Urbanisation (magazine No. 22 - 1957)

Prosciugamento e pianificuzuine nello Zuideezee
(Planning in the Zuiderzee in Holland)

98. Vital Statistics - Ministry of Finance (1947)

99. Warriner. Doreen

Land and Povery in the Middle East. Royal Institute of International Affairs. London 1948.

100. Watkin. E.E. and Zawadski K.K.F.

The Development of Backward Countries - A General Survey. Planning Outline, Vol. IV No. 1 1956.

101. Weir, J.

An Evaluation of Health and Sanitation inEgyptian Villages. The Journal of the E.P.H.A. vol. 27 no. 3 1952.

102. Willcocks, Sir. W. and J.L. Craig

Egyptian Irrigation, vol 2. London 1913 E. & F.N. Spon.

103. Winlock, H.E.

Models of Daily Life in Ancient Egypt. Published by Cambridge Massachusetts, U.S.A. 1955.

104. Shebin El-Kom Education Zone

Education Department, Education Cenus 1957 - 58.