A geographical study of the coastal zone between homs and misurta, tripelitania a geography of economic growth

K. S. McLaehlan

SECTION THREE

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Chapter Six - Economic Aspects of Farming in Misuratino in relation to Transitional Economic Growth Effects in Social-Economic Development.

(1) The Increase in Production

(a) Yields.

'Agriculture must supply more food to meet the likely rise in population and the proportionately greater increase in the number of town dwellers. It must expand markets for the potential leading industrial sectors. It must provide, as farmers' real incomes rise, a source of taxation from which the Government's functions in the transition may be financed. It must also supply an expanded supply of loanable funds to the modern sector, thus transferring surplus income from those who would waste it in prodigal living to those who will invest it and then regularly plough back their profits.' - quote Rostow on Growth.(63)

Rostow cites agricultural expansion as an essential pre-requisite for gain in economic momentum which must take place before the growing, under-developed nations are able to enter the 'Take-off' phase of development. In Tripolitania, it will be shown how the rural peoples and landscape are reacting to the tremors of economic transition and tribal dissolution which have been examined in the previous chapter. The characteristics of the break-down of traditional society have been illustrated in respect to Misuratino; this chapter will be devoted to a discussion of the transition elements which have appeared in the farming areas of Tripolitania and the degree to which they have

become effective in recent years.

In the traditional social and economic framework which operated in Libya in the years before the Italian conquest, the rural areas of Misuratino were essentially self-sufficient. The nomadic tribes were adjusted to the necessities of the pastoral life from which they gained a living, at times good, more frequently indifferent, and often poor, depending upon the vagaries of the climate and the availability of pasture and water for the flocks. The social surplus from this economic activity was correspondingly small. Where the environment permitted an easy living, as for instance in the Jebel Akhdar areas of Cyrenaica, or where alien trade routes brought an influx of wealth, the accumulated capital tended to give rise to tribal friction and periodic war-fare. In this case the wealth, rather than finding its way into long-term investment in permanent resources, tended to be dissipated in financing armed raiding. Luxuries in the desert are infinitely more costly than luxuries in more temperate surroundings, thus the war horses, kept by the notables of the nomadic tribes and the finely bred racing dromedaries of the Tuaregs of the interior were proportionately a greater undertaking in terms of maintenance in extreme conditions, than were the battle horses bred for combat in feudal Europe. The net result of these factors has been to militate against the accumulation of social capital and to tie the majority of the population engaged in pastoral occupance to the necessity of providing food and shelter.

The oases, too, exhibited features which were primely self-sufficient. The semi-nomadism which prevailed amongst most oasis tribal groups until the closing years of the Nineteenth Century, and which still operates amongst some of the Arab groups of Misuratino at the present day, was in large part a direct response by the social groups to the need for the provision of food for man and beast. The operation of semi-nomadism represents the working of the simple social mechanism whereby the lack of accumulated resources was compensated for by seasonal movement to ready sources of supply. We have seen that nomadism was introduced into Libya during the Hilalian invasions, that the indigenous Berber peasant society was almost eliminated by the dynamic force of the nomads, and that nomadism was by no means the sole possible response to environmental conditions in Tripolitania. The cultural predilection of the Hilalians and their successors towards nomadism may be accounted as the prime factor in reducing the mass of the peoples of the area to subsistence economies, and in preventing the amassing of social surplus even in the richer oasis belts.

Whilst the forces of nomadism dominated the interior steppes, and the necessities of the semi-nomadic life precluded profitable utilisation of the coastal oases, there was no elasticity in the economy of the area which would permit the growth of private or communal investment in either agriculture or industry. Production of agricultural goods was limited by the short-term nature of tribal settlement in any given area, and the yields from the

crops which were cultivated under the system (mainly grains and fodders) were poor corresponding closely to the ill-developed technical standards known to the semi-nomads. During the later years of the Nineteenth Century, semi-nomadism became a less dominating social routine and the forces of economic growth brought in their train a geographical centralisation in the coastal oases, and brought new factors to bear upon the question of economic surplus (Vide Chapter 4).

The decline of the Saharan slave trade stimulated the Turkish administration to find other means to improve the state of their Libyan territories and make them less of a financial burden upon the central authority. To this end, a beginning was made to agricultural reform. The Turks had little intention of lavishing capital investment in Tripolitania, but rather chose to encourage the indigenous peoples in speeding the rate of sedentarisation in the oases. This Turkish essay in the field of agricultural development in the area represents the first appraisal of the territory in pre-Hilalian terms; before this date the Turks had not attempted to enforce any of their tenurial or related codes in the area, although they had been introduced into other countries of the Empire. The measures taken by the Ottoman administration is of more interest as a first re-assessment of the environment in non-nomadic terms than as anything of practical importance. The effects of Turkish legislation had not reached ground level when the Italian occupation took place in 1911.

It is of significance that Turkish interest in indigenous agriculture coincided with the internal changes within the cabila itself. The latter phase has been described in some detail in Chapter 4, but its importance must be re-stated at this point since it may be taken as the beginning of one of the two elements which have given momentum to the period of transition in terms of production and yields of crops in Tripolitania. These two elements are:- (I) The indigenous economic revolution
(II) Italian colonial development.

In this section, the causes, directions and the rates of growth of crop production in the indigenous and Italian sectors of the agricultural economy will be discussed in relation to regional variations within the environment of Misuratino, and in relation to the other oasis areas of Tripolitania. Segregation of the Italian and Libyan sectors of production has rarely been attempted in serious analysis of Tripolitanian agricultural production, except by Theodorou whose work gives adequate evidence that this approach is necessary.(39) The present writer believes that the essence of economic transition within Libyan society may be seen only through systematic study of the indigenous economy as a separate entity from the Italian. This is not to assert that the Italian contribution is of no importance; rather it is suggested that Italian efforts came after the real beginnings of Libyan oases agriculture had been underway for two decades, and that subsequent development in indigenous agriculture was influenced by, but never allied to, modern European introductions

by the colonial power. This is equally true of the situation under the British Military Administration. Thus to arrive at some indication of the rates of production increase and the speed at which yields are improving, the Libyan segment may be assessed as a continuous element apart from the Italian. Any projection of estimates relevant to the farming economy will henceforth (in fact from 1951) be reckoned from indigenous indices, since the Italian contribution will remain static or only slowly decreasing in the future as the number of colonists declines.

Cereal yields.

In the whole of Tripolitania, according to the British Military Administration, there are some 10,000,000 hectares of productive land, of which 8,000,000 hectares are devoted exclusively to grazing, 400,000 to sedentary agriculture, and the residue, amounting to 1,600,000, to shifting cultivation.(24) Production from the zone of shifting cultivation is undertaken by Arabs alone and is concerned pre-eminently with barley. In the static farming areas defined in the B.M.A. report, the Arab element accounts for a quarter to two-thirds of the total land under the plough, although here the monopoly held by barley production in the steppe areas is broken by wheat production:-

Production of Cereals in Tripolitania

	Year	Tripoli	West	East	Central	Total
Barley	1958	1,300	3,700	5,200	2,200	12,400
Wheat	1958	7,500	15,000	20,500	15,000	58,000

Data: Nazara of Agriculture, Dept. Statistics.

Yields from traditional agriculture are small, being

governed by the poor technical standards known to the farmers and the semi-nomads. Furthermore, yields are judged by their success in covering the basic family needs in terms of food for the year, thus there are no conscious assessments of yields per hectare or yields per labour expended. Annual yields vary greatly with fluctuations in the amount and the time of the fall of rains. A high dependence upon the vagaries of the climate follows logically from the fact that in a semi-nomadic society dry-land cultivation is the basis of cropping. After the first rains in October, or earlier if this is possible, the Arabs move from their semi-permanent habitations in the oases to sow their barley seed in those areas of the steppe where rain has fallen, and in the wadi beds which will take the drainage of the rains. When the sowing activities are at an end they will leave the crop to mature without further care. Should there be no further rains to facilitate maturation, the crop will be a failure; if the rains fall late in spring, there will be a delay in harvest and usually a reduction in yields. In the spring of 1960, for example, the rains began well in September and the steppe cultivators sowed their lands in the usual fashion. After sowing there was a rainless period lasting until the end of April, by which time the barley crop was condemned to more or less complete failure. In terms of yields, the farmers had nothing to show which would register as quintals per hectare; in their own reckoning, their return, seed for seed, provided them only with enough seed for the next year's sowing. Hence in dealing with

yields with reference to Arab semi-nomadic cropping, we must bear in mind that large scale fluctuations in yields are to be expected from one year to another. Highly variable yields of this nature obviously present very little opportunity for the farmers to provide either a steady flow of agricultural produce to the towns or a consistent market for goods manufactured in the towns.

In the steppe there are well marked regional variations in yield from dry-land barley. Yields from semi-nomadic cropping consistently give the poorest returns. R.H. Lewis, for example, suggests that the inner basins of the steppe, represented in Misuratino by the Ben Ulid and Bir Dufan region and the lands south of Tummina, may be expected to give an average yield of three quintals per hectare, with some increase in this figure in years of better rainfall, i.e. two years in every ten.(36) In those areas lying nearer the coast, and especially in the larger wadi depressions, yields of up to five, or an average of 4.3 quintals per hectare may be expected. In many ways these yield figures illustrate the limited margin of surplus which the semi-nomadic way of life offers to the Arabs, and shows the basic Arab standard of living as it stood throughout Misuratino at the turn of the century, when the Turks first began to take interest in improving indigenous agriculture.

It has been suggested already that a crucial change from nomadism in the steppe to more and more sedentary life in the oasis areas has taken place since the end of the last century.

In terms of yields, the change has had profound effects mainly through the fact that opportunities for irrigation increased as the tribes tended to sedentarise in the oases. We have shown earlier that less time spent by the semi-nomads in the pursuit of pasture for their flocks meant more time in the oasis gardens and greater scope for the development of agricultural techniques, particularly those connected with irrigation. In its train, the spread of irrigation facilities has brought about a two-fold revolution in Misuratino. In the first place the yields per hectare have increased with additional controlled supplies of water; secondly, the fluctuations in yields caused by climatic variability have been stabilised to a large degree. These two vital elements in present day Arab cultivation have been exceedingly formative in lifting the society from traditional economic growth.

This is amply illustrated in the oasis by the fact that yields from barley crops in the irrigated <u>suani</u> of Homs and the Sahel El-Ahamed now give ten or eleven quintals per hectare consistently. The move of the tribes from the steppe has recently brought a further change in yield expectation. As outlined previously, the mechanism of growth in the oases has implied a major shift of activity on the part of the more advanced peoples from the distant steppe territories to the steppe areas peripheral to the oases. Since the coastlands are better watered than the interior from the point of view of both amount and periodicity, the yields from the peripheral steppe are substantially better on average than those from the interior.

TABLE 43 - Fertiliser sold to Farmers in Accordance with the Government Assistance Scheme 1956/57.

Kind of Fertiliser			
(i)	Phosphates		
	Superphosphate	Triplo	367.45
		Granulars	4886.00
		Pulverised	4884.25
	Perphosphate	Granulars	3347.81
		Amonium	1103.00
		Perphosphate	12499.97
(ii)	Potassium		
(iii)	Nitrates		
		Amonium Sulphate	21813.14
		Amonium Nitrate	1315.73
		Calcium Cyanide	1720.30
(iv)	Compound Manure		
		Phospho-Nitrate	5523.34
		Phospho-Nitro-Puta	844.50
		Compound of NPK.	7861.51
(v)	Organic		
		Organic Manure	2353.84
		Vegetable Nitrogen	3107.00
		Humaby Jard.	290.28
		Nitro-Vegetal	2354.00
		Biazogeno	734.00
		Bagamo	6000.00
		Paten Kali	30.00
		Granu-mix	2339.00
		Misto (Bone)	1110.00
		Scorie Thomas	50.00
		Organic Saitto	584.71
		Triplape	371.77
		Nattolin	581.00
	TOTAL		93309.05

Statistics from Nazarate of Agriculture - Tripoli.

Hence, the Arab cultivators of Misuratino may expect from these peripheral lands some 4.3 quintals per hectare with less marked fluctuations from year to year than would be the case deeper in the littoral steppe (Vide Table 44).

Although barley is the fundamental cereal in the Arab cropping system, it has not been unaffected by the influence of the Italians in the region. For most farmers this influence has been in small ways, mainly in the improvement of seeds and the introduction of fertilisers. Instead of keeping back an amount of seed from harvest to use at the next year's sowing, the Arabs were encouraged to purchase quality seeds from the market. Only the better farmers have taken to this practice to-day, but it is one which is likely to expand considerably as more of the farmers reach the transitional stage of agricultural exploitation. The chief varieties of barley used in Misuratino are Californian and Club Mariout, Jordan, Merzaya together with local varieties such as Wadi Megennine, Tobruq and Hon. Local varieties have the great advantage of resistance to pests, but their yield is poor.

The use of commercial fertiliser has spread gradually as farmers have begun to seek greater returns from their land. The irrigated crop is fertilised with a mixture of nitrogen, potash and phosphorous which is distributed at a rate of three to four quintals per hectare. Land where fertiliser has been used shows a considerable increase in yield. Irrigated but unfertilised land yields 25 quintals per hectare, whereas irrigated and

fertilised land yields 40 quintals per hectare. Table 43 shows the fertiliser import into Tripolitania in recent years, and indicates the possible scope for increase in yields from Arab farms when the use of fertiliser becomes universal; and this in turn is dependent upon the gradual move forward of the inter-related factors of economic growth - the growth of commercial consciousness.

At present, fertiliser bought for farm purposes in Misuratino averages only £L3.00 per unit on those farms included in the Questionnaire Survey. Italian farm units in general show a greater use of commercial fertiliser as is illustrated by the case of La Valdagno, where £L10.00 per unit was utilised for cropping activities in 1959-60. Even in this case, it is notable that fertiliser dressing was reserved for more profitable cash crops such as tobacco and wheat. For most ordinary crops, and particularly barley, organic manures were more commonly used. Arab farmers have shown a great tendency to use more organic manures in recent years (Table 42 (D) indicates the average amounts recorded in 1959/60 by a selection of farms in Misuratino) and to use manures for more than immediate benefit, Thus instead of looking for returns for the costs of manure used, say, for a crop of potatoes at the time he markets the potatoes, the Arab farmer is coming to realise that land must be treated as a permanent investment subject to long-term deterioration unless sustained well.

Several significant factors emerge from this situation.

Traditional urban markets in Libya created only a low level of demand on the resources of the rural areas until recent years; a demand which was satisfied by unorganised and providential surpluses from the rural gardens. The Italian farmers under the pre-War colonial regime in Libya faced the same problems of insufficient demand from the urban units. Only crops which could be marketed readily in the metropolitan country, or which enjoyed monbpoly protection in Libya could be produced under intensive commercial farming techniques which were intended by the colonial administration. It is for this reason as well as the more obvious climatic adversity that most of the Ente and private concessions were never a financial success. The Italian experiment in Libya, from the point of view of economic growth was ill-conceived if only because of the impossibility of superimposing a highly developed agricultural system upon a traditional economy where the former element could not be integrated into world trade independent of local market demand. As we have seen, there have been significant changes in the economy of Libya since the close of World War II and particularly since the mid-fifties. The gradient of market demand has increased to the degree where the land can no longer produce sufficient for farm consumption and provide a regular surplus to maintain the urban population. In this situation prices of farm products have tended to rise slowly creating a stimulus in rural areas to improve methods.

Traditionally minded Arabs of the littoral oases, as we shall show in greater detail later in this chapter, tended to

accept land as a self-maintaining unit which was worthy of minimum care. True, more time and effort was put into the suani than had been the case during the era when pure and semi-nomadism prevailed, but even taking this as so, the real mental transition came only as land became a flexible commercial proposition in the eyes of Arab farmers, as opposed to an annual means of supply for dates and barley for the family. Once this mental approach has become effective amongst a majority of the farmers, we may expect to see an expansion in commercial techniques on Arab farms, which will include increased use of manures and, gradually, fertilisers. Here, some care is necessary since economic growth, i.e. supply and demand operating in a self-perpetuating mechanism, cannot be divorced from growth in other sectors of the national body. In the present context it is of interest to cite a case example from Maltese farming, which illustrates the problems to be faced in improving agriculture in a tradition-based society. The Maltese farmer has to all intents and purposes broken through the barrier of self-sufficiency and he knows that markets may be found providing he can produce the crops at the right time. The lesson has been learnt slowly through the operation of persistent economic gravity. However, in Malta, as in Libya to a greater extent, education and associated agricultural extension services are not fully understood or accepted by the farmers. In consequence, it is known that fertilisers bring increased returns from the land, but the technical know-how of fertiliser techniques is lacking

and the results of fertiliser application have been disappointing.(47) & (66) Thus any increase in yields expected from agricultural improvements, in this case from the use of fertiliser, will come only when the operation of urban demand for agricultural produce, the spread of education and the adaptability of the rural peoples to commercial techniques have reached a stage where they are mutually effective. As the example from Malta shows, an advance on one front is insufficient to bring about a real movement in the growth cycle.

It will be of value to bring the fore-going discussion of yields in relation to economic growth into focus at local level. Emphasis was placed on the position of barley in the agrarian economy, since it represents even to-day the basic product of the land and the most important food crop in the indigenous diet. The Mediterranean environment which is dominant along the coast of Misuratino, allows great diversity of crop production, although this is not fully exploited at the present time. Diversity of production, as we have intimated previously, has tended to foster the growth of self-sufficient farming in Misuratino, since a minifundia unit is able to support a family with a large range of foods with little effort being needed on the part of the Arab farmer. There are two points of interest arising from the scope offered by the prevailing Mediterranean type of climatic regime. In the first place, the easy living possible in the oases has tended to facilitate the move from steppe pastoralism to sedentary life, once the process was under way. This move has undermined the pre-eminent position of

barley production in Tripolitania as a whole, a shift which is reflected by the displacement of barley from the oases to the peripheral steppe. This latter process is as yet ill-marked as may be seen from Figure 63, which shows the distribution of barley in the agricultural year 1958-59, since the initial phase of movement involved in transfer of tribal functions to the littoral was to concentrate barley production in the oases. It is only as a secondary phase that more commercially minded farmers retain their dry-land farming areas in the vicinity of the suani for barley and utilise the suani for more profitable production. To date, the swing to fully commercial production is still in its infancy and the trend is blurred; nevertheless, estimates for future production and for possible trend lines at a local level will be based on this kind of movement. Possible diversity of production is of interest secondly because future changes from self-sufficiency to commercial farming will be aided by the meso-thermal nature of the climate; development of Libyan agriculture will not be restricted to a narrow selection of products, and specialisation of production may be adapted readily to prevailing national and international markets. In theory at least there is opportunity in the next decade for Libyan agriculture to play the key role which will be necessary if the rate of urbanisation and investment is to accelerate to the level suggested by Rostow.(63)

The writer faced difficulty in assessing yields from Arab farms; this arose partly through the fact that the Arab farmer

tended to evaluate his return at the harvest in terms of seed sown - straight forward multiplication - and partly because inter-cultivation made calculation of hectareage a questionable matter. Other difficulties in this respect were the vague measures used for seed and surface area. Thus a quintal varied in Arab terminology from actual metric weight established on an efficient balance to the amount of seed contained in a pair of donkey paniers, and a gedula is essentially a measurement by eye, naturally varying from farmer to farmer and from oasis to oasis. Estimates of yields on Arab farms are bound to be subjective in nature, and in this section, a selection of authorities will be quoted to give some idea of the possible means involved.

R.H. Lewis has already been mentioned earlier in this chapter, but it will be of use here to re-capitulate his estimates for barley production in Tripolitania, since the broad coverage of his work will allow comparison of Misuratino with other areas of the province:-

Table 44 - Yields of Barley in Tripolitania - After Lewis[36] in Quintals/Ha.

	ARAB		ITALIAN	
	Irrigated	Dry	Irrigated	Dry
Oliveti, Zavia & Sabrata	10.67	4.27	10.50	4.90
Hascian, Bianchi, Micca, Giordani & Ma'mura	-	3.35	14.16	3.58
Azizia, C. Benito, Suani Ben Adem	8.49	5.50	11.81	5.89
Tripoli & Punduq	11.60	8.25	12.00	4.90
Garabulli, Ghanima & Gasr Khiar	-	4.40	-	3.70
Zuara	-	4.50	-	-
Bir Dufan & Ben Ulid	-	3.00	-	-
Steppe periphery of Misuratino	-	4.30	15.00	4.50
Oases of Misuratino	11.50	4.55	-	-

Table 45 - Crop Yields under Controlled Conditions at Sidi Mesri after Lewis[36] in Quintals/Ha.

(Recordings taken where exact acreage and yield weights could be ascertained with a large measure of precision)

	Irrigated	Dry
Barley	15 to 25	2 to 5
Wheat	15 to 25	3 to 5
Maize	160 - 350	-----

Tables 44 and 45 illustrate the great variations in yield which may be expected from different types of culture and area. Several well marked yield types may be recognised:- yields from shifting cultivation; yields from dry-land farming; yields

from crops under semi-irrigation; yields from crops under full irrigation. Arab farmers may take part in one or all of these sections of production depending upon the size of the farm and the progress made towards commercial production by any given farmer.

Average yields from areas of shifting cultivation, represented in Table 44 by the Bir Dufan and Ben Ulid areas tend to be low, approximately 3.00 quintals per hectare. This poor average is directly accountable to the variability of rainfall in the area, a factor which is examined in more detail in Chapter I. In the steppe areas such as the Bir Dufan and Ben Ulid basins, only two years in every ten may be expected on average to give adequate rainfall for cereal production. Other years experience erratic incidence of rainfall through the season not conducive to maturation of the barley, or, almost as frequently, a complete lack of fall. The significance of production from areas of shifting cultivation is declining in Misuratino as the tribes become sedentary units in the region of the littoral. Some importance should be attached to the yield results of the semi-nomads, since possible expansion of extensive dry-land farming on the style of the Algerian colonies may be a future means of advancing the strength of the agricultural sector of the economy. Extensive dry-land farming at both Tummina and Dafnia by Arabs and Italians alike have shown good results with average yields well above those returned by the semi-nomads.

Dry-land farming in the coastal oases, and in that area we have termed the peripheral steppe, at present contributes the main element to barley production in Tripolitania. Yields from Arab farms tend to be better than the corresponding yields originally obtained from the areas of shifting agriculture, and although there is still a 20% gap between Arab and Italian returns from the same type of area, the present day Arab position represents an absolute increase in yields bearing in mind time and effort expended relative to the previous status. Hence, the absolute increase in yields arising from the move from the areas of shifting cultivation to the peripheral steppe may be only ten or fifteen per cent, but this is not the complete story, since this increase has been procured with an actual diminution in the amount of time spent in transit between farmstead and interior steppe and a decreased amount of labour dissipated in sowing over the maximum area available to ensure a return from the sporadically distributed waters of the steppe. In the dry-land of the oasis and the steppe periphery more intensive sowing in an area of sure rainfall (or as sure as an area in Libya may be of precipitation) gives better results than could be expected from the interior.

Semi-irrigation of cereal crops in Misuratino tends to be a by-product of full irrigation of the crops or trees with which they are under inter-cultivation. In the <u>suani</u>, all the tree crops are irrigated to some degree, and during these more or less regular irrigations, the cereal crops which lie between the

trees are inadvertently watered. This happens especially if the cereals are inter-cultivated with either date palms or olive trees. Well organised Arab farm units undertake the light irrigation of cereals by using a gedula pattern and employing a rational application of water to the cereals, especially in the period of early growth and also in the late spring, just before the crop ripens. Much of the wheat production on Italian farms comes from the semi-irrigated areas, where 30-35 quintals of wheat per hectare are possible under systematic Italian methods.

Very few cereals in Libya on either Arab or Italian farms are grown with full irrigation, since market prices at the present do not justify a large lay-out necessitated by complete irrigation. In the Arab sector of the farming world, the Wadi Caam Settlement has been outstandingly the exception from this general rule. Here, an attempt has been made to produce cereals under semi- and full irrigation using imported seed. The success of this scheme has been doubtful, since yields have been poor as a result of rust infestation and depredations by birds. In 1958-59, during the period of the field to field survey made by the writer in the Sahel El-Ahamed, yields expected from the Wadi Caam Settlement were as low as six to seven quintals per hectare due directly to rust which spread rapidly during the extended period of rains in the spring of 1959. The economic problems facing the Wadi Caam Settlement are outlined elsewhere (35) but quite apart from the obvious difficulties which initially effect a project of this kind, such as the poor technical

education of the farmers and the necessarily experimental approach to all farming activities, the question of whether to continue with cereal production under full irrigation, where yields are liable to unforeseeable fluctuations and where market prices are relatively low, presents an annual dilemma. This point of economic production of cereals under irrigation is likely to be one which will not be resolved for some years, for the moment it might be said that the greater reliability of yields made possible by irrigation allows good profits to be made in an average of eight years out of ten when non-irrigated yields from the oasis periphery and the interior steppe are poor due to deficient rainfall; the loss in the two remaining years, however, when production from other areas is high, at the present day brings irrigated production below the ceiling of over-all profitability.

In summary, it may be said that present evidence points to the fact that barley yields will always be estimated in terms of dry-land production, or at best in terms of semi-irrigation. Yields have already shown some improvement as the early phases of economic growth have got underway.. Future estimates of yields will be governed by the speed in over-all growth of the Libyan economy and especially by the rate at which rural education ushers in the following practices;

(i) Use of fertilisers
(ii) Drilling of seed
(iii) Control of disease in the crop.

These advances are long-term in effect, especially when

considered in relation to the problems to be overcome in diffusing technical knowledge as will be shown later.

Wheat production in Tripolitania may be divided conveniently into:-

(a) production of soft wheat by Italian farmers
(b) production of hard wheat by Arab farmers.

As previously stated, wheat production by the indigenous farming organisation is a relatively small part of total cereal production. Table 46 shows the estimates of yields for the crop in Tripolitania. Reference is invited also to Table 45. Arab interest in wheat is limited by the physical limitations upon its growth, particularly the long growing season necessary for its maturation and the exacting demands upon the amount and periodicity of rainfall. Wheat needs at least two or three weeks more than barley before it is fully ready for harvesting and is liable during this time to be burnt up by the seasonal hot winds from the south. Barley is tolerant of wide variations in the incidence of rainfall during the growth cycle, whereas wheat needs to be heavily watered in the early period after sowing if it is to give any worth-while results. All-in-all, the Arab farmer has seen little reason for spending time and effort on wheat, which in his eyes makes less savoury bread than barley grain, when barley yields are more consistently high with less need for attention.

Table 46 - Yields of Wheat in Tripolitania after Lewis[36]
Qus./Ha.

	ARAB		ITALIAN	
	Irrigated	Dry	Irrigated	Dry
Oliveti, Zavia & Sabrata	9.33	5.00	13.30	5.00
Hascian, Bianchi Micca, Giordani & Ma'mura	-	3.37	14.25	-
Azizia, C. Benito, Suani Ben Adem	8.17	5.47	10.71	5.00
Tripoli & Funduq	11.60	8.25	6.90	6.00
Garabulli, Ghanima & Gasr Khiar	-	4.76	11.50	3.87
[i]Bir Dufan & Ben Ulid	-	3.10	-	-
[i]Steppe Periphery of Misuratino	-	3.50	10.50	-
[i]Oases of Misuratino	9.00	4.50	-	-

[i]Estimates from Questionnaire Survey.

Any realistic projection of wheat yields in Misuratino is impossible at the present day; there are factors which might undermine or alternatively reinforce over-all production trends. Since wheat is mainly to be considered as an Italian crop, it might be expected that average yields from the area will decline as the number of Italian farmers declines; on the other hand, as the Arab becomes increasingly an urban worker with cosmopolitan dietary standards, there is a likelihood that demand from the towns will create a greater trend towards rational production of wheat with correspondingly greater emphasis on yields by Arab farmers. The difficulties experienced at Wadi Caam Settlement

show that there are many problems of production control and variety selection yet to be solved before wheat could seriously rival barley grain as the chief cereal crop of the area.

Yields from other Crops.

Precise details concerning yields of agricultural crops are possibly more difficult to draw up than those relevant to cereal crops. Three major lines of enquiry have been used in the present study:-

(a) Data taken from questioning in the field together with calculated statistics from the Questionnaires.

(b) Data taken from other field work in Libya, notably from Theodorou dealing with Arab and Italian agriculture as it exists at the present day (39).

(c) Data taken from the official returns of the Nazara of Agriculture experimental farm at Sidi Mesri, which is used more as an indication of what might be achieved under ideal conditions in the oasis environment than what actually prevails at the moment.

It must be remembered that yields from the suani of the oases are evaluated in most cases in terms of family necessity. In consequence, the Arab farmer appraises his yields from his vegetable plot and from his trees without any reference to cost accounting, either from the point of view of labour expended or in cropland utilised. Within the modern farm economy of Misuratino, especially where commercial ideas have taken root, some cropping is undertaken entirely with a view to marketing. This applies almost exclusively to the production of groundnuts for export, olives and to a less extent dates. Farmers producing such crops are aware of yields in relation to the area they cropped and it is with this narrow selection that a yard-stick

of production from the suani must be fixed.

Yields from Arab Farms in the Oases of Homs and the Sahel El-Ahamed. Sample 20 Farms in Quintals per Hectare.

All inter-cropped	Irrigated land yields
Groundnuts	12.8
Olives	0.3
Dates	5.5

Yields from Wadi Caam Settlement - Sample Two Farms in Qus./Ha.

Single-cropped	Irrigated Land Yields
Groundnuts	23.5
Lucerne	25.3

Information taken from Theodorou will allow comparison between Misuratino and other areas in Tripolitania.(39)

Yields of Important Crops on Selected Farms - Zavia 1952 Qus./Ha.

	Libyan	Italian
Groundnuts (irrigated, inter-cropped)	-	15.15
Groundnuts (irrigated, single-cropped)	-	19.57
Dates (irrigated inter-cropped)	7.50	-

The preceding three tables permit only a limited measure of comment, since the accuracy and the depth of the figures suggested by the three sources is exceedingly limited. Of prime importance is the fact that the commercially based Wadi Caam Settlement shows a marked superiority in yields over both the traditional suani areas, even though the suani of Misuratino adjacent to the project give worse returns than the Zavia area covered by Theodorou.(39) We have, in fact, commented upon the advanced position of the Zavia area in relation to Misuratino in discussion of the growth mechanism (Chapter 3). It is impossible to include in the statistical tables any idea of

vegetable yields in the suani; it may be suggested that the yields reported on Wadi Caam Settlement are as much as twice that of the traditional suani even using average performance. If the better farmers on the Project are considered, then the position of cultivators in the oases looks even more depressed. When the spread of commercial mindedness is diffused through the oases as the general economic evolution of the country takes place, it may be that the yields at present experienced on the Wadi Caam Settlement will become universal. This is as far as one is justified in taking the evidence available.

Yields Recorded at La Valdagno 1959-60[i] in Quintals/Hectare.

Lucerne	118	
Tomato	20	
Onions	14	
Tobacco	23	
Lettuce	19	
Olives (Fruit)	50	Kilogrammes per tree

[i] Data from Questionnaire Survey.

The preceding table is intended to give a further picture of the standard of yields to be expected from the steppe periphery areas of Misuratino, in this case from the area bordering Homs Oasis, where scientific agriculture is practised and where water is available all the year.

Admittedly, evidence of crop yields is rather thin and only limited deductions may be drawn. However, from the data shown here and the writer's own observations in the locality there are several clear facts which emerge. The bulk of the yields obtained in Libya, and especially those from the Arab sector of the economy, are poor relative to those returned by similar areas

elsewhere in the Middle East. In the present situation there are dynamic elements at work which should influence yields decisively in the next decade; from the trend lines followed by the more successful farmers it may be adjudged that a crucial turning point in the improvement of yields comes with the gradual change of mind from terms of self-maintenance farming to conscious production of a saleable surplus. This is symbolised in the fields by assessment of yields per hectare in place of traditional multiplication of seed sown; i.e. a final departure from a legacy of nomadic days and a deliberate appraisal of suani land in non-pastoral terms. As we have indicated earlier, this change in itself does not necessarily mean the beginning of a general rational improvement in yields, rather it opens the way for further influence from other dynamic forces of economic growth.

Production

Agricultural production in a traditional society, in common with other social and economic elements, is primely governed by tribal and personal demand. Where the interaction of cummunities is restricted, demand is centred around limited needs of food and shelter, and in the austere nomadic society which prevailed in Libya before the turn of the century, this demand was met from the produce of the flocks, with only infrequent intercourse with other communities for exchange and barter.

Absolute crop production in Tripolitania has increased steadily since the beginning of the century. Until 1930, only

empirical evidence is available to show that an actual increase did occur; after that date, Italian statistics are available. The writer suggests that the attraction of the semi-nomads to the oases is to be accounted largely to the fact that greater and more reliable production could be had on the littoral. If this was not so, then the decrease in the importance of the herds would not have taken place and the whole movement towards sedentarisation would have been stifled at birth.

(b) Factors Behind the Increase in Production I.

The littoral offers three major advantages to the Arab cultivator:-

(i) Greater certainty of production
(ii) Scope for a greater variety of crops
(iii) An irrigation potential.

(i) Rainfall and production in Tripolitania.

Production of crops under a shifting economy was hedged in by several rigid considerations. In the first place the facts of physical geography militated against a reliable return from seed broadcast in the steppe areas. A basic feature of shifting agriculture in Libya is the wide coverage of sowing areas made necessary by the localised nature of rainfall in the interior. Thus it was practice amongst the nomadic and semi-nomadic tribes to allot tribal territory piece-meal among its members so that any one farming unit could have a maximum of security against the failure of the whole of its crops. Sowing was undertaken over widely distributed areas, with the hope that one or more of the plots would receive the necessary rainfall. Probably, the main

source of steppe-grown cereals was from the beds of wadis or large wadi depressions which especially characterise the inner steppe of Misuratino. While wadi grown cereals are less subject to the dangers of rainfall failure, they tend to be open to dangers from heavy rainfall. Run-off velocity of the flood waters of the interior has tremendous powers of erosion since the vegetation is scanty and the top-soil loose and dusty, hence the seeds sown in these areas are soon washed away in the event of a flood in the catchment basin. In addition to these hazards we may include the instability in crop production brought about by the variability of rainfall itself. In the Ben Ulid and Bir Dufan areas and in virtually all the steppe areas inland from the coastal plain, variability of rainfall averages 40-50%, hence, even with wide-spread sowing techniques used by the shifting agriculturalists there is a high incidence of crop failure (Vide Chapter 1, Figure 10).

It must be re-stated that semi-nomadism and to an even greater extent full nomadism, is concerned first and foremost with the demands of the flocks from which most of the food and building materials are obtained. Cereal production under such a system is a secondary activity and suffers in consequence. Thus in a year of poor rainfall, when the flocks are deteriorating through lack of water, the tribe as a unit will move perhaps hundreds of miles in search of new water sources and abandon its cereals altogether. For this reason, cereal production from shifting agriculture may be recorded as nil, as for instance in

1960, when the writer himself saw the uncut barley abandoned in the steppe lands of the cabila Ahamed of the Sahel. In this case, the herdsmen had moved most of the flock to lands in Cyrenaica, where rains had been above average.

The pastoral way of life offers further obstacles to cereal production. The regular round of movement in search of pasture and water for the herds imposes its own limitations upon the importance of bulk grain production in the sense that the nomads and semi-nomads have not storage space for grain beyond the minimum requirements for the following year's seeding. This being so, they sow and reap only a sufficiency for their own immediate needs which precludes the possibility of a stored surplus to tide over bad years. Thus, in the interests of rapid movement, more than low average production is never attempted by the communities of the steppe.

Of final consideration in this context, we might mention the characteristics of barley strains used by the semi-nomads and others who practise cereal cultivation in the steppe areas. The 'local' varieties tend to be very resistant, and for this they are highly prized by the Arabs sowing in the steppe; on the other hand, they have two great disadvantages as far as production is concerned; they give poor yields; the loose-headed nature of the barley means heavy losses of seed during harvesting operations.

In the oases, these limitations brought about directly or indirectly by the climatic regime are less severe. Most

obviously, the rainfall at the coastal stations is far greater than at stations in the steppe zone. Figures 8 and 9A show the relevant isohyets and the vast divergence between the two areas in rainfall amount. Hand in hand with this goes the fact that in the oases the incidence of rainfall throughout the agricultural year is on average better than in the steppe in respect to cereal cultivation. Variability too decreases rapidly from the steppe to the coast. These three factors - improved rainfall incidence and variability mean that production may be concentrated in smaller areas with the added advantage that the flood risk, high in the steppe, is here reduced to a minimum.

The possibility of concentrated production in the oases, together with other social and economic factors we have discussed earlier (Chapter 4) meant in aggregate a relative decline in the importance of the herds. Sedentarisation meant, in fact, that the agricultural year ceased to be determined by the seasonal movement to pasture; full nomadism became modified to summer nomadism and this gave way to a limited kind of transhumance, which in turn is fading in importance as agriculture becomes more developed commercially. Corresponding to these local adaptations of nomadism as society developed, static agriculture increased in economic importance in the oases and production rose. As more time became available for prolonged residence in the oases, so it was more in the farmer's interest to exact the greatest returns from his land. In simple terms, this resulted in farmers sowing their seed when the climate was most propitious,

not when the demands of their flocks allowed them a day's freedom or when they could journey from the water holes to the areas where rain had fallen; similarly, harvesting could be effected when the grain was ripe rather than when the need for pasture brought the farmers once again to the coastal areas.

Under this section, mention has already been made of the year to year vulnerability of the nomads to climatic fluctuations which come about through their inability to carry accumulated surpluses of grain to tide over periods of drought.

In the oasis areas, this disability is considerably reduced and permitted surpluses to be stored from one year to the next since the bounty of good years could be saved. This factor, stated baldly in the text, should not be under-rated in significance either in respect to the accelerating degree of sedentarisation observed in Tripolitania since the turn of the century or in relation to the increase in production made possible by organised storage. It is important to note the crucial position of this factor in economic growth - especially since the parallel with Egypt is legendary in the story of Moseph and the barns of the kingdom of Egypt. Social organisation on however small a scale has to develop before storage is possible, and once stability is achieved through stabilisation of food supply, in Libya at a local and in Egypt at a national level, then socio-economic development may be reinforced. Libyan development is not unique, but taking place at the present time, it is vastly instructive.

(ii) Results of Sedentarisation.

Nomadic agriculture, concentrated exclusively upon cereal production and within that category barley held almost a monopoly. The oasis holdings of the nomads produced dates and in some instances olives also, but only in exceptional cases more variety than this. The coming of sedentarisation brought about an increase in the production of agricultural crops in two ways; better yields from the established strains of barley, wheat, date palms and olive trees: and also more production through an increased variety of crops cultivated. In the first place development was slow, as it is at Misurata today, with peppers and broad beans being added to the crop range, but little else of a more advanced nature. The Mediterranean climatic regime of the littoral, especially the increased amount of rainfall, opened up a new lateral expansion in production which has continued to grow ever since.

A secondary factor in the lateral expansion of crop production is the influence exerted upon the nomads by the peoples of the oasis. The Arbi, despised by the nomads during the Turkish era, when they were considered as very low caste and menial, took on greater importance when the tribes become sedentary and were prized as dependents (Marabtin).(53) In the present discussion their significance rests mainly in the fact that they provided a base level of agricultural experience from which the tribes could benefit. Agriculture in Misuratino had a great advantage in that standards of tillage and cultivation did not begin from absolute ignorance; the environment of the oases

was already known, technical standards of production were established, and the crop strains already adapted to local conditions.

(iii) Irrigation potential.

Turkish records and the scientific reports produced by the Italian missions in the early years of the century indicate that development of irrigation was extremely limited.(10) Contemporary Italian photographs show that much of the oases of Homs, Zliten and Misurata were open land planted with palms, but rarely divided off into fields with walls.(60) Features of land tenure give added weight to this idea. At the time, land ownership was vested entirely in the tribes apart from well-defined areas of wakf and State land in the coastal areas, hence land development was retarded by the fact that individual initiative and investment was discouraged. Annual distribution of land between the members of any cabila obviously meant that an individual would not dig a well one year, merely to be dispossessed in the following yearly land distribution. Furthermore, insecurity was increased by the fact that the Turkish administration was pressing its claims for tribal taxation and inter-tribal friction was still unsupressed with continued unrest stimulated by the antagonism between the Misurata, Ben Ukid and Tarhuna groups.(53) Thus, during the closing years of Turkish rule in Libya, irrigation was limited to those areas in the immediate vicinity of the towns, where the Arbi survived under the protection of the regional Turkish Pashas. From the

structure of Homs oasis at this time, it appears that the typical pattern of irrigation was centred around family wells sited in a walled compound adjoining the haush in a manner reminiscent of the Derna gardens. Following sedenterisation of the tribes with the spread of peace, the untapped irrigation potential in the areas outside the village slowly came into use so that, by 1938 the following number of wells were to be found in the littoral oases:-

Table 47 - Wells Recorded by the Italian Administration 1938.

	Wells in suani	2nd layer artesian	Unused wells
Zaviet Maghib	3417	-	1056
Zarrough	7265	-	1305
Taorga	-	-	-
Wast	1006	-	30
Fuatir	2075	-	1195
Giuma	1445	1	572

Irrigation water, utilised by the Arabs by means of the dalu, became the great reinforcing factor in the drive towards sedentarisation, the construction of wells, of which no less than 19,000 were registered in the Misurata and Zliten districts alone, and the necessary superstructure; the reclamation of land into suani farms and the accumulated dead stock of farming activity; all these demanded relatively heavy investment in fixtures. Vested capital interest in the oases brought stability to the extent that the Italio-Libyan struggles of the 1920's caused only slight disruption of economic life, whilst two decades earlier similar strife had caused a temporary evacuation of the littoral. This is a pertinent index of the changes brought about

by the use of irrigation in agriculture.

Production in this climate of growth rose in two main phases:-

(i) Nomadic cropping to more sedentary production in the oases
(ii) from dry-land farming to irrigated agriculture, i.e. saniya farming.

And in recent years production has taken a further stride forward as local semi-sufficiency has given place to hawaza farming. Hawaza is the local term for a large commercial farm unit run by Arabs. In Misuratino there are only three or four hawaza units, belonging to the large landed families of the areas such as the Naas and the Latriche, but the advances in techniques introduced to indigenous farming through the operation of these farms is as important in its educative effects upon the mass of small farmers as it is in terms of absolute production at the present time. The spread of the hawaza system is restricted by the effects of Moslem land law - fragmentation of various forms discussed earlier in the chapter on land tenure - and by the small average size of farms in Misuratino (about 3 hectares) but there are other elements involved in the growth process which tend to nullify these obstacles:

(i) Movement of population from the land.
(ii) Increasing tendency to commercialise farming activities.
(iii) From (i) and (ii) there are signs of an incipient move to consolidate holdings.

Thus, the over-all forces influencing crop production in Misuratino since the close of the last century, have introduced dynamic growth, i.e., growth at compound interest. A simple illustration of this may be found in the following figures of

yield increase through the phases of sedentarisation -

Barley Yields per Hectare from Arab Farms - By Phase of Growth. Qus./Ha.

I	II	III	IV	V
Dry-land steppe Shifting Cultivation	Dry-land oasis Periphery	Irrigated Self-Sufficiency	Saniya	Hawaza
3.10	3.50	11.50	12.00	17.00

In the suani, many farmers represent only Phase III, less at Phase IV and only a minority at Phase V, as is demonstrated by the following figures:-

Suggested Groupings of Arab Farmers included in Questionnaire Survey

Phase I	Phase II	Phase III	Phase IV	Phase V
0	14	16	6	4

Groupings based on production per capita from irrigated land.

The evidence we have discussed in this section on production has been deductive in large part; the conclusions and trend-lines have been drawn from cabila Shaikhs and the Turkish notables remaining in the area. The reasoning has been based on two constants; the situation described by the Turkish and Italian authorities between 1880 and 1915; and secondly upon the dynamic scene present in Misuratino to-day. The emphasis upon the Phases of economic growth in this section is necessarily subjective, but the writer suggests that until a more capitalised analysis is possible, the present study offers a sound summary of development. As a background to these conclusions, in sub-section (c) increase in production is assessed in those

statistical terms which are available for Tripolitania.

(c) Factors Behind The Increase in Production II

(i) Production in Tripolitania

Statistics relevant to crop production in Tripolitania are limited both in quantity and accuracy. In the main, statistical research was begun by the Italians in 1932, and it is true to say that data compiled by the Italians before 1941 was somewhat biassed by political considerations. Hence, there are several sets of data from different sources which are incompatible. INPS and Ente returns differ considerably from those issued by governmental bureaux. In the following tables use is made of returns made by the local administration rather than those made by the central authority.

Turkish records of barley production in Tripolitania were, in fact, rough estimates of tribal production that were intended for use as taxation indices. They suggest that a total of less than 20,000 metric tons was the mean production from the area in the latter half of the Nineteenth Century; that is, in the period which was characterised mainly by semi-nomadic occupance. By the time of the Italian occupation, the move to sedentarisation had already been under way for some time and irrigated agriculture was a wide spread phenomenon throughout the oases. Arab production of cereals had increased as the dry-land cultivation in the litteral steppe and the new guani farming in the oases had been sequently brought into use. The following table shows the production of wheat and barley by Arab cultivators in the five year period 1931-35:-

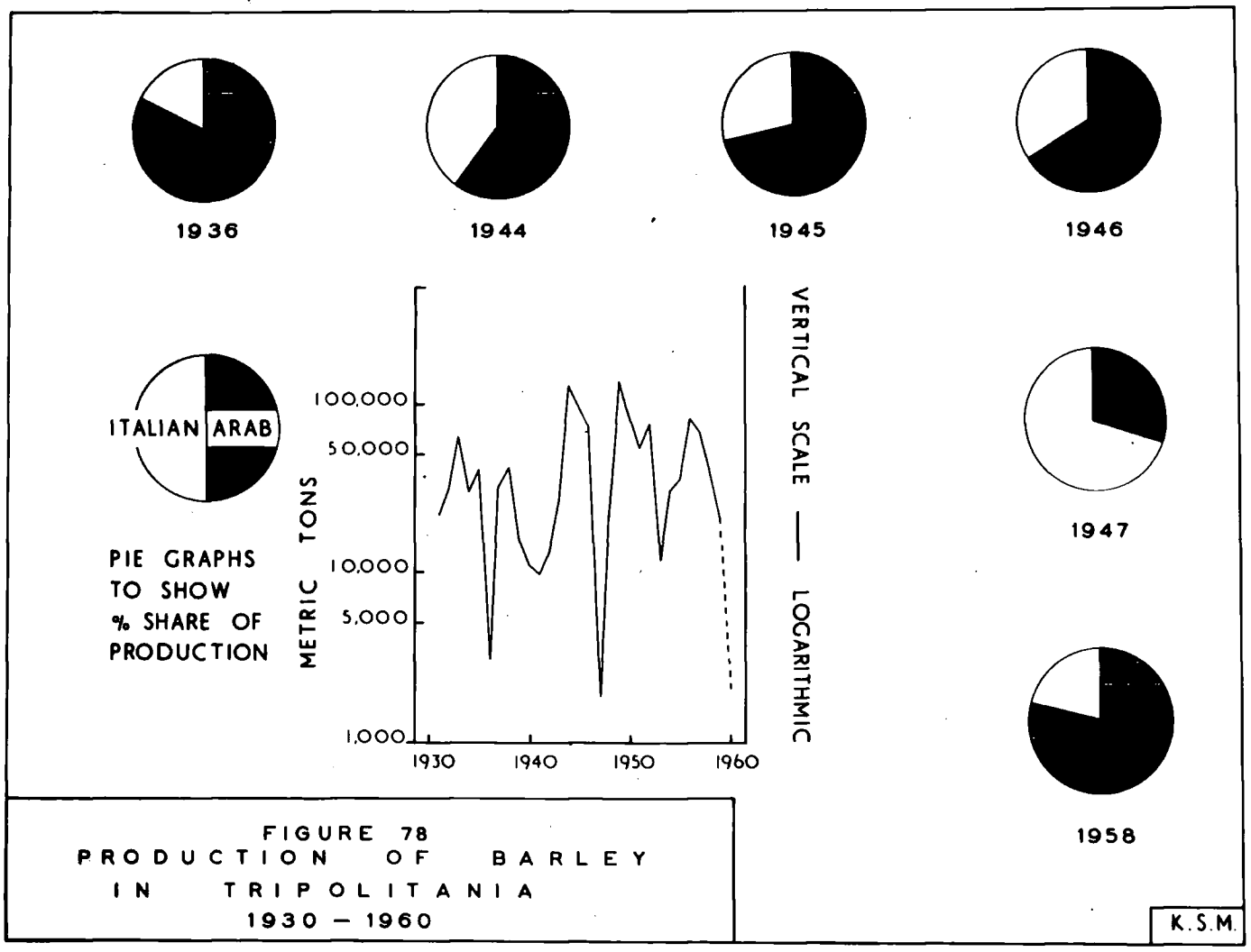


FIGURE 78
PRODUCTION OF BARLEY
IN TRIPOLITANIA
1930 – 1960

Figure 78

PRODUCTION OF BARLEY 1931-35 IN METRIC TONS

	1931	1932	1933	1934	1935
Steppe	20,000	30,000	60,000	28,000	40,000
Oasis	1,500	1,500	2,000	1,500	750

PRODUCTION OF WHEAT 1931-35 IN METRIC TONS

	1931	1932	1933	1934	1935
Steppe	3,000	2,000	3,680	6,000	7,500
Oasis	-	-	-	-	-

Data from Land Resources of Tripolitania, Rowland and Robb.

During this period the recorded production exhibited a 100% increase upon Turkish returns for the same area. The preceding table indicates that dry-land cultivation in these years was still the major source of cereals; this is reflected clearly in the returns for the drought year 1936, when production fell sharply to 3,000 metric tons of barley. Notwithstanding the 1936 drought, the average production in the years 1931-36 was 35,000 metric tons, a substantial increase upon production from the area in the previous half century.

To overcome the obvious difficulties in treating with an 'average production' in such conditions, a graph of running means of production has been constructed to give a better impression of production increase (Vide Figure 78). From this figure, it will be seen that production increased with the price boom during and after World War II and after a temporary lapse between 1950 and 1954 has shown further increase. Further indication of this increase in production in the Arab sector of the cereal economy is given in the following figures of

barley and wheat production in a poor year 1954/55 and a good year 1955/56:-

Production of Barley 1954/55 and 1955/56

	1954/55	1955/56
Steppe	32,500	74,000
Oasis	2,500	2,600

Production of Wheat 1954/55 and 1955/56

	1954/55	1955/56
Steppe	4,350	10,650
Oasis	2,000	4,000

Data from Hill, R.W., Thesis.(9)

The data contained in the fore-going table indicates that over-all production of cereals in Tripolitania has increased slowly but significantly since Turkish times, with the critical points of take-off for these increases occuring as the bulk of Tripolitanian producers became involved in the cyclic Phases of economic growth that were outlined in the previous paragraphs of this discussion.

Increases in production in Tripolitania have been two dimensional; more traditional crops are being produced; also more varieties of crops are entering the farm economy. The table following illustrates past and present production of traditional Arab crops, the most important of which are olives and dates.

Production from the Arab Sector of the Agrarian Economy - M/Ts.

YEAR	DATES (in M/Ts.)	OLIVES (In Numbers of Arab owned trees)
1910		450,000
1914		550,000
1920		600,000
1929		676,000
1930		676,000
1931	50,000	
1932	25,000	
1933	30,000	
1934	40,000	
1935	25,000	828,624
1936	27,000	
1937	37,000	
1938	36,000	
1939	22,000	
1940	40,000	
1941	41,000	
1942	42,500	
1943	12,000	
1944	22,600	970,000
1945	20,000	
1949	30,000	
1956	42,300	827,928 (1953 figure)

Data from Land Resources of Tripolitania and
Various returns of Nazara of Agriculture.

Production of olives and dates has tended to stagnate relative to the increase achieved in cereals. Dates have lost much of their traditional importance since their original virtue of producing fruit without demand for careful attention, which was ideal under a semi-nomadic system, is no longer important to the indigenous economy.

With the advent of specialist farming, the date palm has lost place to trees of more commercial value.

As we have noted earlier in this chapter, the Mediterranean climate of the coastal oases and the availability of underground

water for irrigation purposes have permitted lateral expansion of cropping activities. In early phases of evolution, the scope for a large range of crops in the oasis gardens encouraged self-sufficiency on a tribal scale. In this period of development, domestic needs dictated that production from the suani concentrated upon vegetables, particularly broad beans and peppers, with a minor accent on potatoes, which were used as a supplement to the diet as a garnish on bazin and kus-kus. In 1944, the British Military Administration estimated that the production of vegetables at a value of £ 200,000 and foresaw no increment by 1960(24). It is probably that their estimate for 1944 is low, since the small plots of land given over to vegetable production by the Arab farmers render it difficult to calculate the total area utilised for such crops; the tendency is to under-estimate both the area and the yields of the crops in this situation. Reference to Figures 64, 65 and 67 of land use will give some indication of the writer's own field observations in 1958/59 in the Oases of Homs and the Sahel El-Ahamed. The future production of vegetables will depend on the success gained by pilot producers in finding markets for vegetables outside the country, or alternatively, on the speed of growth of the urban standard of living in Libya to the position where vegetables obtain a more important place in the dietary. This is illustrated well by the experience of vegetable growers on the Wadi Caam Settlement, where recent

trials have shown that marketing high cost produce in Libya is more difficult than training indigenous farmers in the relevant techniques. At the Wadi Caam Settlement, six farmers were under intensive training by foreign experts, who hoped to inaugurate a vegetable scheme to provide a sound cash crop for the farmers. Cabbage, carrots, cauliflower, peas, lettuce and pepper were included in the range of cropping. After two years, the scheme met unexpected difficulties in securing a market in Tripolitania, since the Tripoli market was not adjusted to catering for high quality produce and the only alternative outlet at Wheelus Field (an American Air Base) was limited. Beyond the two major markets at Tripoli and Wheelus, the Libyan consumption pattern of local production providing for local needs excluded the high cost and high quality goods from Wadi Caam Settlement.

Until urban demand takes the character of a discriminating consumer market similar to urban units in Europe, vegetable production in Tripolitania will be limited, unless overseas markets can be found. It is of importance to note that during the year 1959/60 Tripoli market took more vegetables than in the previous year, and that indications seem to point to increasing interest in better quality produce partly from the expanding cosmopolitan community in the city and also from the higher paid Arab workers. The statistics included in Table 48 show the trends in vegetable production for the period 1935-49.

Table 48 - Vegetable Production in Tripolitania 1935-49 - Metric Tons.

	Potatoes	Tomatoes	Other Vegetables
1935	657	500	
1936	-	600	
1937	1,462	800	3,845
1938	-	500	-
1939	2,000	1,000	7,000
1940	2,500	1,000	8,500
1941	3,000	3,000	10,000
1942	2,500	4,000	9,000
1943	1,800	2,000	4,000
1944	3,000	5,000	5,000
1945	1,000	8,000	7,000
1946	3,500	9,000	6,500
1947	3,500	10,000	5,000
1948	4,000	9,000	6,000
1949	4,000	10,000	

Data from Monthly Market Returns - Tripolitania. Nazara of Agriculture.

Vegetable production offers immense scope for advances in terms of both increases in existing varieties and new crops. Experience at Wadi Caam Settlement indicates that carefully used irrigation water and fertiliser together with scientific tillage can increase production many fold, and that introductions such as cabbage and cauliflower can have great commercial success.

Groundnut production in Tripolitania dates from 1943, when commercial crops were first marketed. Before this time only occasional crops had been grown by Italian farmers, which may be regarded as experimental rather than serious efforts to create a new branch of farming activity. Since 1948, production has risen sharply from 15,000 quintals to 119,631 in 1958; i.e. a 60 fold increase in the decade. Table 49 gives further details of groundnut production in the period from 1947. In

the last two or three years, the level of production in this branch has evened off as the export market has become more competative and as deficiency diseases have affected the crop in Libya (Vide 75). The statistics quoted in Tables 49 and 51 relate to total production in Tripolitania, but it is interesting to note that Arab farmers have taken part in the boom and have adapted the crop into their system.

Table 49 - Production of Groundnuts in Tripolitania.

Year	Production in Quintals
1947	9,750
1948	15,000
1949	12,000
1950	19,000
1951	20,000
1952	31,620
1953	50,000
1954	65,000
1955	80,000
1956	92,000
1957	110,428
1958	119,631

Data from Statistics Section, Nazara of Agriculture.

A similar example of adaptability on the part of the Arab farmer in Tripolitania is featured in the growth of potato production, which has risen from 657 metric tons in 1935 to 17,000 metric tons in 1957. Most of this production is directed to the export market and especially to the United Kingdom.

The annual production of crops in the indigenous sector of the economy exhibits two distinct trends closely allied to the development Phase of the farmers. On the one hand, there are the mass of small farmers, who work *sumi* in the oases; for them production is rising slowly where the accent is on dates,

olives and traditional vegetables. In the second instance, the hawaza and other rationalised Arab farm units are showing great versatility with intensive production of commercial crops for both the export and the home markets. The marketing problem is beset by the following difficulties:-

(i) The cities are growing but demand is governed by the limited number of Europeans and highly paid Arabs who can afford prices necessary to support high cost production from Libyan agriculture.

(ii) Alien extension staff tend to set production at levels which may be applicable to high consuming and high earning societies, but which are mis-placed in present day Libya. Emphasis on high cost/high quality goods may be entertained solely in relation to export markets, and although it is an important task of the agricultural economy to bring in foreign exchange, sooner or later it will have to provide bulk production for the urban units in Tripolitania; this will mean concentration upon quantity rather than quality for some considerable time.

What has happened in terms of economic growth is that the divergence in the speed of adaptation between the more advanced and the less advanced farmers is apparently widening. The hawaza and similar farming units are tending to look for profitable business corresponding to their large capital out-lay and are finding it abroad; whilst the small farmers are engaged in the throes of growth and have not emerged completely from the traditional economic framework representing Phase III. This combination of mental outlook and capital investment tends to throw the two sectors into deeper relief than is justified by the narrow chronological time-gap between Phases III and IV, and even closer margin between Phases IV and V.

(ii) Distribution of Production in Tripolitania

The figures contained in Table 50 illustrate the

distribution of cereals by Province for the years 1945 to 1958. Eastern Province, which includes the areas from Sirte to Misuratino, and the Jebel as far as Tarhuna has recorded the greatest area of production in each year, but this must be modified since the large area of the province compared to the other is such as to reduce this apparent superiority to a relative per hectare inferiority. In terms of wheat production, Eastern province rarely, as in 1958, returns higher figures than Tripoli/Western and Central Provinces.

Table 50 - Provincial Distribution of Cereals in Tripolitania
Sowings in Hectares

	Year	Tripoli	West	East	Central	Total
BARLEY	1945	2,500	6,000	2,500	1,000	12,000
	1946	1,600	3,500	1,600	1,300	8,000
	1947	-----538.....		508		1,046
	1948					
	1949					
	1950	4,800		1,600	1,600	8,000
	1951					
	1952	3,000		1,250	750	5,000
	1953	8,538		4,102	540	13,000
	1954					
	1955	5,650		1,500	1,750	8,900
	1956	9,600		4,210	3,600	17,410
	1957	11,479		2,927	8,150	22,221
	1958	1,300	3,700	5,200	2,200	12,400
WHEAT	1945	12,500	35,000	20,000	6,500	74,000
	1946	2,500	14,000	3,000	3,500	
	1947	1,011,030.....		7,120		8,150
	1950	12,000		4,000	3,500	19,500
	1952	12,000		5,000	3,000	20,000
	1957	27,380		32,943	20,000	80,392
	1958	7,500	15,000	20,500	15,000	58,000

Area in Hectares.

Nevertheless, it is apparent from consideration of the production of more advanced commercial crops, that Eastern

Province falls well behind Tripoli/Western Province on the scale of economic growth, but is above the level pertaining in Central Province (Vide Tables 51 and 52). Citrus fruits, castor oil and olive oil, all important elements in the cash economy are concentrated in the Jefaran Provinces and account for its present pre-eminence. The figures quoted in Tables 51 and 52

Table 51 - Provincial Production of Groundnuts 1950 and 1956

	Tripoli & Western Province		Eastern Province	
Year	Quintals	Hectares	Quintals	Hectares
1950	18,000	1,500	1,200	100
1956	90,899	3,879	1,125	75

Table 52 - Provincial Production of Almonds 1953

Tripoli/Western Prov.	1,033,000
Central Province	7,000
Eastern Province	400,000
Total	1,440,000

Data from Statistics Division, Nazara of Agriculture.

indicate that the differential growth in production, both laterally and vertically, is marked from one Province to another corresponding closely to the movement of farming activity from one Phase of economic growth to another. Thus, Tripoli Province exhibits a high average level of attainment, ranging from Phase IV to V, whilst Eastern Province as a whole averages a bare Phase III. This may be explained as a direct result of geographical isolation from the centres of community interaction, where the dynamics of growth are generated.

This consideration of differential economic growth throughout Tripolitania is further reinforced by examination of the

area under crops and the farming systems in use in the various provinces. The lead of the Jefaran Provinces over others is apparent from the following figures:-

Azienda Sowings 1955-56 (Including private concessions, demographic farms and hawaza units).

	Area Dry	Production Farmed	Area Irrigated	Production Irrigated
(i) BARLEY	Ha.	Qu.	Ha.	Qu.
Tripoli and Western	7,500	2,400	1,400	2,150
Eastern Province	3,600	1,700	200	200
Central Province	100	70	-	-
(ii) WHEAT	Ha.	Qu.		
Tripoli and Western	400	300	170	2,300
Eastern Province	6,000	2,800	12	160
Central Province	1,500	1,200	-	-

Data from Lewis, R.H.(36).

The position has been summarised well by R.W. Hill, who, in discussion of the extension of irrigation, pointed out:-

'Tripoli and Western Province produced 61.5% of Tripolitania's total cabila barley production in 1954-55 and 47.3% in 1955-56. On the azienda land the same province produced 87% of the dry barley in 1954-55 and 52.5% in 1955-56, and in the same two years 75% and 91.5% of the irrigated barley respectively. To-day, the Jefaran Plain is yielding an average of 50% of the cabila land barley, 70% of the azienda dryland barley and 80% of the azienda irrigated barley.'(9)

Hill accounts for the increases in production from the Jefara in terms of extension of irrigated areas. Hill's interpretation is based upon the following points:-(9)

(i) Application of new techniques especially by commercial undertakings such as Gagour Fils and Mitchell-Cotts.

(ii) Speculation in booming export markets leading to increased acreages of cash crops.

(iii) Government subsidies for imported irrigation equipment.

(vi) More intensive production from Italians owned private concessions and demographic estates.

We may suggest that Hill's work tends to under-estimate the part played by indigenous farmers; increases in production and the tendency towards commercial cropping is as much accountable to improvements in the indigenous sector as to foreign enterprise. The outstanding figures returned by private concessions and the Italian farms should not allow the aggregate yields of the hawaza units to be disregarded in any assessment of farming trends. Even in the Jefara, Arab production in the sphere of commercial cropping accounts for 20% of citrus fruits, 25% of olive oil and 60% of irrigated cereals. As we shall see later in examination of production in Misuratino, the Arab contribution to agricultural expansion is considerable and in some part independent of alien introductions.

(d) Livestock Production in Tripolitania - The Dilemma

Livestock breeding is paramount in the traditional economic framework of Libya. In the preceding pages of this chapter, we have concerned our discussion with features of arable farming in Tripolitania to the exclusion of the livestock industry. This alignment of our examination resulted from the fact that we have traced only those elements in the agrarian economy which have signalled a new Phase of growth, or which have

stimulated further developments within a particular Phase of growth. Advances of this kind in Misuratino have been made purely in the realms of arable farming. In the following paragraphs we shall discuss the reasons for the dilemma surrounding the livestock industry and suggest the possible trends which may be expected as the economy as a whole gathers further momentum.

At the time of the Italian occupation of Libya, livestock represented the largest single sector of investment and accounted for more than half the annual national product. Most of the animals were kept under a mobile system varying from pure nomadism to transhumance, although the majority of animals at that time were at the nomadic rather than the transhumant pole. As sedentarisation gathered force, so the flocks tended more and more to become supplementary to oasis agriculture. The position should not be over-stated, since the essential interdependence of the littoral and the steppe remained as a working combination, and the decline in the herds was relative only to the degree of improvement effected in the <u>suani</u> of the oases. Thus, in our scheme of economic growth, livestock rearing was an indispensible part of Phases II and III, and since this latter Phase is still in process of evolution in Tripolitania, the question of livestock maintenance is a living reality.

The basis of the dilemma which faces the industry is to be found in the deep uncertainty which surrounds the numbers of livestock, the trends in movement, and the part that it plays

in the life of the Arab farmer. Reports on the industry prepared by overseas experts of F.A.O. have fought shy of these questions - yet without answers there can be no reasonable assessment of the situation. Theodorou[39], Wheatley[25] and Faulkner[70] all agree that the livestock industry is important, but apart from limited technical advice on breeding and unsupported suggestions of pasture improvement, these writers avoid facing the question of whether livestock has a place in the future economy of Libya, and if so what part precisely. In 1945 The Rowland-Robb Land Use Survey suggested in measured terms that the agricultural future of the country was to be found in livestock farming on a rationalised scale[24]. There is no necessity here to repeat in detail the arguments used by the report, but below we outline the major points of the proposals made by Rowland and Robb.

(a) Dry-farming is a risky business in Tripolitania and does not offer a reliable source of investment.

(b) Irrigation in the area is costly and Italian experience proves that development of this kind is liable to meet with intense competition in world markets from producers who have less heavy water costs. Semi-irrigation of olives and cereals on those areas already under settlement would be useful and more profitable than full irrigation.

(c) Livestock has been the mainstay of the Tripolitanian economy since Hilalian times. The industry offers a well tried means of exacting the maximum returns from a poor environment. The Arabs are trained in livestock maintenance and the way of life necessitated by transhumance is amenable to their cultural bent. World markets in livestock products seem to offer a steady source of income for the country. Therefore:-

- improve the breeds of animals, particularly sheep and cattle.

- institute range management on the style of South Africa and Australia. Drill wells for constant steppe water supply.

- use the sedentary areas as a supplementary and emergency food source for the stock.

None of the proposals made in 1945 have been followed through by the subsequent administrations. Under the British Military Administration 'care and maintenance' precluded investment on the scale necessary, and since 1951 no distinct livestock policy has been implemented.

The thesis laid out in the Report(24) remains unproven, and there are in fact several factors present in modern economic life which tend to militate against the establishment of a livestock industry as suggested by Rowland and Robb.

In general terms, livestock, and the tribal system which is associated with the keeping of animals on a large scale, is looked upon by the present-day generation of administrators as 'old fashioned' and is treated as an obstacle to development in the sedentary sphere. This is reflected in recent legislation designed to restrict the activities of the herdsmen in the Tripolitanian Jebel, particularly in Orban. Again, in plantation areas and afforested zones strict legislation and warden control is keeping the herdsmen from their traditional pastures. The following table shows the area under forests in Tripolitania; a significant amount when it is considered that this land comprises the best grazing of the Jebel and littoral.

Land Under Forestry Department Protection, Tripolitania

State area afforested	10,700 Ha.
Provincial forest estate	153,000 Ha.

Data from W. Marshall, Forestry Officer, Tripolitania.

Thus, official action in isolated spheres rather than an integrated policy is tending to reduce the amount of grazing land and thereby render livestock rearing a more hazardous business. It has been notable that the decline in livestock numbers during drought years is greater in relative intensity in the period since 1945 as the process of afforestation has got underway. Italian colonial policy had a similar effect upon the availability of grazing land, as we have noted earlier. The sum effect of alienation of traditional grazing land is to reduce further and further the resilience which the semi-nomad has had in facing frequent droughts, since there has been no reserve area in the littoral where final resort could be made to replenish stock. As in Algeria, sedentary farming by aliens and rigid administrative control of movement have brought about a real decline in the importance of stock rearing.

The internal growth of the indigenous economy has had a greater influence on this decline than outside factors. Rowland and Robb took as a premise that the standard of living in Tripolitania was likely to remain static or declining, and was certainly to be based upon agriculture alone(24). At the time (1945), there was nothing to show that this assumption was incorrect. The trends in indigenous growth and the development of oil exploration and exploitation have emerged only in recent years. The significance of these recent trends in relation to livestock farming as envisaged in 1945 is that the then reasonable return expected from concentration upon stock raising, now offers a poor level of existence compared to those standards

which have become common in Tripoli. Hence, it will prove difficult or impossible to-day to introduce an agricultural economy utterly dissociated from urban life in spite of the advantages of the Rowland and Robb thesis. In human terms, could it be expected that the rural Arabs as a whole would accept low returns and onerous labour involved in seasonal trans-humance, whilst their urban neighbours were enjoying a European standard of living? In later discussion of education and the impact of urban affluence upon young rural peoples, we shall see that such an idea is incompatible with the mental climate prevailing in Libya to-day.

As the number of livestock diminishes, so the production of livestock products will fall off. The present yields of these products are shown in the following Table 53, where the comprehensive figures drawn up by the B.M.A. are used[24]:-

Table 53 - Estimates of Livestock Products in Tripolitania.

Product	Quantity in M/Ts
WOOL	450
MEAT	
Sheep	2,300
Goats	1,500
Cattle	660
Dromedaries	1,900
Horses	70
Donkeys	120
TOTAL MEAT	6,550
HAIR	90
MILK	
Sheep	5,700
Goats	9,100
Cattle	2,100
Dromedaries	1,900
TOTAL MILK	18,800

Assuming that the rate of production of livestock products falls off in direct relation to the degree of economic growth, we may expect that production in the next decade will drop by at least a third; i.e. as more farmers move from Phase III to Phase IV, and lose the incentive to maintain livestock for local needs, and as transhumant livestock keeping becomes impossible with the closing of the littoral ranges. The problem which arises is two-fold: - the loss of production means less cheap meat foodstuffs for the urban population; the largest geographical area in Libya is made virtually non-productive since livestock offer the only means at present available of utilising the inner steppe.

In terms of economic growth, the answer to the questions concerned in the decline of the livestock industry is obscure. The thesis offered by Rowland and Robb has been outdated in many ways and modern conditions in Libya show no opening for the implementation of a modified version. However, the environment which was promising as a background to improvement in the semi-subsistence economy of 1945 might be utilised on the same scale by large capital units later. For the time being, the impetus of development in the sedentary sphere is eclipsing herding in the steppe.

<u>What Happens to Livestock Production in Phases III, IV and V?</u>

<u>Present Trends in Tripolitania</u>

<u>Milk</u>:- Alongside the growth of the urban units in Tripolitania, demand for certain specialised animal products, notably milk,

cream and cheese has increased. At present, this demand is satisfied by imported milk both in respect to military personnel, Europeans and higher-paid Arabs (Vide Table 54). In fact, Vieira recently reported that milk production in Libya was declining sharply(76). Arab producers of milk products - butter-milk, cheese and yoghourt- tend to be small farmers with self-sufficient units who make small amounts of cash by hawking their milk in the streets by direct milking of the goats wherever custom is to be found. Throughout Tripolitania Province there have been no recorded attempts by local Arabs to exploit commercial milk production. Hence, it might be said that the transition from self-sufficiency to commercial farming has not affected the livestock industry in the most simple form of development - the growth of dairy farming, rather, the hawaza units discontinue stock activities and draw upon supplies from

Table 54 - Imports of Milk for Civilian Use in Tripolitania, 1957.

	In £L
Milk and cream evaporated	66,158
Butter	25,663
Cheese and Curd	105,360

Data from Statistics Department - Nazara of Econ. & Finance.

those farms which are still concerned with Phase III productions. This accounts for the decline in absolute production of milk and also for the apparent scarcity of milk mentioned by Viera(76).

Meat:- The urban demand for meat and meat products of various kinds has increased with the expansion of the urban areas and become more varied with the influence of foreign communities.

The response to this demand has been through resort to imports. It is interesting to see that Libyan exports of animals to Egypt, Malta and Greece have maintained themselves until recent years, indicating that the traditional pattern of trade in livestock products is continuing. Official statistics tend to cover the real trend since they deal with Libya as a whole. In Tripolitania, import of meat continues at two distinct levels; firstly through imports of expensive processed items for the European and higher-paid Arab sections of the urban community, and secondly through movement of stock from Cyrenaica to satisfy the needs of the lower-paid Arabs in the towns. It is suggested here, that there is a downward trend in the production of livestock products which is obscured by the continued high output of the bedawin flocks in Cyrenaica. Another factor visible in the situation is the tendency present in Tripolitania, whereby livestock is still regarded by most of the rural peoples in terms of prestige and correspondingly a means of investment. Thus, the number of beasts remains high amongst the peoples of the oases; there is a great difference to be observed, however, between those animals kept by the semi-nomads of transhumant farmers and those animals owned by sedentary farmers without interest in seasonal shift to pasture. In the former case, the animals are maintained in reasonably good condition by availability of pasture for most of the year except in times of drought, whereas the stock retained on the <u>guani</u> and peripheral areas tend to live by scavenging on the

waste lands. Furthermore, the cattle of the oasis farms are used as draught animals, a process which reduces their condition. Thus, the bulk of animals found in the static farming areas may be dis-counted from the economically effective producing units; only those beasts that are sent out into the steppe under the care of herdsmen are of significance in assessing the positive contribution towards meatstuff supply; and as the move from Phase III to Phase IV takes place, so this proportion decreases.

Case Example: - In order to bring the problem into perspective, we shall consider three case examples of Arab farms within Misuratino illustrative of the state of livestock production at the various levels of economic growth.

Example One

Phase III characteristics are typified by farmer No. 5 of the Questionnaire Survey (Appendix 3). In this case, the farmer has been attached to his farm for the greater part of his life and cannot remember his family being fully engaged in nomadic activity. In 1960, he owned two cows, two heifers, seven camels, three donkeys, 24 sheep and twenty goats. The cattle, one camel and the donkeys were kept on the oasis holding together with two old goat ewes. Milk production was taken from the camel and the goats, whilst the cows were used for draught purposes, and the donkeys for general carrying of produce and people. The key point in this situation is the fact that he owns a small but significant herd of 50 head of goats and sheep in the inner steppe. This was made possible

by an arrangement with his brother, who farms in the area, by which their joint herds were supervised in rota by their elder sons. The herd was maintained in the steppe throughout the year apart from a brief spell from November to March, when they grazed in the oasis periphery until the steppe pasture re-appeared after the winter rains. The herds were moved from pasture to pasture in the steppe as the need arose. In this case the percentage of gross annual income derived from livestock on the farm was 50% in 1959/60, and accounted for slightly more than 75% of his cash income from market activities.

Production of livestock and livestock products on this farm, typical of Phase III traditional farming remains high, and in Misuratino, farms of this kind account for a large proportion, probably more than two/thirds, of the products marketed in the area during any year.

Example Two

Just as the change from Phase III to Phase IV represents the critical move from traditional to transitional economy, from self-sufficiency to commercial production, so in livestock terms a vital re-orientation takes place. Farm No. 2 of the Questionnaire Survey brings out the nature of this change in comparison with the case quoted above. Here the livestock holding on the oasis farm shows little divergence from Farm No. 5; the farmer owns six cattle, ten sheep, five goats, three camels, three horses and four donkeys. Most of the cattle, camels and donkeys are grazed in the fallow portion of his land,

which totalled one and a half hectares in 1959/60. Other stock was left to scavenge along the lanes under the control of some junior or female member of the household, or was allowed to roam over the dune waste lands which border the Sahel El-Ahamed. The farmer estimated that his animals gave him 15-20% of his gross income, but this was entirely privilege income and no attempt had been made to market either the beasts or any by-products during the year. The animals were kept, he said, to supply him with traction for his farming activities, whilst the sheep and goats represented a satisfactory form of investment against the need for money should any of his sons marry. Milk and skins were absorbed into the household and there was no effort taken to obtain a market surplus.

The attitude of this farmer was characteristic of other operators at the same stage of growth. They were regarded as relatively wealthy men compared to less commercialised farmers in the same qabila, and they accepted livestock as a farm utility and a convenience, but little more.

Example Three

There are few farm operators in Misuratino who may be regarded as fully equipped Phase V farmers, but the spirit and position of hawaza farming is faithfully reproduced by the better farmers at Wadi Caam Settlement. The livestock dilemma present at the Settlement has been examined elsewhere (35), but it will be useful here to recapitulate the problems and the answers effected, in order to understand the implications of

intensive cash cropping upon the position of livestock in the farm economy. Most of the farms at the Settlement are occupied by ex-Phase II and, to a less extent ex-Phase III farmers, who have been thrust into a Phase V environment without training, thus from the out-set, livestock were an integral part of farming activity as far as the settlers were concerned. A provisional answer offered by the manager of the Settlement was to include the stock on the estate but to exclude them from the irrigated plots. A large area alongside the estate was put aside for communal grazing. Naturally disputes arose from the fact that some farmers owned more stock than others and that animals occasionally strayed on to arable land by accident or intent. The estate made some progress towards converting all livestock activity into a co-operative venture, whereby quality stock would be purchased by the authorities and maintained on official pasturing areas. Livestock products from milk to manure would be made available to operators on the estate, whilst the evils associated with private stock ownership would be eliminated. Before this plan came into operation, the natural forces we have described previously came into play. The better farmers made a success of irrigated farming, and with good profits to be made from vegetables, they have been able to expend less time and effort in the maintenance of flocks. Of the advanced farmers, some retain a small number of draught animals and a remnant holding of sheep and goats; others at the next level of development keep animals for draught purposes only.

One uncertain aspect of the situation at the Settlement is whether the farmers, having utilised their flocks for capital investment in arable farming, will use profits from this latter activity to re-invest in livestock. Present evidence seems to point to the fact that future stock developments, particularly in the compact communal unit of Wadi Caam Settlement, will be co-operative rather than individual in origin and organisation.

Thus, the suggestion that livestock and livestock products will decline in both quantity and quality as economic growth gains further momentum in rural areas is borne out by the case examples which we have considered. The steppe potential for livestock rearing remains until economic and social forces permit its exploitation. In the present context, we may summarise by saying that the livestock sector of the agricultural economy is on the decline with a corresponding decrease in the availability of material for foodstuffs and for industrial processing.

(e) Factors Behind the increase in Production III

(i) Total Production

Indigenous production within Misuratino varies both in respect to area, and vertically depending upon the state of evolution attained by the majority of farmers. In the first pages of this examination we shall analyse the areal differences present in the oases.

Oasis of Homs - Homs Oasis, disregarding the Msellatan hinterland which economically and culturally belongs to the Jebel, is

generally poor. Barren limestones outcrop over large areas of the steppe margin, and sane dune encroachment has sterilised significant areas of the littoral. The total area of the oasis is less than 1,000 hectares, of which a large part is given over to the town of Homs, Leptis Magna and the military installations at present occupied by the British Army. (Vide Figure 70). The combination of human land use and extensive areas of poor soils must be borne in mind in consideration of production from the area. Two further areas may be singled out of the oasis for further comment; the En-Negishat territory in the vicinity of Homs has been developed recently and if this present trend continues, then the agricultural economy of the Oasis should be put on a better footing; of secondary interest in this context are the small gardens which have grown up to the west of the town close to the sea-facing scarp of Msellata. Although these gardens tend to exhibit characteristics reminiscent of Jebel agriculture in the sense that they are ginan rather than suani, their presence in the oasis gives further hope of agricultural expansion. Apart from these two colonisation areas, both opened up in the past two decades, the major part of the oasis gives an over-all impression of dilapidation. This may be accounted to the following factors:-

(i) The poor underground water resources of the oasis, which are difficult to exploit due to the depth of the water table and the low yield of the wells.

(ii) The growth of Homs town and the attraction of rural population to urban employment even if not to urban residence.

(iii) The interest in livestock still maintained by many of the cabila of the peripheral steppe.

Sahel El-Ahamed - The Sahel comprises the richest 3,000 hectares of the total of 27,678 hectares which constitute the oasis zone of Misuratino. It will be demonstrated in the following sub-section of this discussion how the Sahel shows the greater frequency of farmers registered in the higher Phases of development. This has been made possible by the deep and fertile soils of the Sahel, the availability of water from a shallow and rich-yielding phreatic water table, and the fact that the tribes are mainly Berber in origin with typical qualities of intense application to and interest in their holdings. The intensity of agricultural development may be gauged from the data contained in Table 55. In the Sahel, each hectare of land is served

Table 55 - Area and Distribution of Wells in Misuratino

	Area	Number of Wells
Homs Oasis	1,000	250
Sahel El-Ahamed	3,000	4,000
Zliten Oasis	10,634	4,526
Misurata Oasis	13,044	10,582

Data from Italian Census of 1938/39 - Min. Ag.

by a well, whilst in all other oases of Misuratino the distribution of wells runs at less than one well per hectare. Bearing in mind the strong relationship between irrigation development and the Phases of economic growth, the figures in Table 55 are indicative of a marked superiority in the Sahel compared to

adjacent oases. This position is given further support by the fact in a year of average rainfall (1957/58), the Sahel produced not only a large proportion of basic products (2% of wheat, 7% of barley, 22% of dates and 19% of olive oil of Misuratino), but also exhibited great diversity of production.

Zliten - The Oasis of Zliten is a wide-spread agglomeration of oasis pockets, separated one from another by intrusive ramla sand areas and barren areas of scoured rock. In this environment, agriculture is limited to small depressions between dunes, and only in small areas are there concentrated zones of continuous cultivation. Not only is the poverty of soils important in limiting yields and total production from the area, but also to a larger extent, the inaccessibility of the phreatic water table. Much of the water draining away from the internal wadi basins in the Zliten-Bir Dufan 'Col' is diverted from Zliten Oasis by the tilt of the land towards Wadi Caam, hence the area around Suk El-Giuma in the west has a steady supply of water for its wells, but the larger areas of the oasis lying to the north and the east in Fuatir and Wast receive only insignificant quantities. Furthermore the west and north are handicapped by sea-water intrusion into the water table, which renders much of the water brackish and at times useless. At present production of irrigated crops is centred in the Giuma zone south of the main through road, together with minor colonisation activity to the south of the main road in the vicinity of Dafnia Demographic Estate.

In spite of the fact that the oasis covers some 10,600 hectares, the production of crops is of the following order only: 13% of wheat, 20% of barley, 24% of dates and 22% of olive oil, with an exclusive concentration upon subsistence crops. Misurata - Misurata Oasis is separated geographically from Zliten by extensive areas of ramla along the coast, and by barren outcrops of rocks which lie to the east and north of El-Wast. At the present day delineation between Misurata and Zliten Oases is obscured by the Italian plantations at Dafnia. This demographic estate covers most of the land in the littoral to the south of the Tripoli-Benghazi road. The characteristic features of the country north of Dafnia are sand dune areas broken by occasional minute oases such as Zregh (Vide Figure 3). Towards the east, the sand dunes increase in height and area to give a sand sea effect with dune peaks rising above 50 metres. The north of Misurata Oasis is made up of dunose areas, where poor agriculture is practised in small inter-dunal gardens. To the east, the situation is rather different; here, there are date palm oases, suani similar to those in Zliten Oasis and an agricultural pre-occupation with barley, date and olive oil production. To the south-east, Misurata Oasis fades out into the Sebkha of Taorga, and to the south-west the oasis eventually merges into the foothills of the steppe. Agriculture in the southern margins of the steppe is reliant upon the olive tree and the date palm, with some inter-cultivation of cereals and an insignificant amount of vegetable production.

On the whole, the areas of the oasis are poor because the aquifers, especially the phreatic water tables, are at great depth and are low yielding. One of the major problems to be faced in all the component areas of Misurata Oasis, with the exception of Zaviet Maguib, is the salinity of water drawn from wells and the poor rate of withdrawal of water from wells; i.e. a dalu well in Misurata Oasis may be expected to give something of the order of 16 cu.ms. per day, whereas a corresponding well in the Sahel El-Ahamed would give three times that amount. In consequence, the wells in Misurata Oasis are scattered; each well serves more than one hectare, and in many areas one well serves up to five hectares. This state of affairs is borne out by the data contained in Table 55. The result of the poor distribution and low yield of wells in Misurata Oasis is that suani enclosures account for only a quarter of the total surface area. In any one farm unit, it may be expected, therefore, that irrigated crops will be less than half the annual production of the unit in value.

In Zaviet Maguib the water table, and particularly the phreatic water table, comes close to the surface; most of the wells in the area are 12-14 metres in depth, and the incidence of wells works out at approximately one well per hectare. Thus the production of irrigated crops from Maguib as a percentage of total production in the oasis works out at about three-quarters. Agriculture in Maguib is concentrated on vegetable production with some emphasis on broad beans, pepper and tomatoes.

The human environment in Misurata has a great influence upon agricultural production. Misurata has tended to be isolated from Tripoli and the central administration in the capital since the arrival of the Turks in North Africa. In consequence, the peoples of Misurata have always regarded themselves as semi-autonomous. They have preserved much of their tribal unity a fact made manifest as recently as 1916 during the Italio-Sanusi struggles, when the Misuratans were able to play off the two rival parties to their own advantage. The cabila of the area are strongly traditional in character and hold to many of the precepts which obtained during their desert existence. Thus, tillage, harvesting of crops and the necessary economic activity necessary to support arable production is not acceptable as masculine employment. It is the writer's experience that most of the work in the fields in Misurata Oasis is done by the women and children and not by the men. This notion of manly indifference to agricultural pursuit is directly comparable to those tenets held by the Tauregs of the interior. In such a human situation, it is clear that economic growth is going to depend upon the influence of eduction upon the younger people in the coming years. Obviously, commercial consciousness cannot develop where social attitude is so totally set against agricultural routine.

In summary, it may be said that the outstanding feature of agriculture in Misurata is the predominance of dry-land cropping, with particular emphasis on barley. Production of barley in

1958 was 191,883 metric tons. As we shall see in analysis of market returns in Misurata market, the turn over of cash crops is relatively slow compared to those markets in Suk El-Giuma, Zliten, Suk El-Khamis and Homs. Production of crops in Misurata for 1958 is shown in the figures following:-

Production of crops in Misurata Oasis 1958-59.

Crop	Marta
Olive Oil	26,740
Dates	80,690
Wheat	96,295
Barley	191,883

Taorga - Taorga is an oasis situated south of Misurata, some 50 kilometres along the Benghazi road. The site is determined by the occurrence of a natural spring in the area, which permits cultivation of date palms. Production other than dates and date products is insignificant. Taorga may be disregarded in estimating commercial production in Misuratino. Of secondary interest at Taorga is that recent surveys undertaken by the Nazara of Agriculture, the Water Resources division of U.S.O.M. and Durham University indicates that the development area located to the west of the Benghazi road on a parallel with Taorga may in the future reveal commercial possibilities for intensive agriculture based on artesian water supplies.

To follow up this study of the separate oases of Misuratino, we shall now analyse the Phase growth of farmers who took part in the Questionnaire Survey of 1959-60, in order to see the relative proportions of farmers in each oasis, who have attained commercial Phases, i.e. Phases IV and V, in relation to those who are

moving from traditional to transitional production, i.e. Phase III, or those who are still paramountly involved in traditional production at Phase II.

(ii) Production by Phase

The average production recorded during the Questionnaire Survey conducted by the writer is shown in Table 56. The Sahel El-Ahamed returns the highest values for both crop production and livestock in Misuratino. More interesting is the fact that livestock production in the Sahel as a percentage of the total agricultural production was almost 14%, whereas in Misurata, this proportion increased to 33.6%. The increase in the relative importance of livestock with the lesser development of commercial agriculture is compatible with the theory we have outlined earlier, whereby, during economic growth in the area, livestock are relegated to minor economic position as cropping techniques improve and as commercial production of crops dominates the agricultural calendar. The relative positions of crop production and livestock production in the oases of Misuratino as illustrated in Table 58 shows clearly the transitional nature of the economy in the area. Of the farms covered in the Questionnaire Survey, only one farm returned equal livestock and crop production; all other units showed a predominance of the cropping sector over the livestock sector.

Tables 57 and 58 have been used to show the numbers of farms at the varying degrees of economic development, which we have suggested earlier. In the Oasis of Homs, eight of the farms fell within the traditional classification, with only two units

recorded marginally within Phase IV. Figures for Misurata show much the same tendency, although in this case, six farm units fell within category II, and the more advanced farmers at Phase IV returned a low average production compared with farmers at that Phase in Homs and the Sahel El-Ahamed. The poorest level of development in the economic sphere is found in Zliten Oasis, where all farm units included in the survey were classified under traditional heads. The disposition of farms under Phase analysis in the Sahel El-Ahamed needs further comment. Those farms in the Phase V category are located on the Wadi Caam Settlement, and although they exhibit all the characteristics of Phase V development in terms of farming technique and market orientation, it must be noted that they are still at an experimental stage. Thus, income returns from those four farms tends to give the impression of a low turn over of produce. Future production per hectare should show a great increase as the marketing problems of the estate are solved.

Table 56 - Production of Crops and Livestock in the Constituent Oases of Misuratino in £L. Sample of 40 Farms.

	Average Annual Production of Crops 1959-60 per Farm	Average Annual Production of Livestock 1959-60 per Farm.
Homs	61.0	13.7
Sahel El-Ahamed	139.0	18.0
Zliten	32.5	10.4
Misurata	32.5	16.3

Table 57 - Production of Farms in Misuratino in £L
Sample of 10 Farms 1959-60 - By Phase

Phase	Number of Farms	Average Production Per Farm	Average Production Per Total Hectares	Average Production Per Hectare Sown
HOMS				
I				
II	4	18.75	2.27	3.90
III	4	73.75	8.19	13.40
IV	2	120.00	7.50	20.00
V				
SAHEL EL-AHAMED.				
I				
II				
III	4	165.0	9.30	57.72
IV	2	200.0	11.76	16.60
V	4	150.0	75.00	75.00
ZLITEN				
I				
II	4	14.65	2.44	5.86
III	6	44.40	6.31	9.86
IV				
V				
MISURATA				
I				
II	6	15.30	1.86	3.06
III	2	42.50	7.06	12.14
IV	2	72.60	8.30	12.65
V				

Table 58 - Production of Crops and Crop Products, Livestock and Livestock Products in Misuratino in £L - Sample of 40 Farms 1959-60 - By Phase.

Phase	Number of Farms	Average Production Per Farm			Average Production Per Hectare		
		Live-stock	Crops	Total	Live-stock	Crops	Total
I							
II	14	10.6	16.1	26.7	1.4	2.9	4.3
III	16	23.6	81.4	105.0	2.2	7.7	9.9
IV	6	16.0	130.8	146.8	1.3	9.1	10.4
V	4	0.0	150.0	150.0	0.0	75.0	75.0
Total	40	18.2	94.5	112.7	1.8	23.6	25.4

Table 59 - Total Gross Values of Crop Production per Farm and per Hectare of Total Land - Zavia 1951-52 - Sample of 70 Farms; Misuratino 1959-60 - Sample of 40 Farms

(i) Zavia by Hectaresage Groups in £L

Total Land Hectare Groups	Number of Farms	Average Production Per Farm	Average Production per Hectare.
1 - 20 Ha.	23	139.0	11.0
21 - 40 Ha.	18	238.0	8.0
41 - 100 Ha.	19	316.0	5.0
101 - 500 Ha.	10	590.0	4.0
501 - 1200 Ha.	-	-	-
Total	70	277.0	6.0

(ii) Misuratino by Phase in £L

Phase of Growth	Number of Farms	Average Production Per Farm	Average Production per Hectare.
I	0	-	-
II	14	26.7	4.30
III	16	105.0	9.91
IV	6	146.8	10.48
V	4	150.0	75.0
Total	40	112.7	23.70

The over-all picture presented by the statistics in Tables 57 and 58 is that 75% of the farms represent traditional farming; i.e. those Phases of activity based on self-sufficiency. But it is also quite clear from the statistics that those farmers engaged in Phase III growth are in many cases verging on Phase IV, hence the high average production per farm reported for Misuratino as a whole (£L 81.4 for Phase III), which compares favourably with the average production for more advanced units in the area at Phase IV and returning, on average, an annual production valued at £L 130.8. Whilst production per hectare drops slightly with the more advanced farmers, the production

per total hectares increases. This may be explained by several factors:-

(i) commercial farming tends to eliminate the carefully tilled family plot which gives high yields per hectare but poor cash returns per hectare.

(ii) the percentage of dry-land included in the farm unit decreases up the scale of economic growth.

For all farms in Misuratino included in the Questionnaire Survey, the average production per farm was £L 94.5, the average production per total hectares owned was £L 68.2, and the average production per utilised hectare in 1959-60 was £L 27.1. Table 59 is taken from Theodorou, and is reproduced here to enable comparison to be drawn between the two areas. The main points which emerge from this comparison are:-

(i) the advanced development of Zavia in relation to Misuratino.

(ii) the larger farm units used at Zavia reflects the tendency for large operating units to increase in number as growth progresses.

(iii) the high yields per hectare achieved at Wadi Caam Settlement.

(iv) we might question whether Theodorou is correct in saying that yields per total farm hectares declines with growth - it is the writer's experience that yields per utilised hectare may decline, but that yields per total hectares increases: Table 60 illustrates this in respect to Misuratino.

Table 60 - Production per Hectare Utilised and per Total Hectares in Misuratino, By Phase, in £L.

Phase	Production per Total Ha	Production per Utilised Ha.
II	2.9	3.7
III	7.7	23.2
IV	9.1	16.4
V	75.0	75.0

(iii) Market Returns

Most local crop production that passes through local markets originates from farm units that are already up to or beyond Phase IV, although as we have seen earlier, there is a substantial movement of crops from farms that are in many ways self-sufficient. The level of movement of crops and livestock to market will be discussed further in the next Part of this chapter under the head of farm privileges. Table 61 shows the total turn over of major crops in Misuratino in relation to the population of the area. Direct comparison is not possible since there is some seasonal importation of barley and wheat into Misuratino from other areas of Tripolitania. The relative position may be better gauged by reference to Table 62, which indicates the total Tripolitanian market return for 1958.

Table 61 - Market returns for Homs, Zliten and Misurata, 1958.

Product	Homs	Zliten	Misurata	
Local Hard Wheat	5,935	8,116	13,392	Qu.
Local Barley	7,697	11,774	18,991	Qu.
Pressed Dates	1,945	13,914	7,095	Qu.
Paste Dates	900	7,257	8,825	Qu.
Potatoes	12,752	9,679	9,454	Qu.
Olive oil	39,138	27,506	207,288	Litres
Population	62,272	41,066	56,902	

Table 62 - Market Returns for Tripolitania 1958.

Local Hard Wheat	36,859	Qu. at Market.	124,000 Qu.	Total
Local Barley	94,706	"	371,000	Production
Pressed Dates	30,572	"	363,000	
Paste Dates	19,265	"		
Potatoes	36,981	"	76,000 "	
Olive Oil	1,403,355	Litres "	2,700,000 Ls."	

Data from Statistical Division Nazara of Agriculture.

From the data contained in the Tables 61 and 62, it is clear that production of basic crops in Misuratino dominates market activity; only a modest surplus of these crops is available to the urban markets compared to total production. The urban areas are still small, and with the exception of Misurata, many of the inhabitants of the towns produce sufficient for the maintenance of their families from their own farms and smallholdings. The prices of agricultural produce in Misurata market do fluctuate seasonally, but that scarcity is never pressing enough to spiral prices beyond the means of most urban workers. A further index which enables assessment of the ability of rural areas to provide for the expanding urban areas is the trend in the cost of living. During the initial Phases of economic growth, the cost of living in Tripolitania tended to show only slight increase, and at times an absolute decrease. The number of farmers reaching Phase IV increased after 1951, and the proportion of total crop production reaching the markets expanded by almost one tenth by 1958 (Vide Table 62). Nonetheless, the increase in food supply from rural areas has been unable so far to keep pace with the expanding demand in the towns as may be seen from the following figures:-

Retail Price Index - Summary 1955-59 Libyan Sector

	January	December	
1955	100	115	
1958	111	112	January 1955- 100.
1959	114	124	
1960	128		

Data from Statistics Section - Nazara of Finance & Economics

The price index of 1959 shows an increase in comparison with the price index of 1955 of about 15%, but it is significant that 5% of this increase is accounted for by the growth in demand since January 1959. The cause of the increase recorded in 1959-60 lay in the increased cost of meat, fish and fruit in spite of the fact that climatic conditions during the year had been average. Table 63 shows the scale of increase at a monthly level at the end of 1959, and Table 64 shows the annual

Table 63 - Price Movements in Selected Commodities in Urban Areas in November and December 1959.

Commodity	November	December	
Mutton	370	525	Mms/kilo.
Beef	368	383	"
Fish	225	264	"
Fruit	101	118	"

increase in commodities. Rising prices in the Libyan Sector towards the end of 1959 may be accounted partly to the influence of drought conditions which appeared to be imminent; but the corresponding rise in the European cost of living in 1959, from 115 in January to 126 in December, in a sector only slightly affected by local climatic vicissitudes, seems to indicate that the upward trend in prices was part of the continuous price spiral.

Table 64 - Price Movements in Selected Commodities in Urban Areas in the Period 1955/59.

Commodity	1955	1956	1957	1958	1959	
Mutton	275.0	298.0	326.0	341.0	391.0	Mms./kilo
Beef	274.0	274.0	288.0	319.0	356.0	"
Fish	180.0	208.0	184.0	212.0	208.0	"
Vegetables	36.3	43.8	37.7	46.6	55.5	"
Fruit	78.8	89.7	87.8	102.3	106.2	"
Eggs	43.7	43.2	44.0	43.3	45.3	"

Data from Monthly Bulletin - Statistics Sect., Naz. of Agric.

Thus, market returns and the calculated retail price index both point to the fact that the economic growth of Tripolitania as a whole is showing the classical divergence between rural and urban sectors, with the latter lagging behind the advances achieved in the towns. At this stage we shall note the following factors present in the situation:-

(i) The agricultural section of the country exhibits slower development in terms of contribution towards the national product than urban based developments.

(ii) But, rural areas are under-going a far-reaching change in socio-economic life through the forces of economic growth, which are drawing many farmers into the realm of commercial production.

(iii) There is a discernable pattern of growth visible in the farm units of the oases:-

Phase I - Nomadic and semi-nomadic occupance of a traditional pattern.

Phase II - Dryland farming in and around the oases of the littoral with livestock still of great importance.

Phase III - The ultimate traditional stage of growth. Self-sufficiency using irrigated land. Corresponding to the use of irrigation a significant increase in production.

Phase IV - Saniya farming: commercial production from traditional farm units. Change in outlook from traditional to transitional.

Phase V - Following mental revolution a revision of of the farm framework: integrated hawaza unit based on cash crops and cost accounting.

(iv) The inter-related dynamic forces of internal growth and the demand stimulus from the towns are speeding the rate of development in the oases of the littoral.

(v) The disproportional growth between the urban and rural areas is more apparent than real, since oil exploration, of necessity, has affected the towns rather than the rural areas.

(vi) Production and yields are increasing both horizontally and vertically at the rates we have indicated previously in this sub-section.

We shall go on to analyse in the following Parts of this chapter the question - 'Does this increase in production we have examined represent at the moment or in the future a sufficiency of surplus:-

(a) to feed the expanding populations of the towns

(b) to offer a sound market for industrial development in Tripolitania.

(c) to carry a heavy load of taxation for Government overheads.

(d) to maintain an enterprising middle class who will supply loanable funds to the industrial sector of the economy?'

Of an increase we have some evidence, but how significant will this increase be? As a first step in answering this question, we shall consider the Italian contribution to agricultural production in Tripolitania.

PART ONE

(2) The Italian Contribution.

(i) Yields on Italian Farms.

So far in this section we have discussed the Arab sector of the agricultural economy as a separate entity from the alien farming community. Consideration of the aggregate crop yields and production in Tripolitania would be incomplete without examination of the Italian contribution in terms of the past, the present and the future.

The outstanding fact which emerges from analysis of Italian yields in Libya is that in general, and particularly in respect to demographic estates, yields are little in advance of those returned by the good Arab farmers in the same region. This results from the following factors:-

(i) The fact that the Italians cultivate larger areas giving a good average yield per farm unit whilst the Arab cultivators till smaller areas more intensively.
(ii) Many of the Italian farmers domiciled on the demographic estates are untrained and indifferent to the amount and quality of the crops they produce.
(iii) Many Italian demographic farms are sited on the peripheral steppe where differentiation between one strip of land and the next in terms of fertility is great. Since the Italian administration adopted a geometrical ground-plan for its estates, many of the individual farms in these areas are made up of a considerable proportion of infertile land. This is instanced in particular in the case of Tummina where the farms on the north-western periphery were comprised of levelled marine dunes.

Although it is not true of all Italian farms, it may be said that the chief difference between the Italian demographic farm and the Arab farm is that yields from the former are consistent.

Arab farmers suffer annual fluctuations in yields depending upon the amount and incidence of the rainfall, whereas most Italian farmers are protected from the worst hazards of the climate by the use of semi-irrigation techniques. Yields from Italian farms are as follows: -

Table 65 - Yields from Italian Farms in Tripolitania.

Crop	Area	Year	Dry	Irrigated	Unit
Olive	Oliveti	1956/57	-	7.6	kgs/tree
	Bianchi	1956/57	0.96	6.26	"
	Hascian	1956/57	2.00	6.48	"
	Giordani	1956/57	-	2.84	"
	Micca	1956/57	5.12	10.18	"
	Corradini	1956/57	0.37	1.51	"
Groundnuts	Oliveti	1957		27.3	Qts/Ha
	Bianchi	1957		23.4	"
	Hascian	1957		21.8	"
	Giordani	1957		24.6	"
	Micca			25.7	"
	INPS COLONIZZAZIONE - Statistical Section				
Barley	Oliveti, Zavia Sabrata.	1956	4.9	10.5	
	Hascian, Bianchi, Micca	1956	3.58	14.16	"
	Azizia, C. Benito	1956	5.87	11.81	"
	Tripoli and Funduq	1956	4.90	12.00	"
	Garabulli, Ghanima	1956	3.70	-	"
Wheat	Oliveti, Zavia Sabrata	1956	5.0	13.3	"
	Hascian, Bianchi, Micca		-	14.25	"
	Azizia, C. Benito		5.0	10.71	"
	Tripoli, Funduq		6.00	6.9	"
	Garabulli, Ghanima		3.87	11.5	"

They give an adequate comparison with Arab yields of the same

crop-range shown earlier. The variations in yields from one Italian colonisation area to another is amply borne out by the figure in the sample areas quoted previously. In the region of Azizia, Castel Benito and Suani Ben Adem the private Italian concessions return yields of cereals from 3% to 50% above the Arab yields in the same area, whereas in Funduq and Tripoli, Hascian, Oliveti, Bianchi and Giordani yields in the irrigated sector and the dry-land sector tend to be higher on Arab farms.

To assess the significant differences in yields between the Italian and Arab sectors of the economy it is necessary to consider the yields from the highly capitalised Italian concessions and those concessions now financed and organised by European traders, as against those from the hawaza units. This is illustrated in Table 66 in respect to wheat, barley and potatoes. At this level of commercial production, the difference in yields tends to be small. Thus we are presented with the fact that low yields in indigenous cropping are a result of the fact that the majority of Arab farmers produce at Phase II and III giving a low average production for the entire sector. This is a crucial factor which must be borne in mind - there are not two levels of production in Tripolitania i.e. Arab and European - the two groups over-lap considerably with hawaza units clearly superior to most of the Italian demographic farms. In estimating the mode and future projections of yield increases the present day advances made by the hawaza units indicate that the relative importance of the Italian farms is likely to

decline as those Arab farmers below the commercial base-line move from traditional to transitional economic growth.

Table 66 - Yields from Private Concessions and Hawaza Units in Tripolitania.

Crop	Farm	Area	Year	Yield from irrig.	
Wheat	Italian	Zavia	1958	15.25	Qts/Ha.
Wheat	Arab	Suani	1958	14.25	"
Barley	Italian	Bianchi	1958	16.50	"
Barley	Arab	Ma'mura	1958	17.25	"
Potatoes	European	Tripoli	1958	100.00	"
Potatoes	Arab	Tripoli	1958	60.00	"

Yields from the Italian Farms in Misuratino.

Yields from the Italian demographic farms in Misuratino, in common with those from other demographic estates in the Jefara region are lower on average than yields recorded on private concessions. Table 67 shows the yields on a demographic farm in Misuratino, where yields are 50-60% less than on private concessions recorded in Table 66 and 10-20% less than yields on demographic farms on the Jefara Plain. There have been many reasons put forward for the poor yields returned from the demographic farms in Misuratino and from the technical side it may be suggested that the following factors are important:

(i) The brackish nature of the artesian water used at Dafnia and Tummina which affects crops such as groundnuts to the extent that they have been disregarded by Italian farmers in spite of the high prices paid to producers in recent years. Other crops including cereals are affected also.

(ii) The high sand content of the soils in Tummina and the poor depth of soil at Dafnia.

(iii) The exposure of the area to the Ghibli from the south.

Table 67 - Yields from Demographic Farms in Misuratino.

Crop	Farm	Year	Yield Dry-land	Yield Irrigated land
Wheat	Dafnia	1959/60	3.1	6.3
Barley	Dafnia	1959/60	3.0	6.1
Potatoes	Dafnia	1959/60		35.0
Wheat	Tummina	1959/60	3.9	8.4
Barley	Tummina	1959/60	4.6	10.1
Potatoes	Tummina	1959/60		42.0

Data from Questionnaire Survey 1959/60 (Appendix 3)

Later in this discussion we shall suggest that there are other factors which pertain to this question of poor out-put in the colonisation areas of Misuratino, factors which are human rather than environmental in origin.

Part of the evidence which tends to make the writer emphasise human problems in the area is the fact that yields from the two private colonisation concessions in Misuratino are at a level not far below the average for the Jefaran area. Table 68 shows the yields recorded on the Volpi and La Valdagno concessions in 1959/60. The data was taken from field observations made during the Questionnaire Survey undertaken by the writer.

Table 68 - Yields from Private Concessions in Misuratino.

Crop	Farm	Year	Yield Dry-land	Yield Irrigated land	
Wheat	Valdagno	1959/60	3.8	12.0	Qts/Ha.
Barley	Valdagno	1959/60	4.0	15.0	" "
Olive	Valdagno	1959/60	5.1	11.3	" "
Olive	Volpi	1959/60	2.3	7.2	" "

The poor yields of crops obtained on the demographic settlements is matched in both the demographic and the private

concessions by a poor horizontal variety of yields. Thus the developments of cash cropping on the Jefara with groundnuts and citrus growing have scarcely affected the areas in Misuratino. Only on Concession La Valdagno, where there is a restricted production of tobacco for the Libyan Tobacco Monopoly is there any break from the basic pattern of olive plantations with secondary cultivation of cereals. Misuratino has not proved a sound area for olives except in the case of Valdagno, and there is an urgent need for greater diversification of production. Unfortunately tobacco areas are limited by the Government and in spite of the successes achieved at La Valdagno, it does not appear likely that there will be any future extension of its culture. The table following shows tobacco yields at La Valdagno and at selected stations in the Jebel and the Jefara (Burley variety):-

TOBACCO YIELDS AT SELECTED STATIONS IN TRIPOLITANIA.

Station	Year	Yield irrigated		
La Valdagno	1959/60	23.3	Qts/Ha.	19% moisture
Average Jefara	1959/60	25.0	" "	19% "

Figures Supplied by G.A.F. Rands of the Tobacco Monopoly.

Other crop yields from Italian farms in Misuratino refer to production for domestic use on the farms. In most cases the trees and field crops are grown close to the farmhouse on a small plot which is usually irrigated from the well or cistern supplying water for domestic purposes, or in many cases left under dry cultivation. From a brief survey of these yield returns

Table 69 - Yields of Tree and Field Crops on Italian Farms in Misuratino.

Station	Year	Crop	Yield Irrigated	Dry-land
La Valdagno	1959/60	Oranges	39.25 Qts/Ha.	
Tummina	1959/60	Oranges	31.40 " "	
Dafnia	1959/60	Almonds		0.05 /tree
Dafnia	1959/60	Vines		0.045/tree
Tummina	1959/60	Vines		0.05 /tree
La Valdagno	1959/60	E. Medica	118.00 " "	
Dafnia	1959/60	E. Medica	40.00 " "	
La Valdagno	1959/60	Tomato	21.00 " "	
Dafnia	1959/60	Tomato	15.00 " "	
Dafnia	1959/60	Groundnut	17.00 " "	
La Valdagno	1959/60	Lettuce	20.00 " "	

it is obvious that most of the tree and field crops grown on Italian demographic and private estates are poor, even where technical efficiency is highly developed as at La Valdagno. This is due to the following factors:-

(i) Lack of care for the crops which are regarded as mere kitchen produce, e.g. no weeding or hoeing.

(ii) Irregular planting of trees, generally in close proximity to one another which reduces yields, especially where there is no irrigation undertaken.

(iii) Under-irrigation of the crops, especially citrus and tomatoes.

(iv) Under-fertilisation of all the crops, e.g. every farm on Dafnia estate reported that there was no application of either fertiliser or manure to the kitchen garden during the year.

Thus the yields obtained in Misuratino tend to reflect a poor state of farming activity and account for R.W. Hill's summary upon the area as being a physical projection of the Jefara in terms of Morphology but a depressed region apart in terms of agricultural yields both horizontally and vertically.(9)

(ii) Production from Italian Farms. (a) Growth Since the 1920's.

The Italians arrived in Tripolitania in 1911, but the intermittent struggles against the indigenous population retarded development of the area until the early years of the 1920's. We have described previously how the first steps towards agricultural development were made through encouragement of private colonisation by individual capitalist farmers. Production from these farms, most of which were situated on the Jefara as close to Tripoli as was practicable, was negligible in the first decade of settlement since the owners of the farms worked on the classical scheme of development exemplified in the Sfax area of Tunisia. Olive and almond plantations were laid out by the concessionaires and left under the minimum of control until the first crops of olives were ready ten to fifteen years later. For reasons of economy the Italian owners relied upon indigenous labour recruited as the seasonal necessity arose, hence there were no settled mezzadria workers or labourers permanently living on the estates who would devote time to producing supplementary field crops.

Towards the end of the 1920's there was a marked change of attitude by the Italian Administration following upon the departure of Conti Volpi and the accession to power of Marshal Balbo. Under the new regime, the Italians adopted a scheme for large scale settlement of Italian peasant farmers with the following ideas in mind:-

1. A Large Italian population firmly rooted to the soil in

Libya would furnish a solid base of support for the Italian administration in Tripoli.

2. The administration would be able to take a firm hold upon the richer areas of the country thereby reducing the isolation of Tripoli from the hinterland which was held down only by a string of police posts.

3. The acquisition of the better land of the coast and the steppe would reduce the power of the tribes and thus render them less liable to oppose the central authority.

4. A mass colonisation scheme in North Africa was thought to be an excellent move in relation to Power-politics in the Mediterranean. Furthermore, the scheme was designed to balance French colonial power and prestige in the Maghreb and British influence in Egypt. All of these factors considered by the Italian Government under pressure from Marshal Balbo were utterly dissociated from economic and agricultural aspects of development. Nevertheless, settlement of peasant farmers began at a projected rate of immigration of 20,000 per annum. In fact, the build-up of the Italian peasant population began slowly in the years after 1928. By 1935 the influence of this modern sector of the Tripolitanian agricultural economy was first being felt in terms of production as reflected in the market returns at Tripoli in Table 70. As settlement intensified towards the end of the 1930's (Vide Table 71) production from the Italian sector of the economy increased slowly. The prime reason behind the fact that the Italian settlement of small farmers did not have a more

immediate impact upon the over-all production from the Province is that most demographic estates were based economically upon olive plantation.

Table 70 - Italian Produce Marketed at Tripoli.

Year	Quantity in Quintals
1935	15313,19
1936	16541,48
1937	18645,05
1938	21300,43

Thus the major portion of the intended production from the demographic estates suffered a time lapse of some ten to fifteen years. As opposed to the private concessions, however, farmers on the Ente and INPS farms were actually resident upon the farm units and were engaged in supplementary production of inter-cultivated crops of vines, cereals and vegetables for both their own use on the farm and for market. By 1938 Italian production entering the Tripoli market had increased by 39% upon the 1935 returns. Several important elements of production are not included in this list; cereals are excluded since most of this produce was collected by the sponsoring organisations of Ente and INPS as part of their outstanding debts from the settlers; olive production is not included since most of the trees were non-producing; Italian production from the private concessions was exported directly through the large marketing bodies in Tripoli, particularly Consorzio Agrario and thus was not returned in the general market statistics.

Cereal production rose at a rate corresponding to the

growth of the peasant settlements, hence the Italian contribution dates from post-1935 when production of barley was estimated at 700 metric tons of a total Provincial production of 3,000 metric tons. Figure 78 indicates the percentage of the Italian production in relation to total production in Tripolitania in 1936. The incidence of drought in this year tends to exaggerate the Italian contribution.

To summarise this account of Italian development in Tripolitania, we shall consider the rate of land reclamation and the distribution of plantations and cropping areas in the Province.

Table 71 - Growth of the Italian Agricultural Lands - by Hectare.

Year	Area under Tree Crops	Area of irrigated Land.	Total Static Emg.
1933	46,561	2,155	53,994
1936	64,682	2,306	76,504
1945			224,286

Statistics from Gov. Trip. Palloni[77] and B.M.A.[24]

The distribution of Italian development areas tends to show two specific aspects. In the first place the private concessions are grouped close to Tripoli and with the exception of Concessione Volpi, are situated entirely on the Jefara plain. Ente and INPS settlements on the other hand are scattered throughout the Province with large areas in the Jefara, the Jebel and Misuratino. As we have mentioned earlier, the main criterion employed by the Italian planners was whether there was a sufficiency of easily developed terrain available, and whether water could be tapped in proximity to the settlement. Private concessions have shown

the greatest alignment towards the capital, as is illustrated by the distribution of settlements in 1933, during the days of intensive private colonisation. In this period, there were 343 farms ranging from 01.00 hectares to 75.00 hectares, all of which were sited within 40-45 kilometres of Tripoli; there were also 99 private concessions ranging in size from 75.00 hectares to 400.00 hectares, all of which were within 50 kilometres of Tripoli.(62)

Diffusion of the Italian agricultural effort was primarily a result of the work of the state-supported demographic colonisation bodies, except in the Jebel around Garian town, where an independent organisation (A.T.I.) was authorised to set up a tobacco plantation of 1,457 Ha. Table 72 shows in detail the distribution of Ente and INPS settlements in Tripolitania.

Table 72 - Distribution of INPS and Ente Settlements.

	Jafara	Area Jebel	Misuratino
Gioda (Kararim)			2,288
Crispi (Tummina)			9,140
Garibaldi (Dafnia)			19,869
Nahima			500
Breviglieri		14,085	
Marconi		8,282	
Tarhuna		14,755	
Funduq	1,235		
Oliveti	1,657		
Azizia	5,569		
Ma'mura	715		
Oliveti	1,393		
Hascian	354		
Bianchi	6,121		
Giordani	5,207		
Micca	4,843		
Castel Verde	2,200		
Corradini	2,973		

Data from Land Use and Resources (24)
Settlements under-lined INPS.

There were three distinct phases in the growth of the Italian agricultural settlements in Misuratino. In the first place, during the period of private colonisation at the close of the 1920's Concessione Volpi was established at Misurata; following this, the next major advance in Misuratino came with the discovery of artesian water in the region of Tummina and Kararim and with the intensive settlement based on dry-land agriculture in Garibaldi area. Thirdly came a reversion back to private concession begun in 1938 at Homs in Concessione La Valdagno. In the case of Volpi, cultivation was based on olive plantations, with some vines. Cultivation was extensive in nature and organisation was based upon a resident manager but no resident Italian labourers. Production from the other sections of the Italian economy at Garibaldi, Crispi and Gioda was not fully effective by the beginning of World War II, hence assessment of the production from these centres will never be possible in terms of pre-War estimates. De-population and the changes in the political and economic situation have tended to make the demographic settlements undergo total re-adjustment, the results of which are only to-day becoming apparent. On Valdagno, the case is again rather complex, since the estate was not begun till 1938 and was still incomplete at the end of the World War. Production from La Valdagno, however, did not follow the pattern laid out on Volpi, since on La Valdagno, the economic system used was that of mezzadria, with a proportional settlement of peasant farmers, who inter-cultivated small patches of olives

on their own plot and also engaged in production of kitchen crops. Misuratino since 1959 has witnessed an increase in production from indigenous farmers, and also a parallel increase from the Italian settlements -

(a) as the Italian farms became more organised and consolidated
(b) as the olive trees planted before the war came into production.

Thus in 1960 it is possible to assess the relative importance of the two sectors, Arab and Italian, in Misuratino as a sample of the general pattern in Tripolitania.

(b) Present-day % importance of the Italian Production in Tripolitania.

In the previous section of this chapter we have outlined the state of indigenous farming at the beginning of the century and we have followed its growth through to the present day in terms of production and yields. It is with this data in mind that one must approach the Italian contribution to the increase in crop production in Tripolitania. The Italians tended to disregard Arab production. In many ways their under-estimation was based upon a general disrespect for the Arabs which grew up after the Italio-Sanusi Wars. Furthermore, Italian propaganda was very important in the so-called morale-education of the Italian settlers in the area, and much harm was done to Italio-Arab relations by adverse bias against the Arabs by the Fascist education services.

Most observers travelling through Tripolitania during the 1930's, e.g. Archambeau (78) and more especially journalists

such as Moore of the 'Telegraph', tended to play down the part played by the Arab economy and exalt that played by the Italian economy.(38) This arose from several factors, the most important of which are as follows -

(i) In the first place, official statistics of Italian production and yields were always available, whereas production from the Arab lands was subject to official estimates, which were based upon unreliable taxation data.

(ii) When the Italians arrived in Tripolitania, the landscape ran roughly in a north-south sequence from a narrow band of palm oasis to scrub steppe into desert an unrelieved landscape made up of gravels, sand dunes, and the degraded environment of the Jebel scarp. Italian developments against this background tended to look immensely spectacular. The large scale extension of agriculture undertaken by the Italians through the medium of olive plantations covered huge areas, a rough indication of which is shown in Table 71. This superficial expansion is immediately apparent to-day; coming into Tripoli by air, the landscape of the Jefara is characterised by modern Italian, not by Arab agricultural development. In terms of area, the Italian contribution is readily discernable. Against these factors, one must bear in mind that many of the Italian successes were scored at the expense of the Arabs; this applies particularly in the case of Italian land acquisition. We have discussed this previously, but it is necessary to re-state here that the Italians expropriated land in the oases, the steppe and on the

Jebel: all these areas were integral parts of the Arab economy and it was quite natural that the force of indigenous agriculture should recede in the face of persistent Italian land alienation. It must be remembered also that the Italians tended to look at the Arabs in one of two ways; in the first place they accepted Italianised Arabs as equals; they classified all others as traditional, backward and of no significance. Whereas the true position is better gauged by reference to the scheme suggested earlier in this chapter of consistent economic growth by a dynamic Moslem society, which developed separately from, but was influenced by, the modern European sector. We have analysed growth in the Arab sector and illustrated the trends in Italian development in Tripolitania during the colonial period, hence it will be possible now to relate the two in the present-day context to establish the importance of the two at the moment and their projected growth in the future.

We have already indicated that there are four distinct contributions to total production in Tripolitania -

(i) Production from traditional Arab farming
(ii) Production from saniya and hawaza units
(iii) Production from demographic estates
(iv) Production from private concessions.

For present purposes, we shall treat with the unitary groups (i) and (ii) under the general title Arab farming and (iii) and (iv) Italian farming. The two most basic crops in the Tripolitanian economy are barley and olive oil and these two tend to be the only common denominator applicable to the four groups. The figures contained in Table 73 show the production figures for

for the groups in 1956, when climatic conditions were average, and enable comparison between the various sectors of production and between the relative importance of the two cereals in the same sector.

Table 73 - Production of Cereals in Tripolitania 1956, in Mts.

		Barley	Wheat
Arab Production	(i)	74,000	10,650
	(ii)	2,000	150
Italian Production	(iii)	1,500	2,500
	(iv)	2,500	4,110
Total Production		80,000	17,410

Barley production was predominantly from the Arab group, with traditional farming units accounting for 92.5% of the total production; hawaza farms, the second constituent Arab group, produced 2.5%. In the Italian sector, the demographic farms produced 1.80% and the private concession some 3.2% of the total production in Tripolitania. Wheat production offers a radical change in emphasis, with traditional Arab farms supplying 61.1% of the total, hawaza units 0.9% and the Italian group production for (iii) and (iv) 38%.

Olive culture was wide-spread in Tripolitania before the arrival of the Italians in 1911, including the residual Jebeline plantations in Garian, Tarhuna and Kussabat, some scattered olive ginan in the steppe peripheries of the Jefara and Misuratino and some irrigated olives in the suani of the oases. Italian influence was important in two ways in regard to the

indigenous culture; interest in olive plantations on the part of the Italians led to the introduction of new and stronger varieties of olive tree and gave the Arab farmers an opportunity to learn more advanced techniques of cultivation; the provision of oil presses and establishment of other capital over-heads for oil processing, marketing and export gave incentive to the indigenous farmers to concentrate more upon olive production. The results of these influences are to be seen through the steady increase in the number of Arab owned trees since 1911. In Tripolitania both the number of trees and the production of oil varies from year to year depending upon the incidence of rain, Ghibli and pest. The last decade has witnessed appreciable fluctuations in the numbers of trees in Arab and Italian sectors. In 1953, for example, there was a significant decline in the numbers of trees from about 3,000,000 in 1950 to 2,607,593 in 1953. Whilst it is likely that the number of olive trees is declining on the Italian farms, Arab farmers are taking greater interest under pressure from the Nazarate of Agriculture. Table 74 contains the latest figures available for the four sectors of production in 1953/4.

Table 74 - Production of Olives and Olive Oil - Tripolitania.

Group	No. of Trees	Fruit Production (All Groups)	Olive Oil (All Groups)
(i) - Arab	834,443	40,000 Mts.	7,000 Mts.
(ii)			
(iii)	443,290		
(iv)	1,329,872		

Data - Nazarate of Agriculture.

Production from Arab owned trees fluctuates less than that from

Italian farms since most of the Arab trees are irrigated or are watered by the ginan system. During the last decade the importance of the olive in the two sectors of the economy has varied between Italian predominance in the early phases, with a swing later to Arab predominance. This may be accounted to the following factors -

(I) In the 1950-53 period, many of the original Italian plantations came into full production for the first time. Almond and vine inter-cultivation was discontinued and olives were established in their stead.

(II) The varieties planted by the Italians, mainly Frantoio of Italian origin, yielded poorly under dry-cultivation with complete failure of yields in years of poor rainfall. Hence many of these plantations were destroyed and the land given over to citrus or other irrigated crops of a more profitable nature.

(III) Intensive extension work by the Nazarate of Agriculture and F.A.O. have made cheap seedlings available to Arab farmers and have educated the Arab farmer in the best methods on cultivation with a consequence increase in Arab production at the end of the decade.

Thus, it would appear from present evidence that the Arab sector of the olive industry will be the most important producing unit in future years.

In the two previous analyses of the distribution of crops between Arab and Italian farms we have been dealing with traditional production; with basic self-sufficiency crops in the

case of cereals and with traditional cash crops in the case of olives. In both cases, production from the Arab sector showed an over-all lead over the Italian. It will be informative to examine the trends in production in respect to modern cash cropping through two case examples taken from the leading export crops, i.e. citrus fruits and groundnuts.

The production of citrus fruits has expanded steadily since 1937, when total production was 2,285 metric tons (of which 1,370 m/ts. were oranges) to the present day when production averages over 8,000 m/ts. each year (1958 figures show a total production of citrus fruits of 8,000 m/ts. of which 6,000 m/ts. were oranges and 1,000 m/ts. lemons). Table 75 gives the statistical picture of the distribution of citrus trees and production of fruits from the four sectors in 1958. In spite of the fact that many of the former Italian private concessions have been taken over by Arab farmers, the balance of citrus growing remains with the Italian and alien farming communities in the ratio in 1958 of three to one. Unless there is an increase in the number of hawaza units opting for citrus cultivation, and a corresponding decline in the numbers of large alien concessions, it appears probable that production of this important export crop will remain predominantly in non-indigenous hands. Citrus production from the Arab farms other than hawaza is limited by the availability of land in the oases, which is already over-planted with more conventional trees, such as almond, date palm, pistacchio and olive. The heavy irriga-

tion expenses for purchase of equipment and the reticulation processes precludes the average Arab farmer from taking part in this lucrative export boom. In the period 1960/61 the acreage of citrus on alien plantations in Libya increased significantly by 5-10% according to the Nazarate of Agriculture, whereas Arab plantings showed no appreciable extension.

It has been estimated that as much as 90% of the production of groundnuts is concentrated on Italian farms in Tripolitania[36]. and[37] Within the Italian sphere of production, demographic farms hold first place, as is instanced by the fact that INPS settlements alone accounted for 41,400 quintals of the 1957 production which totalled 110,428 quintals. A probable division between the Italian demographic farms and the concessions of 50% and 40% respectively is suggested by the Nazarate of Agriculture. The relative position of the groundnut in the individual farm economy is indicated clearly by Theodorou[39] whose figures for Arab and Italian farms are outlined in Table 76. Arab production is confined largely to the hawaza, and to a lesser degree to the saniya units, with the Ma'mura estate on the Jefara plain of outstanding importance (Ma'mura produced 360 Qts. in 1956).

Table 76 - The Importance of Groundnuts on Italian and Libyan Farms in the Zavia Area 1952.

	Total Value of Production Per Farm £L	% of Total
Libyan Farms	4	2.3%
Italian Farms	415	40.5%

The virtual exclusion of the small Arab farmers from commercial production is a result of the following factors -

(a) The problem of finding acreage to devote to groundnuts, since the land must be prepared for the spring plantings and thus a traditional winter crop is excluded from the farm. Most small farmers are unable to re-organise their farms sufficiently to allow the winter fallow.

(b) The demands of irrigation made by the groundnuts can only be met by a modern and reliable system, of reticulation, (9) which usually means a large out-lay for sprinkler irrigation. This again is beyond the means of most Arab farmers, including the saniya farmers.

(c) The poor aptitude of the Arab farmers at Phases IV and below to adapt themselves to rapidly changing conditions prevalent during a boom such as that experienced during the decade 1950-60 in the groundnut export market. This corresponds closely to the low level of commercial development present on farms at these Phases.

(c) Production in Misuratino.

In the preceding sub-section, we have considered the relative strengths of the Arab and the Italian agricultural economics. The production from alien farms in Tripolitania compared with that of the Libyans varies from crop to crop, but in the four major segments of production, the Italian and alien farmers are responsible for an average of 5% of total barley, 50% of olives, 60% of citrus fruit and 90% of groundnut production. How far does Misuratino reflect these major trends apparent in Tripolitania? In the following paragraphs we shall indicate the variations shown by Misuratino from the norm.

Arab production in Misuratino, as outlined earlier, is heavily biased still towatds traditional cropping. In Zliten and Misurata especially, many of the agriculturalists are to be found at Phases II and III, i.e. at Phases of growth where full

irrigation under rational cultivation of commercial crops is not understood. The key indication of the importance of Arab relative to Italian production both on the Jefara and in Misuratino is the relative strength of the irrigated crops of the cash economy as opposed to production for domestic needs. In Table 77, an assessment is made of these strengths in Misuratino and the Jefara.

Table 77 - The Areas of Irrigated Cropping 1960 in the Jefara and in Misuratino.

Group		Total Land		Irrigated Land	
		Jefara	Misuratino	Jefara	Misuratino
Arab	(i)	22,888	27,678	19,000	11,000
	(ii)	4,000	920	2,000	420
Italian	(iii)	31,652	29,009	3,100	4,000
	(iv)			4,000	2,600

The figures quoted in Table 77 must be considered as approximate within 100 hectares, since official information on the subject is unreliable. Nevertheless, taking into account possible errors of this magnitude, it may be seen clearly that the area of irrigated land in the Jefara in the Libyan and Italian sectors falls in the ratio of three to one, whereas in Misuratino the respective ratio is less than two to one. Hence in Misuratino the importance of the Italian contribution to commercial farming is relatively more important than it is in the Jefara.

Italian production in Misuratino has been declinigg rapidly since 1951 as Kararim has been wound up by Ente and as other farmers have left the area for Tripoli or metropolitan Italy.

We shall comment upon the decline in Italian production in subsection (iv) of this Part, in the present context this contraction in the Italian out-put is relevant to the extent that the rate of decline will be immensely significant, (a) because the Italians hold almost one third of the irrigated land, (b) Arab efforts in commercial cropping are in their infancy at the moment, (c) the Arab farmers in Misuratino are not sufficiently equipped mentally or financially to take over where the Italians farmers have left off. This is evidenced by the problems encountered on the Wadi Caam Settlement and by the complete lapse of Kararim. In the Jefara, Arab farmers tend to take over ex-Italian demographic farms and run them with great success, whereas there has been no parallel trend in Misuratino.

Thus, for some years in the future it may be expected that there will be an absolute decline in production in Misuratino corresponding to the decline in the Italian sector. The duration of the period of declining depends upon the counter-section tendency for increasing production in the Arab sector and the rate of economic growth.

(2) The Italian Contribution

(iii) Italian Production Units in Misuratino

Surveying the results of Italian occupation of Libya, Despois concluded 'La colonisation en Tripolitaine ne sera jamais qu' un mauvaise affaire'(62). Events since the end of the last World War appear to be proving him correct. Nevertheless, in Misuratino, Italian production from estates founded during the great era of colonisation accounts for a substantial portion of the total agricultural out-put of the area. In the following paragraphs we shall examine the agencies which brought about the settlement, the background to the estates created during the period 1937-39 and the production trends foreseeable from these production units.

(a) The role played by Ente Per La Colonizzazione della Libia

It was pointed out during discussion of Italian land expropriations in Libya in an earlier chapter that private colonisation had failed to match up to the requirements set by the Balbo administration in the period of 1928. One of the major mechanisms evolved to transform the demographic structure of Tripolitania and Cyrenaica was ENTECOL. It seems inevitable at the present day that this company will be wound up, since its activities in Libya, affecting so large a part of the agricultural economy of the country, are regarded with some suspicion by the new Libyan administration. The United Nations resolution on Finance and Economic Provision for Libya in 1952 suggested that the colonisation agencies should be dissolved; complete

closure has not yet been accomplished, but this is likely in the next year. Before this final move takes place it will be informative in the present examination of the Italian production units in Misuratino to examine the legal and economic background to the works undertaken by Ente between 1932 and 1960.

Ente was instituted by Royal Decree Law No. 696 of 11th June 1932 for the express purpose of colonising the coast and Jebel Akdhar in Cyrenaica. In 1934, by Law No. 2038 the company extended its colonising activities to Tripolitania, and in the following year received its official title of Ente Per La Colonizzazione Della Libia. Full translations of the various decrees promulgated for the expansion of Ente are shown in Appendix 4. The particular relevance of these decrees is that they illustrate the judicial personality of Ente and the fact that it was endowed with patrimony, there being no shares capital. The patrimony consisted of the lands transferred to it free of obligation by the State and of contributions of capital from the following sources:-

1. Commissariato per le migrazioni e la colonizzazione Italiana	5,000,000
2. Instituto Nazionale di Credi per il lavoro Italiano All'estero	5,000,000
3. Banco di Napoli	5,000,000
4. Banco di Sicilia	5,000,000
5. I.N.A. (National Institute of Assurance)	5,000,000
6. I.N.P.S.(National Institutefor Social Insurance)	5,000,000
7. I.N.A.I.L.(National Institute against Accident)	2,000,000
8. Banco Nazionale de Lavoro	2,000,000
9. Consorzio Nazionale per il Credi Agrario di Miglioramento	1,000,000
10.Provincial Councils for Corporate Economy	3,000,000
TOTAL LIRE	38,000,000

Of the total book capital, some 30,000,000 lire was actually contributed from the sources mentioned above. There was no interest payable on these sums granted to Ente and no provision for the return of the capital.

The land acquired for the settlements has been discussed earlier. In fact much of the land given over to Ente in Tripolitania was State land which was designated to the State during Turkish times. In Misuratino, the greater part of the land eventually used by Ente was taken over by compulsory purchase.

The former Italian administration advanced money to Ente from time to time amounting to twenty million lire in the form of a loan and a further ten millions through subsidies towards construction costs. However, it should be borne in mind that subsidies of this kind were also paid to private concessionaires at the same rate for completion of certain phases of construction, such as the digging of wells and building of farm houses. The twenty million lire loan made by the Italian Government in the pre-war years was to be repeated later by a further grant of £S200,000 by the British Administration in the post-war years.

Control of Ente during the Italian occupation was essentially in the hands of the Italian Government, who filled most of the administrative posts in the organisation with their own nominees and by retaining an over-all majority in the Assembly of contributors which took all the more important decisions.

Lands acquired by Ente from the State were split up into individual holdings, on each of which Ente constructed a casa colonica and the necessary outbuildings. The holdings were equipped fully with furniture, fittings, implements and livestock by Ente before the arrival of the colonists. Whilst Ente undertook the major processes of land reclamation and settlement construction, the State kept control and ownership over the centro i.e. the village, where the central shopping centre, the church, school, post-office and other amenities were sited.

Colonists from Italy were chosen by Ente with the collaboration of Commissariato per le migrazioni e la colonizzazione Interna, which was in fact a department of State, and which was specially created for the purpose of selecting suitable colonists. Preference was given to members of the Fascist Party, members of the black-shirt militia and ex-combatants. In Fascist Italy, this left great scope for selection. The singular feature of these criteria employed by the C.M.C.I. and Ente was the complete lack of emphasis on farming ability. Many good farmers did come to Libya under these colonisation schemes, but the bulk of the settlers were wholly ignorant of the difficulties of farming in an arid climate. Later, in the years 1938-39, colonisation by Ente broadened in its coverage to take in Arab settlers for the two estates, Ma'mura in the Jefara and Nahima (alongside Dafnia) in Misuratino. The former estate is worked by Arab farmers at the present day, whereas Nahima was incomplete when the out-break of World War II brought activity

to a close in 1941.

Colonists arriving in Tripolitania were transported directly to their holdings on the demographic concessions, where they found all the materials ready for an immediate start on planting and cultivation. The largest influx of immigrants took place in 1938/39, when, with great publicity some 20,000 colonists arrived from Italy, many of them bound for the Misuratino settlements of Gioda, Crispi and Garibaldi. These years saw the first realisation of the Balbo scheme for 20,000 colonists per annum; it was also the last of the migrations. No sooner had the so-called 'Venti Milla' taken their places than colonisation activity ceased as preparations began for the attack on British held Egypt.

During the initial phases of settlement, the farmers received advances from Ente on a graded scale, which decreased as production increased and finally, after a number of years (dependent upon the productivity of any given farm or any given run of years) the colonists were to become owners of the farm and the plot. During the first five years, when they received subsistence allowances from Ente, the farmers were obliged to transfer all their produce to Ente, which, after auctioning each lot of crops, credited the value against the accumulated debt of the colonist. Thereafter, the settlers had to pay in cash instalments for their seed, manure, animals and other farm stock, plus a contribution of the capital cost of the farm and to the running expenses of Ente. The farm holding was

transferable to the occupier after he had paid off the capital costs of the farm and completed the qualifying contract in terms of tree planting and construction of irrigation systems. It was expected that transfer would be possible some twenty to twenty-five years after the date of settlement. In fact the war precluded these conditions from being completed, and very few of the colonists were able to complete their qualifications before 1951.

Ente operates the following centres in Misuratina:-

Centre	No. of Holdings	Area in Hectares	Book Value Lire
Gioda (Kararim)	100	1,000	15,000,000
Crispi(Tammina)	370	6,500	74,000,000
Garibaldi(Dafnia)	318	8,000	60,000,000
Nahima	80	-	1,600,000
Total Tripolitania	1,278	28,324	215,980,000

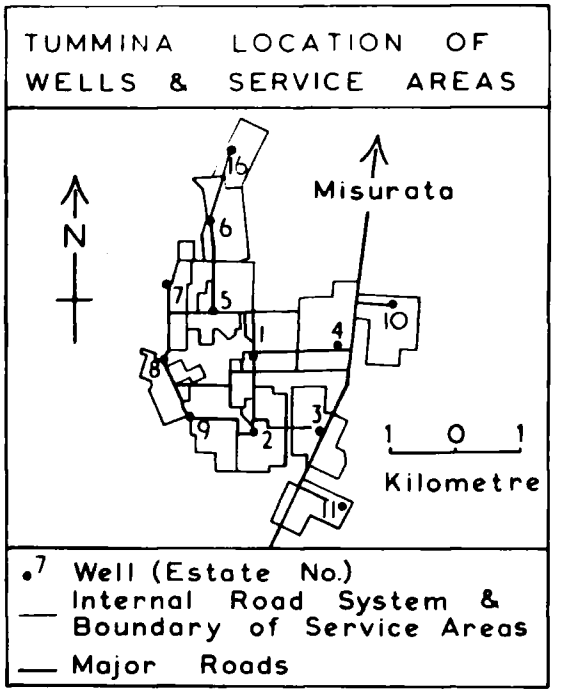
(90 Lire to the pound B.M.A. conversion(79)).

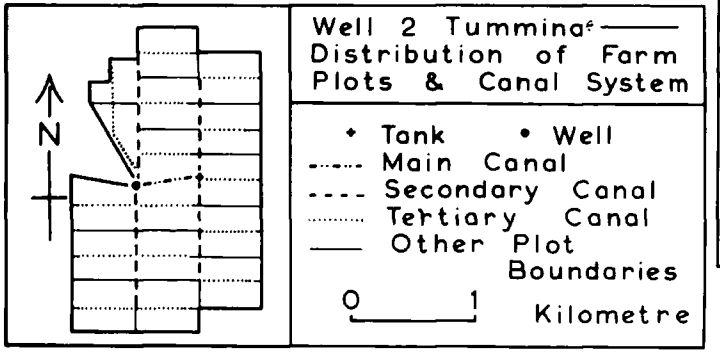
The areas given in this list only include the land actually under irrigation or cultivation, hence the blank against Nahima. It should also be noted that the book values quoted above are in pre-Occupation Lire and do not take into account increases in value through inflation and improvements effected on the estates since the founding of the settlements in the late 1930's.

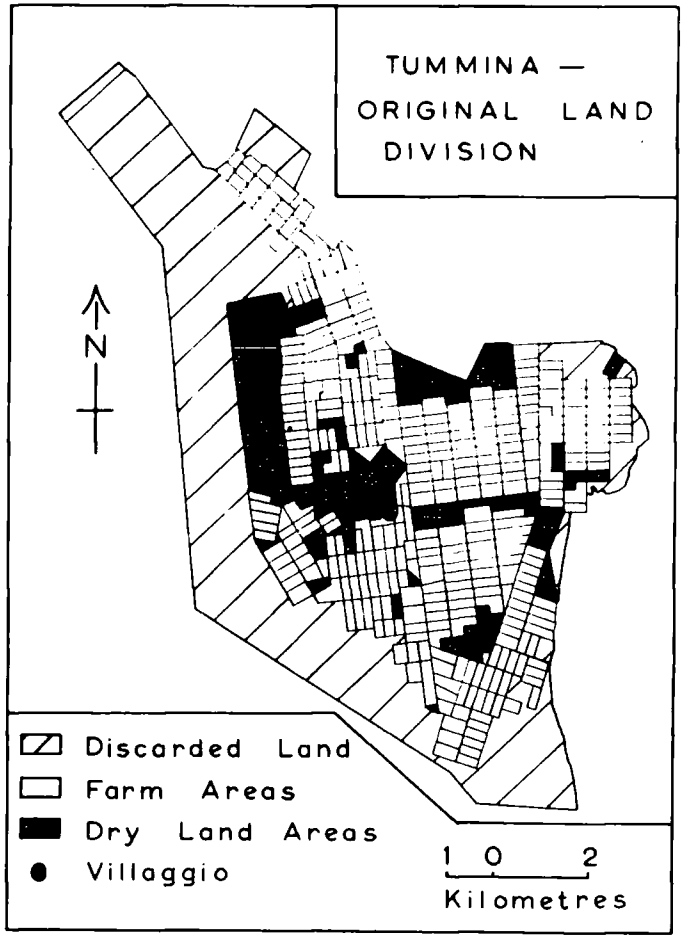
Ente continued to function throughout the British Military Administration more or less unchanged from pre-World War organisation with the exception of its development activity which was ended. Most of the Ente farms were occupied until the close of British Custodianship. The advent of Libyan

Above
Below Left
Below Right

Figure 80
Figure 79
Figure 81







independence in 1951 introduced a completely new element into the situation, the characteristics of which we shall examine later in this survey.

(b) The Demographic Settlements -(I) Crispi and Gioda (Tummina and Kararim)

In his book the Fourth Shore, Moore has described the political aspects to the years 1936/9[38]. He showed how the Government in Italy selected men for their colonial schemes in Libya and how intensive propaganda was used to create a sense of pioneering spirit in the candidates. Moore was the correspondent of the 'Daily Telegraph' during this period, and his dispatches to London are most eloquent in their description of the human background to transit, arrival in Libya and colonisation. The most important of the settlement units in this movement of the 'Venti Milla' was Crispi demographic estate (now Tummina). Figure 24 shows the position of the settlement south of Misurata between Misurata Citta and Taorga Oasis. Tummina lies contiguous with the southern extension of the oasis gardens of the oasis of Misurata, with the smaller satellite settlement of Gioda (Kararim) situated further south along the Sirte road. The ground-plan of Crispi in general outline is determined to a large extent by the sites of the wells from which the irrigated areas of the farms are fed. Figure 79 shows the lay-out of the total estate in relation to the main wells. The characteristics of the estate are the three entities which constitute the whole; i.e. the village area (centro), the settlers farms, and the land

ABOVE Concrete reservoir - Dafnia.

BELOW Well-head and pumping unit - Tummina.

Plate 11

around the periphery which was partly discarded, and partly farmed by the Ente. These are shown on Figure 80. The village is shown in Plate 2 (14) with sight of the church, the post-office and the cafe-shop. The plan of the podere (the irrigated small farm plots) is regular, but again tends to follow the pattern of the well distribution to give an over-all impression of irregularity when compared to dry-land geometrical division of farm units as employed at Garibaldi (Vide Figure 83A). The dispersion of plot systems is illustrated in Figure 79 which covers the total area of Tummina; an example of plot dispersion around an individual well may be seen in Figure 81. That area allotted to Ente for cultivation is situated mainly on the west of the estate, although parcels of land in other areas were kept under central control.

Production from Tummina began in 1937, when the first batch of 30 Italian settlers were introduced into the area. In the following two years the rest of the estate came into production as 307 settlers took over their farms in 1938 and the residue of 30 families moved into occupation in 1939. In these early phases of development it was hoped to concentrate upon commercial production of grains, legumes, alfalfa, grasses for hay and other industrial crops particularly cotton, which could be intercultivated between the olive trees on the irrigated 10 hectare farms. In fact, the attempts to grow cotton did not get past the experimental stage and with the out-break of war the farmers were obliged to concentrate their productive effort

upon grain for military and civilian use in Libya. This tendency to concentrate upon grain continued during the early years of the British Military Administration, when there was a general shortage of cereals throughout the world.

The importance of grain crops has declined only slightly since 1950, but the productive capacity of the estate has increased many-fold as the olive trees have reached maturity. There was an initial planting of 80,000 olive trees on the irrigated land with a large spacing for trees, which were intended to be cultivated under semi-irrigation and in most years full irrigation. The 15 x 30 metre spacing on the Tummina estate was adopted on the grounds that intercultivation of herbaceous crops would be facilitated. To the same end, the normal Italian practice of inter-planting olive trees with vines or almonds was omitted from Tummina. By 1958, when the writer first visited the estate, olive trees had already given several years production, and although there had been a loss of 26,000 trees through elimination of poorly developed species and loss to sand-dune encroachment on the north-west perimeter of the cultivated land, some 27,000 trees were in production, with a further 27,000 trees expected to be in fruit in the next four to five years. Present production from the estate is shown below:-

1955/6	1956/7	1957/8	1958/9	1959/60	
6,000	3,000	7,000	3,000	8,000	M/ts - Olive Fruit

Most of the trees planted on the Crispi estate before the

war were of the Frantoio variety, but experience has shown that unless the Frantoio trees are given consistent waterings their yield is subject to annual fluctuations. In recent years plantings have tended to exclude this original variety and include more of the Chemlali, Enduri, Morinello and Lechino varieties. In many cases the Frantoio have been grafted with Chemlali where irrigation is not undertaken every year.

Yields at Tummina do vary annually with the normal fluctuations of the individual tree cycle, and this is reflected in the figures given above. In years of good production, i.e. every other year, production per tree is about 16.6 kilogrammes, which compares badly with corresponding production figures for plantations on the Jefara plain where Oliveti returns 44.0 kilogrammes per tree and Giordani returns 21.2 kilos. per tree in years of comparable rainfall. The value of production at Tummina in 1959/60 was £L80,000, from 30,000 productive trees all under irrigation. The central organisation, a co-operative in the period post-1960 under the terms of the Itali-Libyan Accord, processes all the olive fruit produced on the estate in a olificio built near to the village. Initial processing saves transport costs on the low-price fruit, but the problem of marketing the refined oil and the sansa remains, since much of the oil is shipped to Italy through Tripoli port which means a 150 mile haul by road. The relatively low yields and the high internal transport costs in Libya have been the two most important economic factors in reducing the profitability of the

estate in relation to other large units in Ente and INPS on the Jefara plain.

Production of field crops from Tummina equals in value the production from the arboricultural sector. In 1959/60 wheat, barley and alfalfa were the crops which made up the commercial element of cropping. Figures for production are shown in the following table:-

Production and Value of Field Crops - Tummina 1959/60.

Crop	Production Qts.		Area Ha.	Value £L
	1958/9	1959/60	1959/60	1959/60
Barley	4,000	6,000	800	20,000
Alfalfa		2,000	50	
Wheat	20,000	12,000	1,500	42,000

Data: Ufficio Tummina.

What and barley crops were directed to the commercial market, whilst alfalfa was consumed as fodder for the livestock on the estate. The production of wheat at Tummina is the most important proportion entering the markets from Eastern Province, representing from one half to one third of the total production of this area, which includes the vast area from Tarhuna and Beni Ulid to Sirte in the east. Should opportunity arise to implement full irrigation to replace the semi-irrigation which prevails at the present day, then Tummina would be the major wheat producing unit in Tripolitania and even in Libya. This pre-eminence is illustrated by the annual returns of the Nazara of Agriculture for 1958, when Tummina produced no less than one sixth of the wheat crop in Tripolitania.

Tummina is still in the experimental stage of development, but the organisation has proved itself a commercial success in most spheres of its operations. In economic terms only, the prime obstacle in development has been the failure of commercial crops other than alfalfa. Thus, Tummina has been unable to avail itself of the current boom in groundnut exports, and has been slow to respond to the changing emphasis in arboriculture towards production of citrus rather than the olive. There are a number of reasons behind the unresponsiveness of the Tummina farmers which are directly accountable to political factors as we shall see; nevertheless, the environmental difficulties surrounding the quality of water and the cost of water, the fertility of the soil and its limitations and the incidence of Ghibli winds have tended to discourage experiments with new crops even where success has been demonstrated in other areas of Tripolitania.

The artesian beds which under-lie Tummina extend southwards alongside the Sebkha of Taorga in the inner steppe country as far as the Wadi Soffegin. The gradual increase in aridity is shown by the sparse nature of the vegetation and the increase in the incidence of Suaeda pruinosa and Anabasis aphylla. The index of aridity discussed in the Climate section of the thesis, increases in the region of Kararim to 50% by the Emberger formula and the average rainfall drops from 200 mms. at Tummina to 150 at Kararim. The availability of underground water was expected to compensate for the lack of precipitation.

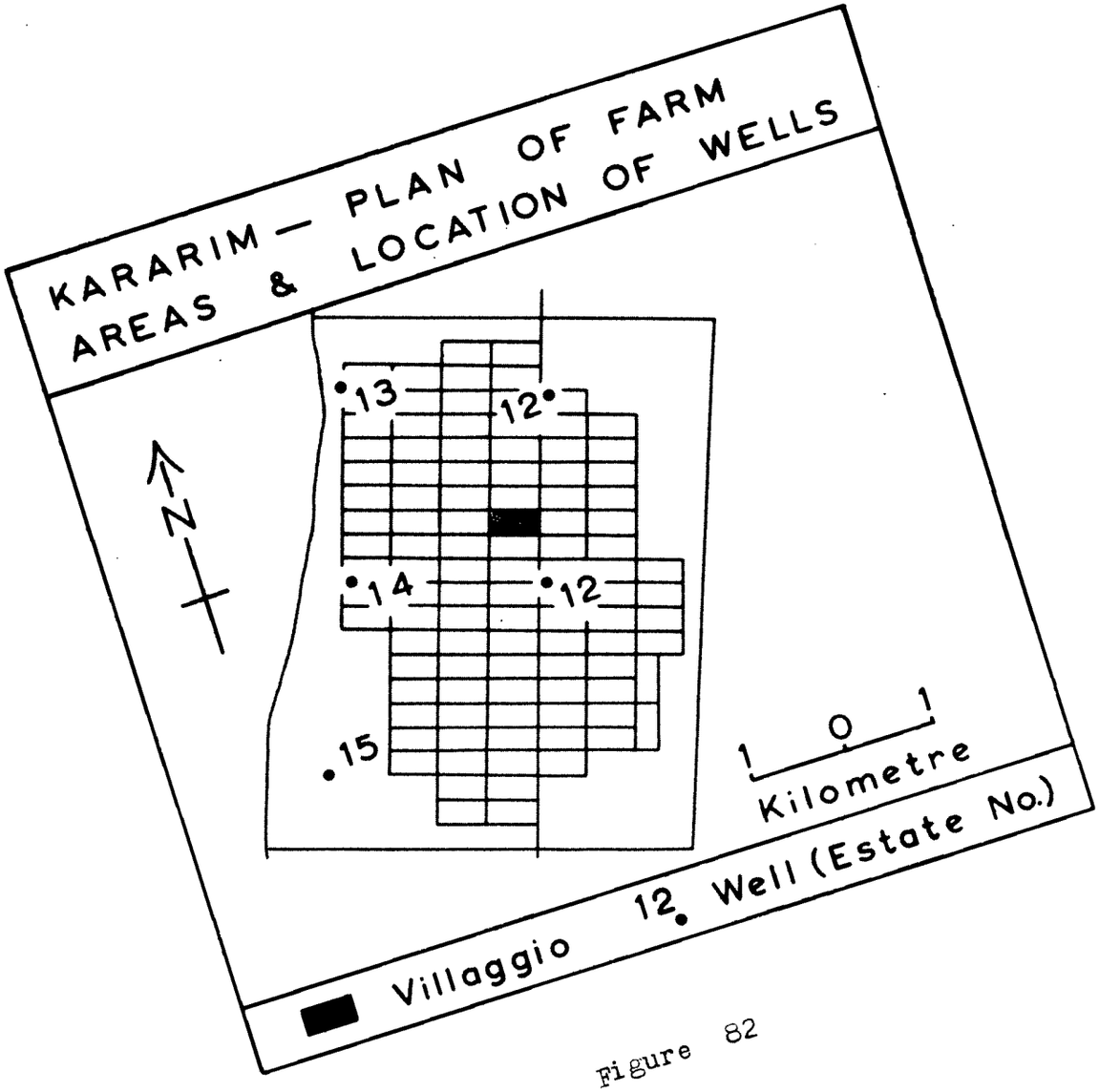

KARARIM — PLAN OF FARM AREAS & LOCATION OF WELLS
13
12
N
14
12
15
1 0 1
Kilometre
Villaggio
12 Well (Estate No.)

Figure 82

Kararim estate (erstwhile Mario Gioda) was constructed as an integral scheme during Ente's work at Tummina, and was expected to function as an economic and social satellite of the former estate. Kararim, comprising one hundred farm units has a geometrical ground plan (Vide Figure 82) centred around the well and reticulation system. The economic framework of the estate was in every way a replica of Tummina, with widely spaced olive trees allowing irrigated and semi-irrigated inter-cultivation of cereals and other field crops.

The decline of Kararim and its causes is of acute present day importance. May we assign the failure of this settlement scheme to political and historical accident, or were there deeper environmental factors at work? Should the answer to this question be that Kararim was the victim of insecurity during the war years, then the modern development schemes envisaged by the Libyan Government in this same region are to be encouraged. On the other hand, if the failure resulted from the unsuitability of the environment, then future efforts taking place under less auspicious circumstances than those which prevailed in 1939 would meet a similar fate.

(ii) Dafnia

Dafnia (ex-Garibaldi) is the largest of the Ente and INPS units built in Tripolitania, covering some 14,400 utilised hectares in the littoral steppe region south of the Zliten-Misurata road. The soils of the area are light and calcareous, as illustrated by the fact that the Eucalyptus Rostrata does not

grow well, whilst the Allepo pine thrives in most zones of the estate. The total developed area given over to small farms totalled 9,000 hectares in 1939, which represented 30 hectares each of dry-land for 300 families brought over from Italy in the same year. In 1960 there were 200 farms held by Italian families, and the Italian population numbered about 700. In relation to the original settlement figures this represented a one thirds decline in the number of farms held by the Italians, and a two-thirds decline in the population of the estate.

Production from the Dafnia estate was intended to centre exclusively upon olives, with some supplementary production of cereals. In the first phase of settlement, whilst the olives were growing to maturity, the settlers were allowed to inter-plant the olive groves with vines and almonds. All the olive trees planted at Dafnia were local varieties, subject to less annual fluctuation in yield than the Frantoio varieties used at Tummina and Kararim. On most of the farms at Dafnia, Mariolli varieties have been grafted with Chemlali. There were 64,469 olive trees recorded at Dafnia in 1958, of which about two-thirds were productive. Production of olives in the years 1955-58, as returned by Ente, was as follows:-

1954/55	1955/56	1956/57	1957/58	
1,000	500	2,000	500	Q/ts.

Unlike Tummina, processing and marketing of olives does not fall under central control, and each farmer dispatches his crop separately to the olive press, of which there is one operating

DAFNIA AGRICULTURAL ESTATE:- A— PLAN OF FARM AREAS
B— DESTINATION OF LAND
UNDER THE TERMS OF
ITALIO-LIBYAN ACCORD
N
A
2
1 0
Kilometres
N
B
Land Retained Under Italian Ownership
Farms Passing to Libyan State
2
1 0
Kilometres

Figure 83

on the estate, and a further one owned and run by an Arab in Zliten. Operations in connection with olive processing and marketing are expensive at Dafnia, with a corresponding loss in profitability to the farmer. One of the difficulties involved in organising central control is the plan of the estate (Vide Figure 83A) which brings the farms on the east and west perimeter to opposite poles of the twenty miles axis. The absence of integrated irrigation facilities such as those which are used at Tummina also implies a diminution in the need for common organisation.

Each of the individual farms is 30 hectares in area, of which two hectares are given over to plantations of eucalyptus and pines. It was intended by the Ente organisation that Dafnia should be reliant primarily upon dry-land cultivation of the olive and associated vines and almonds. At the same time it was also recognised that supplementary cultivation of other field crops would be necessary both to fulfil the domestic requirements of the farmer and to provide a secondary income for the settler to tide over the biennial production cycle of the olive trees. Hence, in the original contract Ente undertook to provide each farm with a well. In fact, the estate was settled in 1939 and the final work at Dafnia was postponed for the duration of the war. During the writer's field work in the Dafnia area the Italian Government was in process of completing its contract, and 100 wells were scheduled to be finished by the end of 1960.

Cultivation of the vine was expected to be an interim practice which would end as the olive trees came into full production. In fact viticulture at Dafnia continues to expand in spite of the fact that an increasing number of olive trees are maturing each year. In the season 1958/59 the average production of the vine was 30 quintals per farm, whilst in 1959/60 the acreage was 0.2 hectares per farm more than the previous year. This trend for a slightly increasing production of vines is peculiar to Dafnia, since most estates have dispensed with the vine completely(9), and the returns for Tripolitania as a whole indicate a sharp decline in the number of vines in recent years, i.e. 1953 figures suggest a total of about ten and a half million plants, whilst in 1956 this had declined to one and a half million. The reasons for the tenacity to vine cultivation at Dafnia may be ascribed mainly to the self-sufficient nature of the farms at Dafnia, where wine for domestic consumption is regarded as more important than commercial cropping.

Where irrigation water has been made available, lucerne and groundnuts grow well. The problem of marketing lucerne presents an outstanding difficulty since there is only a small livestock population at Dafnia and there is no local outlet for the raw crop. In recent years both Tummina and the Wadi Caam Settlement have taken a small percentage of the crop for fodder. Yields of groundnuts are as much as 25 quintals per hectare, but the high cost of water at Dafnia and the transport costs to Tripoli market tend to make groundnuts marginally economic. In the

boom years since 1953 Dafnia has been able to make about £L 2-3 per quintal, but most farmers at Dafnia tend to feel that as soon as the price per quintal drops below £L 5, then the crop will no longer be profitable for them. In 1959/60 six out of twenty farmers included in the Questionnaire Survey had cultivated groundnuts, with an average area of 1½ hectares per farm.

Cereal production at Dafnia comes partly from inter-cultivation between the trees and partly from cultivation of dry-land areas on the undeveloped periphery of the estate. Yields from dry-land cultivation are poor and are well below the average returned by Arab farmers in the same areas. The farmers at Dafnia regard 4-5 quintals per hectare for wheat as a good crop and similarly an average year of 3-4 quintals per hectare for barley is taken as a fair result. Total production from this estate in two recent years are given in the following table. In spite of poor yields per hectare, Dafnia as a whole produces significant quantities of cereals, especially barley

Production of Cereals at Dafnia

	1957/58	1958/59
Barley	4,000	4,000
Wheat	14,000	10,000

Ufficio Dafnia.

which in most years closely approximates to total production from Tummina.

In summary, it may be said that dry-farming in this region has proved an unrewarding task for most of the farmers. As we

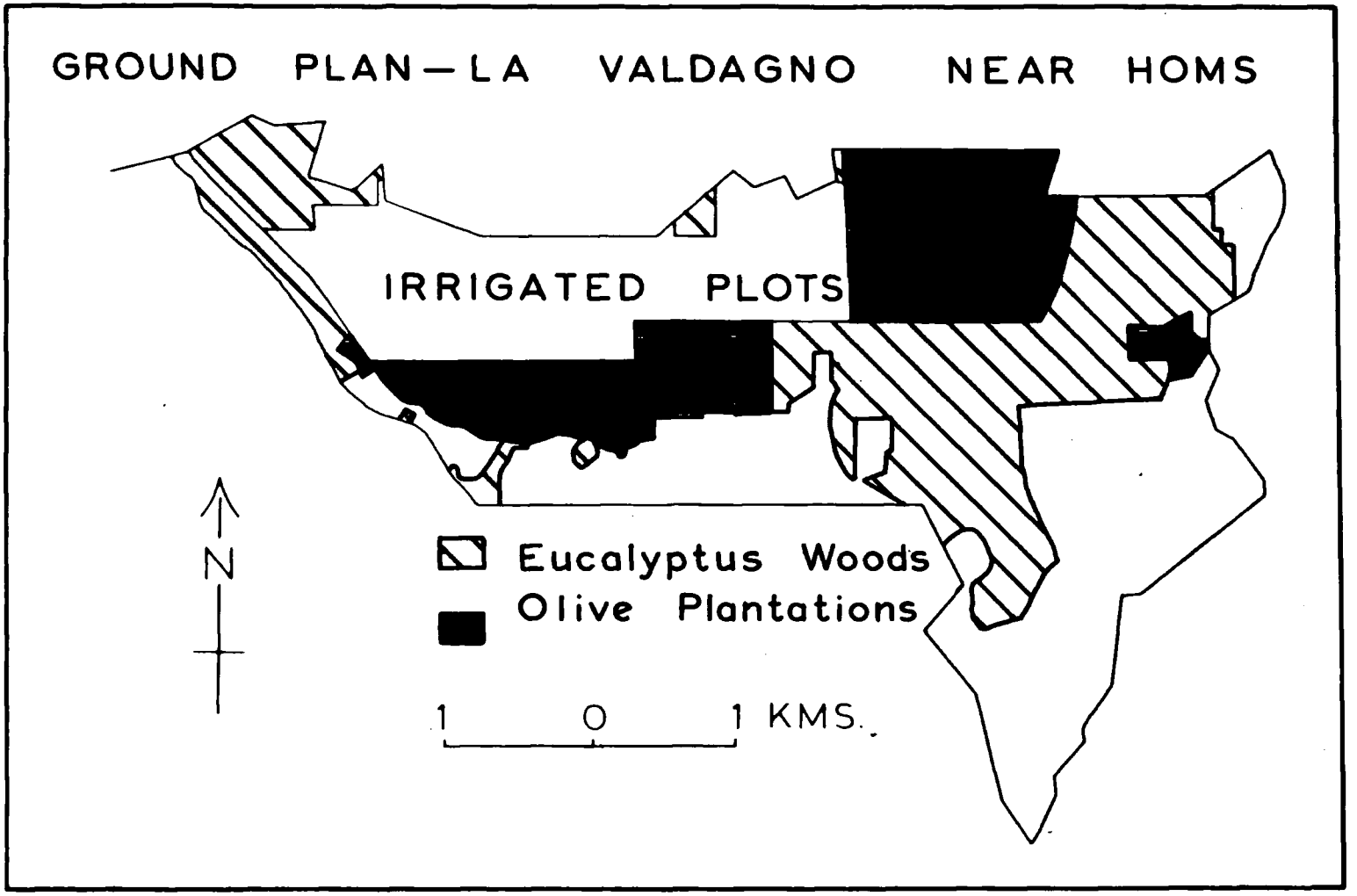

GROUND PLAN—LA VALDAGNO NEAR HOMS
IRRIGATED PLOTS
N
Eucalyptus Woods
Olive Plantations
1 0 1 KMS.

Figure 84

have seen earlier, many of the individual farmers have resorted to subsistence cropping. The introduction of irrigation facilities has come late and has proved costly; it remains to be seen whether the availability of water will change the present steady decline in agricultural production and help to hold the remaining peasants on their holdings.

(c) Private Concessions in Misuratino

(A) Concessione Valdagno La Valdagno concession lies mainly in the Sahel El-Ahamed astride the Wadi Lebda which separates the oasis of Homs and the Sahel. The concession was granted to Conte Gaetano Marzotto in 1937 and development of the estate was almost completed before the out-break of war in 1939. The basic plan of the estate is illustrated in Figure 84, which shows the distribution of the irrigated plots and areas planted to olives and eucalyptus. Most of the central 'apoderato' area was to be let to share croppers on the normal metropolitan basis of 50/50 share of produce. In the early phases of development 32 Italian families were engaged on the mezzadria contract and settled in the case coloniche on the estate. It is interesting to note that all the farmers at La Valdagno came from Venetia in the North of Italy and that cropping on the estate reflects this - farming here resembles the intensive cultivation of the North Italian Plain rather than the extensive dry-land culture of the south of Italy which is discernable at Dafnia for example.

The proportion of the land worked under mezzadria is small

compared to the total area of the estate, for it was intended that the bulk of production would come from land under direct control of the central management. Since many of the settlers have returned to Italy since the war, only insignificant areas of the estate are at present farmed outside the central system. The main elements in production from the estate are olives, tobacco, cereals and vegetables. Of the original planting of 45,000 olive trees more than two-thirds are now in production, nevertheless, it will take a further ten years before the young trees, planted to replace the initial supplementary crops of vines and almonds, come into full production. The long period necessary for the olive trees to mature at La Valdagne is a direct result of the sea-winds which retard fructification until the fifteenth year of growth.

Yields from the olives on La Valdagne vary from year to year with the biennial cycle of production in the irrigated areas and with the fluctuations in rainfall in the dry-land areas. At the present day, less than one quarter of the olive trees are maintained under a dry-land system, and if political security could be increased, then it is likely that Italian investment would proceed to allow complete irrigation on the estate. Irrigated trees are planted with close spacing at 10 by 10 metres, whilst dry-cultivation utilised a 20 x 15 metre spacing. Production of olives at La Valdagne is shown in the following table for the year 1959/60:-

Production of Selected Crops - La Valdagno 1959/60.

Crop	Dry-land Q/ts.	Irrigated Qts.	No. of trees Producing	Hectares Sown
Olives		2,842	25,000	
Olives	1,158		7,000	
Tobacco		2,100		90
Lucerne		1,650		14
Tomatoes		49		2.25
Onions		285		20
Lettuce		39		2
Chick Pea		26		5
Barley		1,650		83.75
Wheat		220		34.50

Data from Ufficio La Valdagno.

When all olive trees come into full production it is expected that production will stabilise at about 5,000 quintals of fruit per annum. The number of olive trees at La Valdagno has increased in the last decade, a tendency which runs counter to the trend we have traced in Tripolitania as a whole, and one which runs against the current swing on the demographic estates within Misuratino.

Cereal production at Valdagno is insignificant in respect to the commercial out-put of Misuratino, since most of the barley is grown for animal feed and wheat production at 220 quintals is of purely local importance. The position of prime cash crop, occupied by cereals on the demographic estates, is taken at La Valdagno by tobacco. Burley, Salento and Virginia varieties are grown, with a predominance of Salento. The acreage sown to tobacco is restricted by the State Tobacco Monopoly, but it is important to realise that Valdagno is extremely favoured to be granted annual licence by the Monopoly

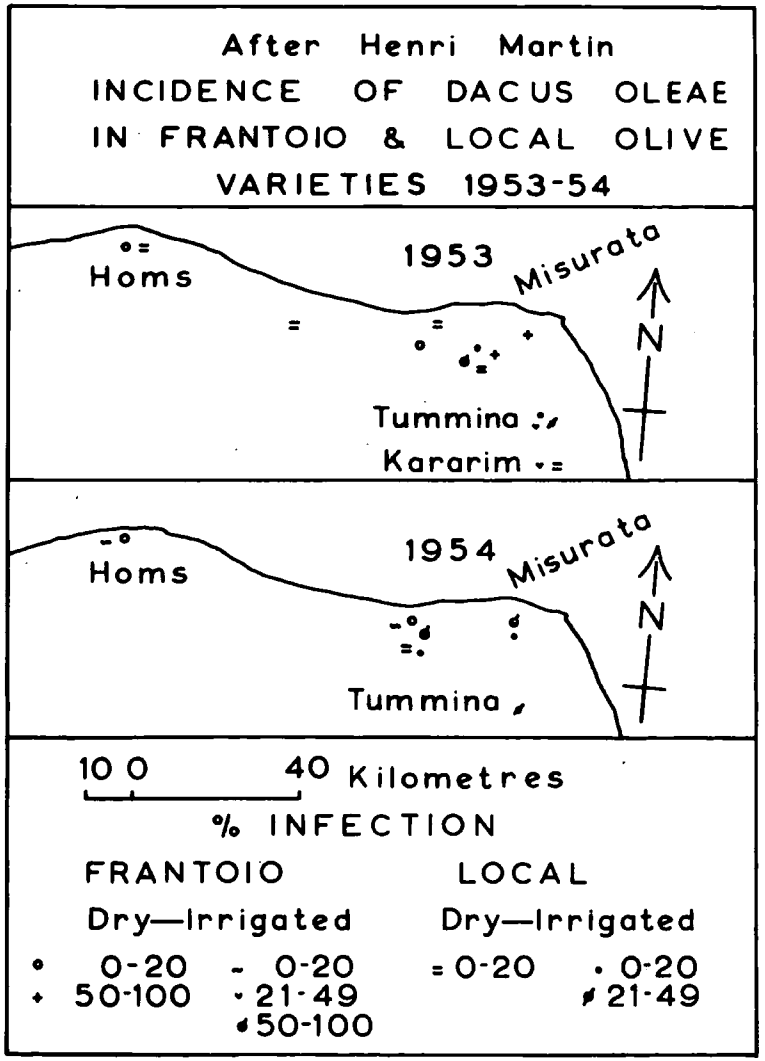
since Tripolitania over-produces tobacco each year. Much of the Tripolitanian leaf is poor in quality and cannot compete in the more lucrative markets of the world; even within Libya, local leaf is not accepted in the town areas where European brands are available. A proportion of leaf produced in the Province is channelled to Cyrenaica, where it is valued as a chewing tobacco by the semi-nomads. The Salento variety is the most useful of the tobaccos produced on La Valdagno, since it can be processed (silo-cured) on the estate and used directly in the strong local brands of cigarettes. Burley leaf is of recent introduction into Tripolitania, and is used as a filler tobacco in the local cigarette factory in Tripoli. With the need for relatively heavy irrigation, the plant has not proved successful in Libya and its continued cultivation is entirely a result of the existence of the Monopoly, whose activities are as much 'social' as economic. Beneventano varieties differ only slightly from the Salento leaf we have described above and in all respects are merely a replacement crop for Salento. For as long as the Libyan Government regards tobacco cultivation and processing as profitable in reducing the necessity for imports of foreign leaf, then Valdagno will have a guaranteed high-price market for its production, and will have no cause to revert to cereals as cash crops. Under the present price regime employed by the State Tobacco Monopoly the growers at La Valdagno receive 130 mms. per kilo for Burley varieties and 125 mms. per kilo for other varieties. In fact, as Hill points out, tobacco cultivation offers a steady annual income of £L300 per hectare

for Burley, and 325 for Salento and Beneventano[9]. Thus the equivalent income from irrigated wheat production at La Valdagno would require some 15-20 times the area used for tobacco cultivation, and would be vulnerable to the fluctuations in market prices.

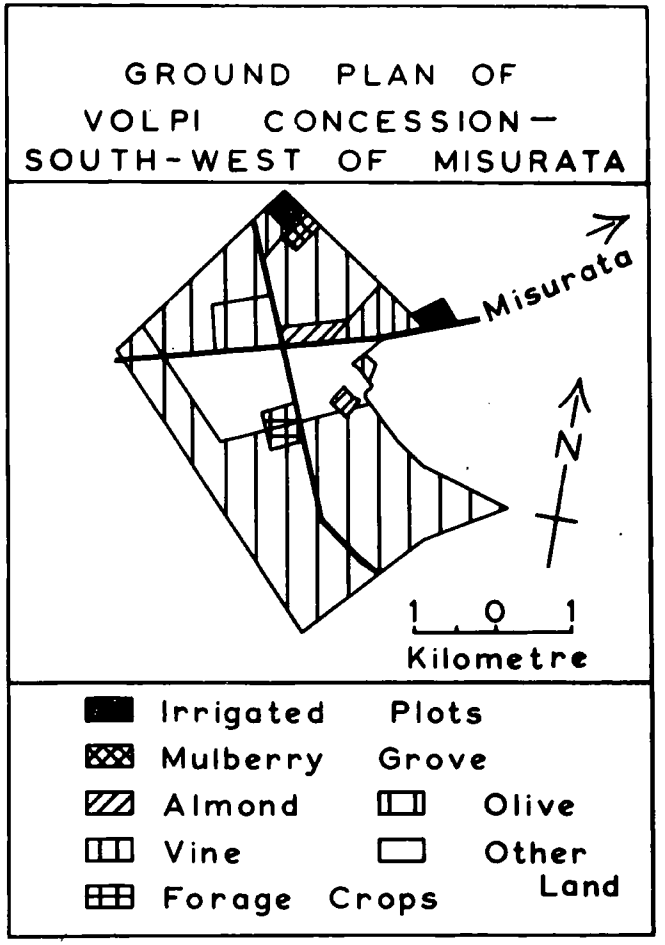
Specialist production from La Valdagno has been developed in recent years towards cultivation of vegetable crops for seed purposes. In particular, lettuce and cauliflower seeds have been grown under controlled conditions from imported English seed. The commercial aspect of this new venture is still in its infancy, but heavy purchases of seed by Wadi Caam Settlement and interest by farmers on the Jefara seem to augur well for the scheme.

The future of La Valdagno is uncertain. The Italio-Libyan Accord of 1957 gave full title of the land to the Italian owner, nevertheless, the uncertainty which surrounds the position of the Italian settlements has tended to curb development activity which implies heavy investment. Valdagno remains then, a static element in the agricultural units of production in Misuratino, and appears likely to be so for the foreseeable future.

(B) Concessione Conte Volpi was the first large scale Italian land reclamation project to be directed to Misuratino. The sponsor of the estate was Count Volpi, who after a distinguished career in the 1920s, during which he settled Tripolitania firmly under Italian rule, retired to Italy. Volpi was one of the two originators of Italian colonial policy in Tripolitania whereby



Above Figure 85



Below Figure 86

development was to be forwarded through the application of capital and technology. It was no less than Volpi's chief advisor, Signor De Cillis who proclaimed that 'L' importation de l' ouvrier italien n' est ni pour maintenant, ni pour longtemps a conseiller'(62). The establishment of the private concession at Misurata in 1930 was intended by Volpi to channel the tide of Italian private investment outside the limits of the Tripoli oasis and the steppe lands which surrounded the major city by giving a lead himself. As we have seen, his example was ignored until the foundation of La Valdagno concession a decade later; Balbo's schemes for demographic settlement supervened the more conservative plan for private investment and Volpi's private concession was the final move in the first period of Italian development.

Azienda Volpi illustrates all the features of concession settlement in the pre-Balbo period, with an absence of any settlers (Cf. Valdagno where mezzadria farming of podere was integrated into the private concession) and an open ground plan laid out in groves. In 1958 there was a total of 35,000 olive trees on the estate, 90% of which were at or near to full production. The plan of the estate is shown with details of the cropping pattern on Figure 85; in total there are 300 irrigated hectares with a planting of 30 trees per hectare; i.e. almost a quarter of the olive trees are irrigated. Production of olive fruit from Volpi estate fluctuates each year, partly with the normal biennial cycle and partly with the

incidence of rainfall which affects 75% of the olives under dry-land cultivation. The light calcareous soils upon which the private concession lies are ideal for the Frantoio and Coratina varieties of tree, although some Tunisian Chemlali grafts have been used in the dry-land areas. Signor Conti of the experimental farm at Zaviet Maguib points out that the main problem affecting olive production at Concessione Volpi is the prolonged humidity caused by the proximity of the estate to the sea, and the sea-winds which blow across the estate. In the former case, the result is that disease blights the fruit and the flowers since the sustained high humidity fosters the growth of Dacus Oleae especially in the Frantoio varieties. Figure 86 shows the incidence of Dacus Oleae in the Frantoio and local varieties in the Misurata region in 1953/54, illustrating the heavy concentration of infection in the Volpi area.

Other tree crops grown at Volpi are vines, almonds and date palms, in that order of importance. Vines and almonds are inter-cultivated with the olives in specific sectors of the estate, the area of vines in 1959/60 being 16 hectares and the area of almonds eleven hectares. The date palm is utilised at Volpi as a boundary mark and wind break tree instead of the acacia and eucalyptus which came into vogue in the years after 1930. Of the 190 palms included on the estate, most were in existence before the estate was begun and represent residual elements of the former Arab farms in the oasis. In 1960 about 100 of the date palms were bearing fruit. Production from these trees is not significant unless from a purely local point of view.

Concessione Volpi produces some 40-45 metric tons of olive oil each year, plus a small quantity of dates, grapes, almonds and other fruits. As a commercial proposition it cannot survive, and its maintenance must be ascribed to the fact that the Volpi family, who derive their name from the district (Conte Volpi di Misurata) are prepared to subsidise the estate. Thus Volpi may be considered as subscribing an important element to total production of Misuratino, with no apparent plans for an increase in the future.

(d) Arab estates constructed by Ente

Demographic experiments by Ente using Italian peasants recruited in Metropolitan Italy were followed up by further schemes designed to include indigenous Libyans in the settlement projects. We have already mentioned that Ma'mura estate in the Tripolitanian Jefara was settled in 1939. A corresponding unit was under construction in Misuratino when the out-break of war occurred and the enterprise was postponed in late 1939. Nahima estate is situated between the oases of Zliten and Misurata on the north side of the main through road. Construction of the village and the farm houses was already complete when activity was terminated. Production from this estate never got under way and to all intents and purposes the area was abandoned to the herds. In recent years the Nazara of Agriculture has begun a new scheme for the resuscitation of the estate. The question arises from this plan - is the demographic base prepared by the Italians to be utilised, or is a complete

revision necessary? At present most of the land is uncultivated except for limited areas close to the main road where contractors have been using mechanised methods to cultivate barley.

The soils of the area are deep and fertile apart from occasional rock outcrops on the western periphery. Broc[69] and Bologna[80] both suggest that this area may present better opportunities for agricultural development than the corresponding land under Italian occupation to the south of the road. Later in this section we shall indicate the relative merits of demographic settlement and extensive private concession development as a mechanism to direct the processes of economic growth with the specific problem in mind - whether promising zones such as that at Nahima should be reclaimed for peasant or capitalist land holding; bearing in mind the forces of growth gaining strength in the urban areas.

(2) - The Italian Contribution - (iv) An assessment of the Italian Experiment in relation to Modern Libyan Development in Misuratino.

A. Political Influences.

In the previous paragraphs we have discussed the units of production in the Italian sphere of agriculture. Two outstanding facts emerge from this analysis:- (a) that Italian demographic farms have deteriorated rapidly in the last decade.

(b) that private concessions have shown no appreciable increase in production in the past decade, and in the case of Volpi are actually returning smaller figures of out-put each year. We have already suggested several reasons for the problems which have beset Italian efforts in the region -

- (i) the Italian farms in both demographic and private concession categories were created as Phase V production units heavily capitalised and under central technical control. These units were more advanced technically than many of the farm holdings in Metropolitan Italy: in Libya in 1939 they were islands of commercial farming thrust upon an early traditional/transitional indigenous society. The local peoples represented a poor labour force for the Italian farms, and, more important, they represented a poorer market.

- (ii) production costs on the estates in Misuratino were necessarily inflated as a result of the isolation from Tripoli Port whence most of the out-put was to be channelled since there was no local market of importance.

- (iii) environmental problems arising from the incidence of rainfall, the frequency of the Ghibli and the high relative humidity of the oases during the summer months each have their own toll upon the production and therefore the profitability of farming in this zone.

- but there were other causes of economic, political and social character which were important influences in the failure of the Italian efforts. In the succeeding pages, we shall assess the causes of the Italian failure.

The political basis of the demographic settlements in Libya

is outlined in Part I, (ii) (a), where it was pointed out that demographic colonisation was inspired by notions of strategy in terms of both the Mediterranean as a whole and Tripolitania in particular. The Italian administration was prepared to pay dearly for the accrued benefits to the sphere of diplomatic and military disposition in its settlement of Libya. Estimates of Italian expenditure in Tripolitania vary greatly, but the 'Memorandum on the Economic and Financial Situation of the Italian Territories in Africa' published in 1946 is generally accepted as the best summary of accounts for the Province.(81) Table 78 indicates the main heads of expenditure during the Italian occupation of Tripolitania. Total expenditure amounted to 444,095,000 Lire in the period 1913-42 excluding all spending upon military or other exceptional purposes. In equivalent £S, the Italian Government invested £5,551,000, whilst it is likely that a further £500,000 to £600,000 was invested in the private sector. Tummina estate, for example, cost the Italian Government three-quarters of a million pounds merely for initial construction, whilst in the private sector, preliminary investment totalled £20,000 at La Valdagno.

The high capital costs of the demographic estates, which at Tummina averaged out at £2,000 per unit only became an economic proposition for purchase by the settlers under the terms of the Ente tenancy contract in view of a 25% government subsidy towards the total costs. Since the Italian administration was terminated in 1942, the settlers were forced to bear

some of the expense originally scheduled as a subsidy. This fact has put many of the farmers on the demographic estates at a great disadvantage. More directly the farmers suffered also since Ente was unable to complete the farms. At Dafnia, for example, we have seen that the well system was inaugurated in recent years; in the meanwhile the farmers have lost the advantage of irrigated production and are now faced with an unsubsidised bill of £L700 for each well constructed.

Table 78 - Summary of Expenditure of the Italian Government for Public Works and Utilities in the Period 1913/36 - Tripolitania.

Road Construction	130,858,000
Port Construction	53,000,000
Agricultural Development and Land Reclamation	53,118,000
Public Buildings	103,785,000
Telegraph and Telephone Facilities	6,680,000
Hydraulic Works	4,230,000
Sanitary Works	6,200,000
Railway Construction	52,100,000
Amortisation of loans, contributions and interest on sums borrowed from other institutions.	34,024,000
TOTAL	444,095,000 Lire

Government subsidy under the Italian regime extended from the sphere of direct percentage contribution to construction to the field of production. All demographic estates were exempt from taxation during the period of tenancy, and were liable to be taxed only when full ownership of the farm was granted. Thus any individual farmer received an indirect subsidy from the Government for a minimum period of twenty years. In fact, the end of the Italian colonial regime left the farmers unaffected,

since the B.M.A. was keen to assist Ente in holding the Italian peasants to the land, since they foresaw that an exodus of the Italians from the Ente and INPS farms would seriously injure production from the area at a time when food-stuffs were in extremely short supply. Rather than face the desolation which had resulted from the peasant evacuation of Cyrenaica, the B.M.A. continued to allow full tax exemption to the farmers. Under the Independent Libyan Government Italian exemption has continued in respect to agriculture but other means of taxing the Italians has been introduced, such as charging heavily for registration as an alien and other legal technicalities necessitated by the alien classification of the Italian peasants. Following the Italio-Libyan Accord of 1957 and the recommendations of the UN/FAO experts, it appears likely that taxation will be introduced for Italian demographic farms and concessions in the near future.(40) The insecurity resulting from the knowledge that the post-1942 administrations have been considering general agricultural taxation of Italian farms has contributed to the drift from the estates, especially since 1951.

In this context, the complete closure of Kararim serves as a case example of the way in which the problems have affected the running of the estate. Until the early fifties, Kararim developed slowly inhibited by the environmental controls inherent in the steppe site upon which it was constructed. In the period before 1951, many of the younger people had left to return to Italy or take up a tenancy on a demographic farm with more promise

than was offered at Kararim. After this date, several factors, unimportant individually but significant in their accumulated effect, came to bear upon the farmers at Kararim.

In 1958, the writer visited all the farms at Kararim in an effort to discover the exact causes of the exodus from those Italian settlers who were still farming on the estate. It must be borne in mind that the settlers were naturally biassed towards a sympathetic approach to their compatriots who had left; on the other hand, they themselves had stayed, and obviously were inclined to take a less extreme view of the difficulties. Further interviews with the Federal Lawyer Aghilla helped to bring the problems into perspective from the point of view of the Libyan Government.

The greatest problem arising at an isolated out-post settlement such as Kararim was that the Italian community were diverced from urban life as they had known it in Italy. This was aggravated by the fact that the local Arab tribes had no contact with the Italians and the urban Arabs in Misurata Citta tended to keep apart from the settlers. The chronological distance between the settlers and the local population in terms of mental out-look was the greatest barrier to any social compromise being reached between the two groups. This social cleavage was intensified in Libya by the strict Moslem code which operates. Hence the inter-marriage of Italians and Libyans was an impossibility to the extent that there are only two known cases recorded in Eastern Tripolitania, one at Kussabat and the other at Dafnia.

There are few places in the Moslem World where segregation of women is so exclusive as it is in Libya.

Economic contact between Arab and Italian took place on a seasonal level, with the Italian as master and the Arab as man. Both Libyans and Italians agree that the treatment of the Arabs at a personal level was very fair; recruitment of labour was competitive; and the Arabs were paid at a higher rate than they had previously known. Even at the present day, the Italian farmers pay as much as 25% more per day for labour than their Libyan counter-parts.

Events in Algeria and Tunisia show that it is possible to integrate two societies in spite of the handicaps presented by religious differences. In those two countries the occupation lasted for more than 75 years, whereas in Libya effective contact between the two groups was only two years duration at best. The initial friction generated by the wars of conquest had not completely worn off and the high-handed rule of Graziani and Balbo was still well-remembered by the Arabs who suffered at their hands. The Italian peasant at Kararim, where the total community numbered less than a hundred families, tended to feel his physical isolation from Tripoli and his social isolation from the indigenous groups around.

In itself this problem was not the cause of the decline of Kararim. The Italian settlers remained on their farms throughout the war period, and the majority of families were still in occupation during the British Military Administration. The lack

of Italio-Libyan co-operation at a local level first became an issue of importance with the emergence of an independent Libyan State in 1951. Three issues arose as a result of Libyan independence (i) the citizenship qualifications of the settlers; (ii) the liability of the settlers to repayment of the mortgage on the farms to the Libyan Government; (iii) the limitations upon the transfer of liquid assets by aliens to foreign countries.

Following upon the United Nations resolutions on Libya in 1950, and more specifically upon the Italio-Libyan Accords of 1957, the Italian colonists in Libya were given two choices in respect to citizenship. In the first place they were permitted to retain their Italian passports and other rights as Italian citizens. Alternatively the settlers were allowed to opt for Libyan nationality, which they could take up on equal terms with the indigenous pebples around. These arrangements posed an immediate dilemma - Italian citizenship gave the right to the settlers to return to Italy should they desire to and to be eligible to make a living in Italy. On the other hand, after a concession of five years grace from December 7th 1957, the Italian settlers forfeited the right to transfer out of Libya any of their possessions, including any monies gained from sale of their possessions in Libya. Acceptance of Libyan citizenship automatically disbarred the colonists from their right to return to Italy and take up employment there, To retain Italian nationality meant, in fact, selling out their farms before 1962; to take up Libyan nationality meant renbuncing any security

against future encroachments by the Libyan Government. The unhappy situation of two distinct cultures which we have discussed above was thus brought to a head. Obviously there were few Italians who could accept Libyan citizenship under the isolated conditions which prevailed at Kararim. At Kararim too, settlement had been concentrated into the last months to December 1939; very few of the settlers had finished the work of improving their holdings to the standard laid down in their contract with Ente. In consequence the majority of farmers were working what was virtually mezzadria contract, and saw little likelihood of achieving ownership before the termination of the concession whereby they were permitted to transfer their possessions and capital resources to Italy. At Tummina many of the farmers were actually in a position to claim full ownership or were within one or two years of acquiring ownership (Vide Italo-Libyan Accord article 10(b)). In their case it was worth-while to complete the technicalities of contract, take up full ownership or mortgage ownership, with the eventual hope of selling out and transferring the capital to Italy.

The actual terms under which colonists who had not completed their contract before December 1957 were expected to work were as follows:

(i) There was to be a Four-Year Plan instituted for those settlements, including Tummina and Dafnia, where settlers had not been resident for sufficient time to complete the original Ente contract.

(ii) During this time it expected that the farmers would fulfil the planting schedules laid down in 1939, construct the ancillary irrigation ditches and complete the reclamation

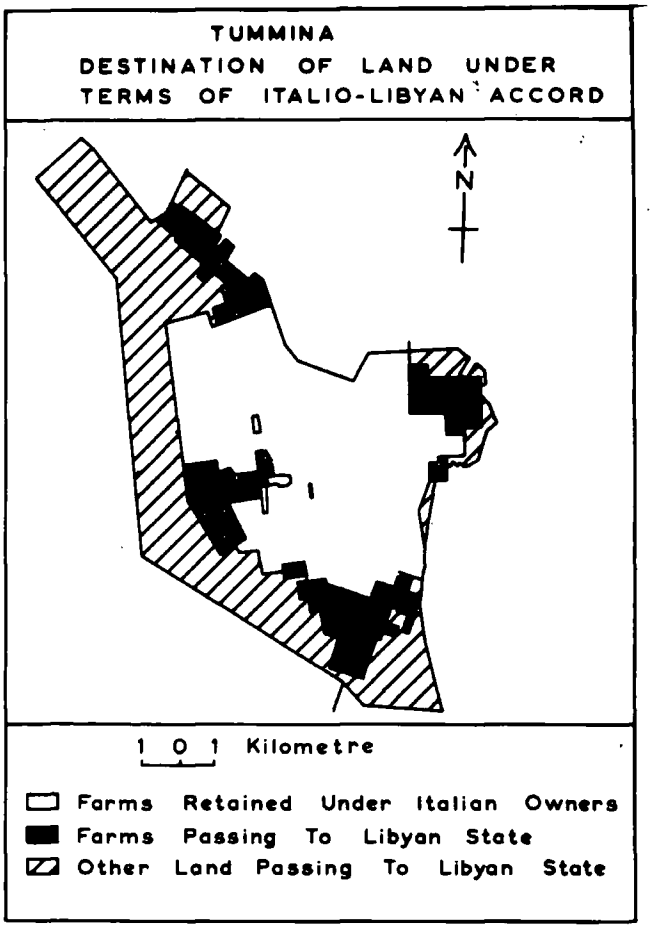


Figure 87

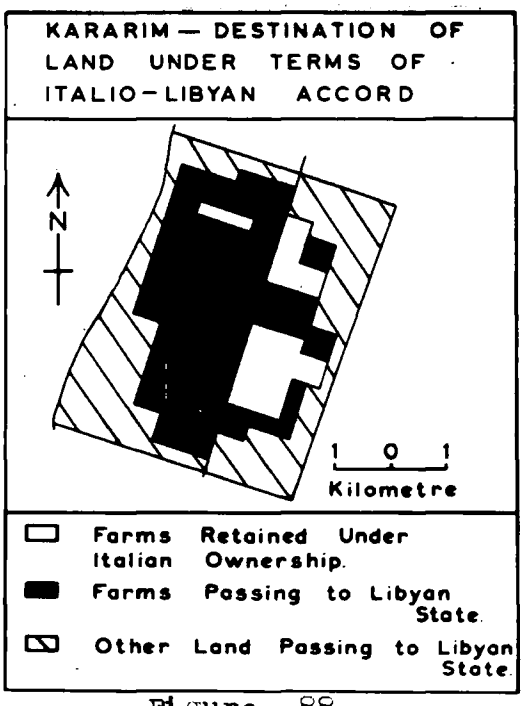


Figure 88

of the woodland areas around the borders of their plots.

(iii) At the end of the four-year period a reassessment of the work would be undertaken by a Joint Libyan/Italian Council, which would allot full title where the necessary works had been completed.

(iv) All stock and machinery imported by the Italian farmers during this period was to be allowed into Libya free of duty.

(v) The Italian holdings at Tummina and Dafnia should be made into a compact area. Holdings being transferred to the Libyan Government were to be sited on the periphery of the estate. Figures 83B and 87 show the designation of land at Dafnia and Tummina under the terms of the Italio-Libyan Accord of 1957.

Between 1951 and 1957 Kararim declined rapidly as settlers moved to farms vacated at Tummina. The residue of farms under cultivation in 1957 is shown on Figure 88. A final point which was emphasised by the farmers at Kararim in 1958 was the uncertainty which surrounded production of olive oil.

Production of olives from Kararim accounted for 90% of the commercial production from the estate. The saline nature of the soils in the area precluded satisfactory cultivation of crops other than barley, which itself brought only moderate returns in the Libyan market since it came into direct competition with the Arab produced barley from the areas of shifting cultivation. The amortisation of the loans owed to Ente could only proceed when the olives came into full production. Two important factors at Kararim intervened to make this answer to the peasants' indebtedness a risky proposition.

(i) Actual production realised from the olive plantations by the mid-fifties indicated that the yields from trees at Kararim were low and expensive. The poor amount of rainfall in the

area meant that full irrigation of the olive groves was necessary throughout the year with the exception of November and December. Production costs were necessarily higher than those for olive production at Tummina, where the rainfall amount was some 75-100 mms. greater than that at Kararim. Together with the expensive transport to Tripoli, the high production costs incurred at Kararim reduced the profit margin in most years to less than 2-3%. Such a margin offered little hope that the £2,000 debt to Ente could be paid off in less than thirty years from the date of the original contract.

(ii) Tripolitanina olive oil cannot compete with similar grades produced in Tunisia, Spain and by other major world exporters.(9) Thus export of oil relies entirely on the activities of Consorzio Agraria, which organises exports to Italy. Under the terms of G.A.T.T. Libya was permitted to export 2,500 M/ts. of oil per annum to Italy free of customs duty. In 1955 it was felt by most Italian farmers that the metropolitan Government would terminate this concession to Libyan colonists when her obligations in Libya came to an end. In recent years the fears of the colonists have been proved unjustified, since the Italian Government has been considering a request to increase the customs free quota of olive oil from 2,500 M/ts. to 10,000 M/ts. Nevertheless, the uncertainty created by the changing nature of G.A.T.T. may be considered as one of the final factors influencing the attitude of the settlers.

We have analysed the factors which have borne upon the

decline in the Italian farming community, and from this examination several clear elements emerge which are germane to future production in Misuratino, especially to development of the Arab sector through the medium of demographic estates. On the one hand, environmental forces were important in contributing to the problems faced by the Italian settlers; they may be listed as follows:-

(a) The variability of rainfall and the high incidence of unpredictable phenomena such as Ghibli and prolonged high relative humidity. Domenico Spitacceli, a farmer at Dafnia, enumerated the causes of crop failure from his dry-land holding for a period of five years. In one year complete drought ruined all his cereals; in another the rains began as usual, but in the period after fertilising his field, there was a four week run without rainfall and his crop was burnt up. For a further two years rust infection resulting from prolonged humidity in late spring reduced his yields by a third; and in the final year three Ghibli winds in the space of three weeks reduced his expected yield by almost a half that expected in a year of good rainfall.

(b) The aridity of the environment in particular respect to the difficulties of dry-land cultivation and the consequent costs of semi- and full irrigation. This question is more fully discussed in Chapter 2.

(c) The isolation of the estates from the Jefara and Tripoli Port.

On the other hand, we have shown that the most potent forces influencing the Italian failure have been arising through political and social mis-chance, consequent upon the method and time of the Italian approach.

The Italian population in Misuratino has declined steadily from the peak period of settlement in early 1940, when there was a total of 6,000 peasant settlers until at the present day this same total is reduced to 1,464. The figure for the individual estates is shown in the following table.

Italian Farm Population in Misuratino - 1939 to 1960.

	1939		1940	
	No. of families	Population	No. of families	Population
Demographic				
Tummina	370	2,908	237	750
Dafnia	300	2,189	200	700
Kararim	95	776	0	0
Concessions				
Valdagno	32	-	3	14
Volpi	-	38	-	-

The great decline has set in since 1951, with a marked acceleration after the provisional Italio-Libyan Accord became known in 1955. In the period 1955-60 about 4,130 Italians left the estates in Misuratino from demographic farms alone. Corresponding to the de-population of the Italian estates, so production from this sector of the agricultural economy has fallen off. In recent years the full impact of this Italian exodus has not been reflected in the total production figures from the estates, since it has coincided with the maturing and initial production from the olive groves planted in the late 1930's. Should most of the Italian farmers pursue their present aims, then most of the Italian farms remaining in production under the terms of the Italio-Libyan Accord will be sold in 1961-62 before the end of the cash transfer concession. Otherwise it is likely that the fate of Kararim will be repeated at both Dafnia and Tummina. The private concessions in Misuratino appear to be in better circumstances than the demographic farms if only because they are supported by capital from metropolitan Italy. Nevertheless, production from these private concessions will remain steady or declining until their future is decided by the Libyan Government.

B. What is the future of the ex-Italian Farms?

The future of the Italian demographic farms which have been allotted to Libyans under the Italio-Libyan Accord depends entirely upon the rate of economic growth in the Arab sector of agricultural production. Experience in Cyrenaica shows that the lands reclaimed by the Italians will revert to their original status where the level of the local farming economy has remained static, or predominantly traditional in character.(82) The lesson to be learnt from the post-war efforts to re-populate the Italian settlements in Cyrenaica is that the local populace cannot be integrated into a demographic economy; rather the settlements have to be integrated into the local economy. In the case of the Jebel Akhdar this has implied a complete deterioration in the standard of production of Italian days to a present level of semi-nomadic cropping for self-sufficiency. Many of the farmhouses in the Eastern Jebel Akhdar are in use as byres for the stock belonging to the semi-nomads who occupy the unit, whilst the nomads themselves live in their tents close by. In the Jefara of Tripolitania, where the velocity of economic change has quickened, and the local Arabs are mostly at Phase IV and Phase V, the farmsteads can be integrated readily into the indigenous economy without loss of productive capacity. Hence Government schemes for re-settlement of the ex-Italian farms must of necessity be linked closely to the standard of economic growth visible in the tribes occupying the territory.

There are two features of importance apparent in Misuratino, to indicate the pattern, which will emerge in the area in respect to the ex-Italian settlements. In the first place, we may take the cases at Kararim where farms on the estate have actually been occupied by Arabs since the departure of the Italian settlers. During the writer's visits to the estate in 1958, 59 and 60 there was opportunity to see at ground level the salient features of Arab farming in the area. There are no official figures available on this subject, but a reasonable estimate of the Arab population of Kararim could be put at about 20 families. Not all of the farms were occupied continuously, and in many cases it was difficult to say whether a farm was used for settlement or for storage and stock. However, the significant point evident in the farms occupied by Arabs at Kararim was that the standard of farming was at Phase II. The only exception to this general level was found in the farm vacated by the last Italian family to leave the estate, where an Arab cultivator had taken over from his ex-employer; here cultivation continued at Phase IV.

The second factor relating to the future of the demographic estates is to be found in analysis of the problems affecting the Wadi Caam Reclamation and Settlement Project. The writer visited the Project frequently during the 1958-59 and 1960 field tours in Libya and was able to build up a reasonably detailed conception of the problems arising from the settlement. In this present context we shall discuss the environmental problems of the

estate and secondly the social and economic difficulties encountered on the Project, in order to assess relative strength of the new Arab community especially in respect to the question of re-settlement of the ex-Italian farms.

The environment - Wadi Caam Reclamation and Settlement Project.

The settlement area is situated in the coastal plain of Misuratino, 141 kilometres east of Tripoli along the main Benghazi road. Sited between the Wadis Gau-Gau and Caam, the estate lies at a point north of the main road at the eastern extremity of the Sahel El-Ahamed (Vide Figure 23). Climatically, the region of the Sahel-Zliten littoral lies well within the coastal maritime zone of the Fantoli classification.(2) Precipitation for the decade 1930-39 averaged 232.6 millimetres per annum, with the critical rains distributed from November to February. High summer temperatures are ameliorated by proximity to the sea. Here, relative humidity, as we have remarked before in consideration of Oasis Misurata, varies from the Mediterranean norm, with low winter, and high summer values. Variability of rainfall, significant annual and diurnal ranges of temperature, and incidence of Ghibli carry potential hazards to all farming activities to the same extent that we found on all the Italian farms.

The main textural classes of the soil are wind blown and wadi-deposited sandy loams and loamy sands. There are marked variations in soil texture on the margins of the estate, which require specialised land use and management (Vide Figure 22). The periphery salt marsh near the mouth of the wadi is such an

example, and suitable irrigation methods of flushing and light irrigations are needed to prevent the land becoming infertile. As we have seen, geometrical land divisions amongst the farmers has much to recommend it. But, both on the Italian demographic farms, and on the Wadi Caam Project this system suffers from the disadvantage that flexibility of land management is difficult for those farmers whose plots contain saline-impregnated soils, or whose farms are in danger of dune encroachment. In a new scheme of land settlement, it has been difficult to contain the tendency of the farmers operating on the poorer lands from exhaustive cash cropping. The farmers see little reason why their returns must be kept low as a result of restricted yields imposed by the management. Nevertheless, discriminating management under central control of the poorly structured soils offers the best solution to this problem.

Other serious environmental problems to be faced are the dangers from erosion and flood. The Wadi Gau-Gau has undergone considerable changes of regime in the last two decades. It is possible that recent destruction of the esparto crop in the upper catchment basin has been the main factor in this alteration of regime. Heavy deposition on the flood plain has left areas of fine silts which are interspersed with eroded areas of subsoil and bed rock. The Gau-Gau shows signs of an incipient change of course, and movement of the surface deposits may be expected through scouring action. Difficulties of wadi control and the presence of poor soils in the Wadi Gau-Gau flood-plain has

delayed improvement of the north-western sector.

Irrigation water has been made available from the natural spring in the bed of the Wadi Caam, which is known through its use in Roman times as a supply for Leptis Magna, and at the present day for the fact that the spring waters feed the only permanently flowing river in Libya to reach the sea. The source of the spring is the ground water out-flow of the Caam-Tarreglat drainage basin through a subsistence fracture in the crustal plate (croûte or calcrete). A possible supplementary source is the seepage flow from the Zliten oasis area to the east.

Initial Development.

As a preliminary step in the founding of the settlement, reclamation was necessary. Although fills and cuts up to 30 centimetres were undertaken, heavy levelling was not necessary. The basic costs of the engineering work was low since the alluvial plain offered no massive obstacles such as dune formations or large sebkha intrusions. At the Italian demographic estates such as Tummina and Kararim, major works were far more costly; development expenses at Tummina averaged £2,500 per farm unit, whilst the corresponding costs at Caam average out at £400-500 per farm unit.

To obtain a working idea of the problems involved before the main agricultural settlement began, in the spring of 1955, a small pilot farm was opened. Early reports from this farm confirmed that there were no major difficulties to overcome. In 1956 the larger works on the whole scheme were begun. To

provide a background for future development the experimental farm has been maintained as a permanent institution.

It was expected that accrued benefits from the scheme at Wadi Caam would be both in the social and the economic sphere, hence it was felt by the community advisers that the eventual owners of the farms should engage in the work from the outset. In this way, mutual help would be encouraged and social consciousness developed within the community. This differed sharply from the system of settlement employed by Ente at Tummina, Kararim and Dafnia, whereby every part of the live and dead stock was constructed before the arrival of the settlers. On the Italian farms, colonisation was merely a matter of physical occupation.

Since the Wadi Caam Project lies along the borders of the Districts of Homs and Zliten, these districts were called upon to nominate half of the total labour force required. This force was limited to 200, all of whom were expected to work on the estate as day labourers during the initial phases of contruction. From the beginning, the emphasis was on self-help; the objective being that the owners of the property should understand the basic principles upon which the project was founded. Furthermore, it was considered desirable that the farmers should be given an incentive to maintain what they themselves had built up. About 50 of the selected 200 labourers were unable to make satisfactory progress and withdrew from the scheme. At the close of the constructional period in 1958, however, only 120 farms had been completed and there was thus an opportunity for further

selection from the 150 labourers who remained.

The problem of Adaption (i)

Throughout the constructional and experimental period, the salient question remained - at what level of development could the settlers, who were chosen largely from groups who operated at Phase II and III reasonably be expected to commence farming ? In the case of those members of the settlement who were landless labourers before selection the problem of adaptability is even more acute. Even in those early days of development, it was apparent that many of the Arabs were badly equipped both mentally and physically for the discharge of the duties of ownership. In consequence, the Community Development Officer and the Commissioners of the districts concerned decided that no further farms should be built. Thus intensive supervision of a limited number of farmers would allow a close scrutiny of individuals who could thus be helped master the problems of transition.

By early 1958, 270 hectares had been brought into direct use. Each farm had two irrigated plots, each of one hectare gross. Traditional two-roomed houses were constructed for each of the farmers. They were built of simple materials of local origin and designed so as to be easily maintained.

(ii) The farmers were trained to farm on the local rotation of alfalfa, groundnuts, barley and wheat, and were also expected to grow vegetables for domestic consumption. The settlers on the Wadi Caam Project were accustomed to the traditional suani ground-plan and the dalu system of water supply, hence it took

some time for them to become conversant with the intricacies of rationalised gravity irrigation, and production from large, open cultivable plots. From a comparison of the superficial ground-plan of the traditional oases and the new estate, it may be realised how immense was the break between the old and the new systems. (Figure 38)

(iii) We have dealt with the problems arising from Moslem Land Law in an earlier chapter. It is relevant to re-state at this point that since the farmers are scheduled to become owners of the land after twenty years, the vexatious question of Moslem inheritance laws will undoubtedly become an important problem. In Moslem Land Law, a personal estate, however small, may be left to any number of people. The general rule in Misuratino tends to limit division to the inner family, i.e. the wife, sons and daughters of the deceased. Even with this narrow range, fragmentation of agricultural holdings becomes well-marked after one or two generations of occupation. Some effects of the trend in personal estate generated by Islamic law are illustrated in Figure 39, which shows fragmentation of the first degree only. Carried to the stage of multiple ownership, the unit of inherited land becomes infinitesimal. No special laws have been prepared to prevent land division in the Wadi Caam Project and it may be expected that the field plan will lose its present rational pattern in a single generation.

The allocation of two hectares per farm was agreed by the USOM advisers as representing the optimum for irrigated farming.

Fragmentation of the plots amongst the heirs of the farmers will make the settlement unmanageable from an economic point of view. In fact, the farmers on Caam Estate on fragmented holdings would be worse off than their counterparts in the oasis. They would have to support an expensive irrigation system, but would not be able to produce enough cash crops to pay for its maintenance.

(iv) A particular problem of adaption encountered at the Wadi Caam Project is that of marketing commercial cash crops. Marketing prospects for vegetable crops are good, since urban demand from the European population in Tripoli is increasing in volume. Experience on the project is still in the experimental stage and activity was limited to a selected number of farmers when the writer visited the estate in 1960. The present formula for extension is (a) complete intensive nursery trials of the crops under consideration,

(b) select the better farmers on the project and encourage them to include vegetables in their rotation,

(c) give close supervision to the farmers at all stages of growth.

Recruitment for the new venture was undertaken by the horticultural adviser, Walter Giachis, who selected the best farmers from those who could be persuaded to volunteer for the scheme. There was a great reluctance on the part of most farmers to take part in anything new and unsure. The Phase II and III mentality is one which seeks to cover for a farm and household expenses - absolute profit is a minor concern. Out of a total

farm population of 120 farmers, only 13 volunteers came forward for the vegetable scheme. The Arab farmers at the early Phases of economic growth, taken directly from the traditional structure of social and economic organisation in the oases, are very conservative and accept the oasis formalisms as the only methods which are possible. In a climate of virtual self-sufficiency, many of the farmers seek merely to exist and will risk nothing which might damage their precarious position. The crux of the problem at Wadi Caam is that the self-sufficient farmers will be badly affected when the necessity arises for the re-payment of the mortgage and full levy for water use is enforced in five or six years time. They will have had no experience of producing or marketing cash crops, and will be unaccustomed to cost accounting. At the moment, extension work on the estate is based upon the idea that if several of the better farmers are coached to produce commercial crops and are taught the processes of marketing and cost accounting, their neighbours will be keen to reap similar advantages by copying their methods. To convince traditional farmers of the need for reform there is need for proven results - good market returns.

Other factors relevant to the question of production and marketing may be noted in the following importance:-

- (a) Arab farmers tend to over-plant their rows and overcrowd crops such as tomatoes and lettuce. There is a lack of appreciation of the fact that production is not measured in numbers alone.

- (b) Many of the farmers, even the better ones involved in the present marketing trials, have not yet begun to give time and effort to the production of delicate cash crops. Weeding is left over, spraying against insect pests intermittent, and volunteer crops are left to grow amongst the new beds.

Summary - If the Wadi Caam estate is to be a sound economic proposition, production of cash crops, and especially of vegetables in commercial quantities, is essential. The following factors must be regarded as of paramount importance in securing a transition of farmers from Phase II and III to Phase V.

(a) Close supervision of production at all stages.

(b) Gradual education of the attitude of the farmers to develop commercial outlook, market consciousness and a working knowledge of cost accounting.

(c) Establishment of confidence in produce from Caam at the Homs and Tripoli markets, through a system of grading and sorting of qualities of each commodity.

(d) To secure standardised production it will be necessary to improve cropping practise by technical education.

When the estate is handed over to the Libyan Government at the end of 1960, the Project will have passed through the worst of its technical teething problems. All the fixed installations will have been completed and the major environmental problems overcome. The main direction of effort after this date will be on the effective progression of the farmers from traditional to transitional farming. Several case examples of farmers

included in the vegetable project we out-lined above have shown that the farms built at the Wadi Caam Reclamation and Settlement Project can be made to work satisfactorily. Failure has been mainly in human terms. The obvious lesson which has been taught by experience at the Settlement is that enforced transition is difficult, expensive and at times impossible. From an initial population of 120 farmers, 30 may be classified as improved farmers, who have been willing to learn and have worked hard; a further 30 have been marginally successful, lacking only the necessary qualities of drive and hard work; the remaining 60 have proved to be failures in every possible sense.

Experience in Misuratino is closely parallel to that reported in other territories of Libya: integration of peasant farmers from early Phases of growth into a complex commercial economy is a mistake. Commercial estates are best colonised by farmers who have already proved their ability to farm successfully under advanced oasis conditions. This is conclusively proved at the Wadi Caam Project by the fact that the 60 inefficient and backward farmers are to be replaced by more promising candidates from the oases. In the Jefara, the spread of hawaza farming through occupation of ex-Italian farms has become the main channel of economic growth in the indigenous sector of the agricultural economy. Wadi Caam Project has a place in the economy of Misuratino. Many ordinary farmers from the suani farms are leaving the countryside for good. Since production from agriculture must expand if it is to meet

the demands imposed by the expansion of the towns, hawaza farming must be accelerated. This can be achieved rapidly through the medium of estates such as that built up at Wadi Caam.

This survey of the modern Arab development area shows that the lapse of Kararim into a state of disrepair followed naturally as the terrain moved out of the hands of a commercially minded community and into the hands of a traditional society. In proximity to the advanced indigenous oasis of Sahel El-Ahamed, Wadi Caam Project has suffered from a multitude of problems stemming from the differential state of growth between estate and suani. Kararim, situated in the inner steppe where shifting cultivation and livestock herding are still important elements in economic occupance, presents even greater problems than those arising at Wadi Caam. The spread of hawaza farming in the Jefara illustrates that development is not dependent entirely upon the state of tribal advancement in the local area surrounding the estate, hence it cannot be assumed with complete confidence that Kararim will remain as an adjunct to the steppe economy. The following influences apparent in the present situation in Tripolitania tend to suggest that re-settlement of the ex-Italian farms is possible in the near future:-

(A) Urban growth is creating a demand for cash crops and is making the demographic farms profitable in those spheres wherein they are inefficient to-day. Vegetable marketing from the Caam Estate has been expanding, and the profits revealed from this trading have been substantial.

(B) The dynamics of economic growth in Misuratino are creating a larger class of farmers who are interested in commercial production. When a majority of farmers are at Phase IV of development, mass re-colonisation of the estates will be possible without any strain on the rural community. Evidence in the Jefara analysed by Hill[9] and Theodorou[39] indicates that the critical growth between Phase III and Phase IV has occurred there in recent years. The isolation of Misuratino will delay the impact of the forces generating this transition, but it has been shown in earlier examination that these influences have made a first impression upon the area. The time factor between Phase III and Phase IV is subject to many variables, but it may be expected that the next five years will see most farmers in Misuratino reaching the Phases of commercial production.

(C) We have seen in a preceding section how the increasing forces of growth have tended to express themselves through expansion of irrigated land. In the case of Zavia Oasis, expansion of irrigated land was an index of development into Phases IV and V. In Misuratino, the limited potential of the water resources in the oases will force the Arab farmers to look to new areas. Since the demographic estates in the region occupy the best lands of the steppe periphery, and are also well situated to exploit the artesian waters of the area, they will offer the easiest line of expansion when the demand for

irrigated land over-reaches the resources of the oases.[*]

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[*] 1. Further evidence of the trend is provided by a report in the local English language newspaper 'Sunday Ghibli' of 13th November 1960. 260 Arab farmers have applied to purchase ex-Italian demographic farms through the Agricultural Bank. Approved at a cost of £L234,000 with loan for three years.

2. In the closing months of 1960 it was announced that a total of £L1,000,000 will be made available for the purchase of ex-Italian farms. Loans will be made over a ten year period at 2% interest from the Agricultural Bank.

PART ONE - (3) Agricultural Production and Urban Growth

(A) Present-day Production per Caput

Production from agriculture has been increasing steadily since the turn of the century. The two main elements in this increase, as we have seen are the indigenous revolution and the corresponding Italian colonial activity. The increase has been marked by fluctuations resulting from climatic variation from one year to another and by changes in the economic and political situation prevailing in Libya since the Italian occupation in 1913. In the period before independence, production from agriculture declined slightly in Tripolitania during the Italio-Sanusi wars, and was affected adversely by the hostilities during the second World War. Nevertheless, these difficulties represent only temporary set-backs in an over-all process of growth in both sectors. The two major reports on the state of productivity in Libya published by the UN in 1952 were pessimistic about the rate of production and per capita consumption of food-stuffs. "Even though Libya is predominantly agricultural, it is hardly able to afford an adequate diet for its own people"(79). At that time, the U.N. bodies in Libya failed to appreciate that an internal revolution was taking place in indigenous society. The apparent picture of the territory in 1951/2 which faced most of the newly recruited staff of the UN agencies was that of a self-sufficient country on the verge of collapse.

At that time, the social structure of the area had been disrupted by the activities of the Italians and by the very

forces of social growth in the rural areas. Unfortunately large scale contructional work which had attracted many Arabs into the Italian development schemes as labourers had been terminated, trade between Italy and Tripolitania which had supported the small industries of the towns was limited in volume and erratic in nature, and the lavish spending by successive armies passing through the littoral had fallen off considerably, as the garrisons were reduced. During the years of prosperity, when the Italian recruitment of local labour was at its height, and whilst the military situation demanded labour Tripoli and some of the smaller garrisons such as Sabrata and Homs had acted as magnets to the rural Arabs, who had been drawn to the towns in search of high-paid employment. This process resulted in a large preponderance in the towns of Arabs detached from their tribal roots. Tripoli itself showed an increase in population from 107,000 in 1938 to 120,000 in 1947. The British Military Authority was confined to a policy of care and maintenance in the period up to 1951, hence it was unable to provide employment for all the inflated urban population. Considerable unemployment resulted from this situation, and when independence was granted to Libya in 1951 the Libyan administration and the UN advisory bodies were presented with the problem of wide-spread public relief.

In fact, the increasing degree of rural de-population and the parallel expansion of the towns was a symptom of economic growth within the community, and although it meant a certain

degree of hardship for many people in the towns, the movement was part of a necessary mechanism which has been experienced in most countries which have developed beyond traditional society.

The food supply of the Libyan people in 1951 was restricted in amount and variety. Theodorou estimated that the average daily consumption per head of cereals was about 300 grammes; this average naturally was a variable depending upon the incidence of drought; it also has the disadvantage of hiding substantial differences in diet between the higher and lower income groups(39). The sugar ration was 27 grammes per person per day, whilst olive oil was estimated at about 10 grammes per day.

Estimates for date consumption in 1951 are unreliable, but it would seem that an average of 45-50 grammes per day represents a reasonable average per head. Taking into account the large numbers of livestock recorded in Tripolitania, consumption of meat and dairy products is relatively low. In 1951, Government statistics suggest that 20 grammes per day is a safe average estimation of per capita consumption for meat, whilst milk and other dairy products averaged at 100 grammes per head.

We may point out, on the basis of the data discussed in the earlier pages of this chapter, that the U.N. officials took too grim a view of the state of Tripolitanian agriculture, and failed to see that many of the causes they listed as contributing to the depressed nature of indigenous agriculture were symptomatic of economic change for the better.

Since 1951 there has been a general fruition of many of the component elements of economic growth, and an increase in

production from the Italian sector as the olive plantations have reached maturity and as concessionaires have found remunerative outlets in the export market. The trend in Misuratino is working with a five-six year time lapse compared with the Jefara, but the results as far as they affect total production are exactly comparable with the former area. There are several notable changes in the diet of the people in Tripolitania from 1951 when the U.N. first undertook analysis of the situation. In the following paragraphs we shall summarise the findings of the 1957/58 dietary survey carried out by FAO in the area, further statistical data relevant to the surveys of 1951 and 1958 is to be found in Appendix 5(83).

In 1957/8 cereal consumption per head averaged about 400 grammes; but there were large variations in consumption between European and higher paid Arab groups and lower paid Arab classes. Sugar consumption in Tripolitania was 16 to 45 grammes per capita per day, again depending upon the income of the family. Pepper consumption in both the towns and the rural areas was high, with the average consumption per head running between 10-20 grammes per day of fresh pepper and 7 to 12 grammes per day of dried peppers. Other vegetables of importance were onions, which were consumed on average at 20-30 grammes per capita per day, and tomatoes at 10 grammes fresh when they were available and 10 grammes dried. Date production remained steady from 1951, and if anything declined slightly since dates are consumed less by urban peoples and there was a larger increase in urban population than in the rural. In the oases

areas 170 grammes per day was consumed on average.

Meat consumption was closely allied to the total livestock production of the territory. In Tripolitania the average daily per capita consumption was about 18 - 22 grammes, although with this commodity there was a great variation in consumption between different ethnic and income groups. Consumption of fresh milk or the local leben (fermented milk) amounted to 5 to 10 grammes per day for each person in the urban areas and in the oases. Semi-nomadic tribes showed divergence on this point, since they consume as much as 40-50 grammes per capita per day of fresh and fermented milk. Consumption increases in all areas during the spring when the flocks are pastured on the rich perennial grasses. During this period, consumption is estimated at 250 grammes of leben.

Vegetable fats comprise an important element in the diet of most Libyan families, varying from an average daily consumption of 20 grammes per head in the middle income group to about 11 grammes in the lower income groups.

The salient feature of dietary standards in Tripolitania is a marked increase in the quantity and quality of the foods available. Both FAO and WHO have shown that there is a deficiency in the diet of the urban lower-paid workers arising from the cost of foodstuffs and the small range of foods available from the agricultural sector of the economy. Whilst we would not seek to under-estimate the present failings in production from agriculture, it must be stated that Tripolitania is free of many of the deficiency diseases which are prevalent

in Egypt and other Middle Eastern countries, and that the price of foodstuffs is not sufficiently high to cause conditions of virtual starvation which are visible in Morocco and Tunisia amongst lower-paid urban workers. As we shall see later in consideration of standards of living in Tripolitania, the wages of urban workers are rising at a rate greater than the increase in the cost of living. The trend towards urban growth and rural de-population cannot be achieved without some strain in both the urban and rural sectors of the economy; we have seen that the forces of economic growth in rural areas are bringing about a revolution in production as farmers emerge from traditional to transitional commercial economies.

(B) Exports and imports of agricultural produce

The present situation with regard to the balance between the exports and imports into Libya is that there has been an increasing trading deficit during the first eight years after the achievement of independence, and there is every likelihood of a further increase for 1959. The total value of foreign trade is low, but has been increasing since 1951 quite apart from income derived from grants in aid. The bulk of the deficit arising from the trade figures (Table 79) may be accounted to those imports made necessary by the presence of large numbers of aliens, and particularly the recent expansion in the numbers of oil company staff in the province. Nevertheless, even after allowing for the imports directed to this specialised section of the community, there remains a significant deficit in net trading. We shall suggest the causes

behind the tremendous rise in imports in a later part of this chapter; in the present context it is relevant to note that the trade gap has been filled by foreign aid in most years, whilst there is a growing possibility that the gap will be completely closed in years to come by exports of oil and associated products. The recently appointed Government of 1961 has set its main aim as the restoration of the balance of payments for the year 1960/61.

Table 79 - Volume of Trade through Tripoli Port 1952/59.

	Imports	Exports	Imports/exports
1952	100	100	100
1953	120	77	156
1954	123	101	123
1955	173	104	165
1956	196	100	196
1957	208	98	212
1958	238	128	186
1959	316	84	367

Monthly returns Port Manager Tripoli, 1952 - 100 index

Assessment of the importance of agricultural produce in the over-seas trading of Tripolitania further illustrates the present day ability of the agricultural economy of the country to feed the population either through direct provision of foodstuffs or by export of high priced specialities such as groundnuts and citrus which cover the costs of importing grains.(Vide Table 80). Trends in the export of each individual crop show the expansion of production in the agricultural sector and the importance of agricultural exports in relation to total exports from Tripolitania.

Table 80 - Export of Agricultural Produce 1957/59.

		1957
Groundnuts	£L	847,228
Citrus		59,995
Almonds		64,516
Olive Oil		1,170,628
Sansa Oil		146,407
Potatoes		76,648
Tobacco		29,474
Castor Oil		-
Veg. etc.		12,677
Total		2,627,585

This balance of exports must be evaluated in terms of agricultural imports and against the total imports of the Province, since agriculture accounts for 74% of exports and at the moment must pay for both import of other foodstuffs and the other imports, especially of machinery and automobiles.

Civil imports and exports of Foodstuffs 1956-59 in £L'000s.

	1956		1957		1958	
	Imports	Exports	Imports	Exports	Imports	Exports
Jan.	419	51	952	39	360	53
Feb.	415	101	469	39	364	102
Mar.	526	117	411	51	410	68
Apr.	371	106	493	64	494	63
May	271	111	361	51	350	171
Jun	216	129	350	69	247	180
Jul.	180	90	340	69		
Aug.	310	108	459	92		
Sep.	345	90	497	59		
Oct.	606	34	496	36		
Nov.	544	61	431	30		
Dec.	448	28	582	35		
TOTAL	4,651	1,026	5,841	635		

	1959	
	Imports	Exports
Jan.	373	142
Feb.	522	145
Mar.	386	50

The figures listed in the preceding table illustrate the

trends apparent in the export and import of agricultural goods. The agricultural year 1959/60 showed several interesting indications of the way in which agricultural effort will be directed in the coming years. Of significance is the fact that barley production showed a downward trend in those areas of hawaza and private concession settlement and the crop was replaced by potatoes and tomatoes which were mainly exported. Other cash crops continued to dominate the export list, with groundnuts recording another high export of 9,724 M/ts compared with the previous season's 9,376 M/ts. Citrus fruit export suffered a slight recession although exports increased by 300 tons to 4,037 M/ts, since the increased production from young trees reaching maturity could not be sold. The over-production of citrus is reflected in the price slump at the end of the season, when the price of oranges fell from £L35 to £L15 per ton. Olive production fluctuated from the previous high level of £L 1,170.628 in 1957 and 1958 and in consequence exports of this commodity fell off sharply.

There is a widening gap between export production from agriculture and the import of foreign grown produce which may be ascribed to the following factors:-

(a) The increasing European population in Tripoli, which tends to buy goods to which it is accustomed, especially in food-stuffs. Growth of super-markets.

(b) The effect of these European standards upon the better paid local inhabitants who have tended in many cases to adopt these European tastes.

(c) The lack of confidence in local produce by the alien element. This has been mentioned previously in respect to Wadi Caam Settlement, when it was pointed out that current

improvements in marketing by the agriculturalists is resulting in a growing urban market for these goods.

(d) The fact that oil exploration has brought in a large invisible income in the past two years(£L5,600,000 in 1956 to £L 14,400,000 in 1958) has led the Government to be lax about imports of luxury foods; e.g. the only severe governmental control over imports has been the prohibition of tomato paste imports to protect the new local industry.

Nevertheless, it may be suggested from these figures and the data analysed earlier in the chapter, that the productive capacity of the agricultural sector is expanding in terms of exports. The present trend for increased exports of specialised items such as citrus and groundnuts is bringing in a sizeable income and establishing a firm footing in world markets. We have discussed the limitations of the environment in Tripolitania and it is evident that production for Tripolitanian markets alone with a view to self-sufficiency would be impossible without a substantial rise in the cost of living. It would seem a wise policy -

- to maintain an enterprising export policy on the basis of the established markets won during the last decade;
- to encourage more commercial marketing in Libya by the methods exemplified at Wadi Caam Project;
- to trim down imports for the European market in Libya especially of those products which are available in the country;

The component elements of this policy dove-tail together and have the major advantage of adaptability; i.e. the relative emphasis of import control and encouragement of local commercial cropping could be made to synchronise with the gradual maturing process of the transitional Phase of growth.

SUMMARY

We have seen that production of agricultural crops is increasing rapidly in the indigenous sector of the economy. In Misuratino, the balance of economic growth is moving slowly from the traditional to the transitional with a corresponding rationalisation of social structure, land tenure and commercial cropping. At the present day, there are only avant-guarde farmers who represent fully transitional farming, but we have seen that development in the oases is under-way and that once the thresh-hold to commercial production is crossed then the under-utilised potential of the ex-Italian estates, Wadi Caam Project and Nahima could be readily integrated into the local economy. Hawasa farming is becoming increasingly the means of Phase V production in Tripolitania and may be expected to be the ultimate farm unit in Misuratino under transitional farming. The dynamics of growth have been operating in Misuratino at least since the turn of the last century although this fact was apparently ignored by the Italians and the modern development agencies. From the writer's studies in the oases of the littoral a more or less consistent mechanism of growth emerges from a traditional pastoralism, through intervening phases of sedentarisation, to a framework of commercial production based on irrigation and cost accounting from consolidated farm units. Production during the period of growth varies in quantity, quality and variety depending upon Phase, i.e. the degree of self-sufficiency governing farm activity. For purposes of future projection of production in

Misuratino, the writer's experience shows that development in the Jefara relative to that in Misuratino tends to be at least five years ahead at all levels. Thus techniques of marketing and cultivation which have only recently penetrated to Misuratino have been used by hawaza farms in the Jefara for at least five years; e.g. sprinkler irrigation, motor driven pumps and rotorvator ploughing. By the mid-sixties therefore, with the exception of culturally resistant areas such as the eastern sectors of Misurata Oasis, it may be expected with some certainty that the majority of farms in the Misuratino will have reached Phase IV, and there will be a substantial number of advanced operators at Phase V, particularly on Wadi Caam, in the Sahel El-Ahamed, and possibly on the ex-Italian estates.

Will the farms of Misuratino be able to support urban growth along with the other commercial farming areas of Tripolitania? Since there are no large colonies of European civilians in Misuratino itself, there is no evidence to show that the agricultural hinterland will not be able to keep pace with the growth of urban demand for foodstuffs. In fact, even at the present day, one of the greatest factors limiting the activities of agriculture in the area is the lack of a strong local urban demand. Hence it is likely that Misuratino will contribute larger and larger proportions to the total agricultural out-put of Tripolitania.

We shall discuss the rising urban standard of living in the following section of this chapter; it is relevant to note

here, that agricultural developments in the last decade have doubled the value of farming activity. In normal circumstances, the increases from agriculture would have provided satisfactory living standards for the small population of the territory, since the index of exports of agricultural produce has shown an erratic but over-all increase since 1950. The occurrence of the oil boom, manifested in the first place by the exploration activity in the province, and lately by initial exploitation of the oil resources, has led to a large de-valuation in the part played by agriculture. Imports have increased to maintain the European communities at a European standard of living, and local standards of living, evaluated in terms of bare self-sufficiency by the B.M.A. in 1945 and by F.A.O. in 1951, have risen tremendously in the past five years. Naturally, in these circumstances, the part played by the agricultural sector of the economy must be re-cast, bearing in mind that the original premise 'that this sector must feed the urban population' will ultimately be as pertinent as it was before the oil boom. We have suggested several inter-related recommendations for agricultural policy incorporating a vigorous export of produce, encouragement of commercial production for internal consumption and tariff protection against excess importation of foreign goods where a local substitute is available. It is probable that the first two points will develop with or without Government help, but administrative interest in education, agricultural extension and rural investment would facilitate the dynamics of the growth process

growth process.

PART TWO - To what extent may it be expected that the Agricultural Sector of the Economy will be a Source of Taxation and Loanable Funds ?

(1) Farming and the National Product.

In this section we shall undertake an appraisal of income in Misuratino in respect to the national economy as a whole and especially in respect to development in the past decade during the oil 'boom'.

The latest figures available which indicate with accuracy the National product of Libya, are those presented in the Nation Income Estimates for 1958, published by the Ministry of the National Economy. In this estimate £L52,110,000 is suggested as the total at factor cost. Of this total, 26% is accounted for by agriculture, forestry and fishing. This represents the factor cost out-put of 72% of the population registered as employed in Libya, and illustrates the extent to which the basic industrial occupation is under-developed. Investment by the Italian administration before World War II, and by the development agencies in the post-war period has proceeded at the rate shown in Table 81. Much of the Italian investment in olive trees and other slowly remunerating agricultural over-heads has now begun to give returns in all areas, hence the present total percentage of national income reflects in large part increases in the Italian sector of the agricultural economy.

Under the stresses of economic growth in the oases, there has been a discernable drift from the land to the towns. Under these circumstances it appears likely that percentage employment

in the group will decline in the next five years, but it is also apparent that the total product of the agricultural sector will increase at a rate commensurate with the emergence of farmers into the phases of commercial production. This decline in rural population will be more than compensated for by the absolute increases in production from the land and by the absorption of the rural peoples into industrial and allied occupations in the towns. The fact remains, however, that Libya will be faced with a relatively declining proportional production from agriculture which might possibly develop into an absolute decline should urban attraction continue at its present high rate. As we pointed out in the previous section, this is not likely.

Declining rural population and large increases in urban growth are common features to most early developing economies. Libya has shown characteristics which give just cause for alarm. Since the grant of independence, the greater part of the money coming into Libya has been in the form of aid finance. In the financial year 1959-60, for example, of a total Government revenue of £L13,400,000, some £L6,900,000 is estimated to be drawn from foreign aid sources. In the same year a further feature became apparent in the financial situation which gave more accentuated disproportion to the economy; income from oil company activity is reported as follows(84):-

	1956	1957	1958	1959	1960	
£L8,000,000	4.5	13.5	24.0	30.0	55.0	(estimate)

A significant part of this capital has been absorbed into the

economy at all levels. In the past three years especially, the rural to urban drift of population has been a direct response to the influx of capital to the cities. In considering trends in personal income in Tripolitania later in this Part of the chapter, it will be shown how inflationary influences have set in during recent years. For present purposes it is germane to note that the Arab lower paid budget in Tripolitania has increased from a base level of 100 in January 1955 to 114 in January 1959, and in the December of 1959 had reached 124. Increased level of wages and demand for goods and services in the urban areas are dependent entirely upon the capital released into circulation by the aid grants and by the purchases and invisible payments of the oil companies. At the time of writing, there is little to suggest that the quantities of oil discovered in Libya will provide a source of national income equal to the demands implied by the consumption habits and social structure which have evolved rapidly during the exploratory stage of oil investigations. In the past three years most people in Tripolitania have come to believe that oil will be exploited immediately and for a long period; current trends in social and material habits are based at the moment entirely upon the expectation of income rather than upon real income already in hand.

The mechanism of growth in the indigenous economy is underway and the preliminary results of the changes since 1951 appear to have been beneficial to agricultural production. It is a wide-spread fear amongst the more responsible officials of the

foreign and U.N. agencies that agricultural improvement might fall away under prolonged impact with a booming economy, and that an absolute decline in production from rural areas might come about. This fear rests on the fact that there is at present little domestic capital to take up the employment 'slack' created by the depopulation of the rural areas. Thus, should the oil 'bubble' burst, Tripolitania and its component areas would be faced with a critical economic position. Many schemes for agricultural development have emerged since the grant of independence, but as yet only Wadi Caam Reclamation Project has been constructed, which scarcely compares with the imaginative development plans operating in Israel, Iraq and the neighbouring countries of the Maghreb. Later in the chapter we shall suggest the ways and means of integrating the existing agricultural estates and possible new improvement areas into the mechanism of indigenous growth by use of the oil capital and an education programme. Such a plan will be necessary whether or not oil is ultimately exploited, since the internal changes in the economic structure of rural areas precludes a reversal to the status quo as it existed before the oil 'boom' began, and in any case, oil revenue will not be a permanent feature of the economy.(89) It is within these terms of an inflationary economy and a rapidly changing urban/rural social structure, that the following account of trends in personal income must be based.

(2) Distribution of Income and Trends in Personal Income in Misuratino.

Assessment of personal income in Tripolitania is made

difficult by the immature development of the economy and the lack of accurate official information. Much of the base material used in the following discussion is drawn from observations made by the writer in Libya, and also from information derived from a Questionnaire Survey in the Spring of 1960.

In 1951, at the time that independent status was accorded to Libya, most indigenous peoples were located in rural areas, and were members of self-sufficient economic units closely associated with a tribal structure of society. Tribal labour and institutions provided for most of the basic needs of life. Markets were used for local exchange and barter and for the distribution of luxury goods imported from abroad. These luxury goods were confined largely to tea, sugar and basic clothing materials. In this self-sufficient economy, personal income was of small importance.

Table 81 - The Economically Active Population Classified by Locality.

Locality	Establishments		Persons Employed	
	Number	%	Number	%
Tripoli	6,751	49.3	41,157	60.8
Garian	195	1.4	846	1.2
Homs	210	1.5	870	1.3
Jefren	97	0.7	231	0.3
Misurata	715	5.2	1,609	2.4
Nalut	94	0.7	217	0.3
Sirte	140	1.0	407	0.6
Suk El Giuma	99	0.7	453	0.7
Tagiura	132	1.0	239	0.3
Tarhuna	181	1.3	394	0.6
Zavia	127	0.9	488	0.7
Zliten	4.7	3.1	654	1.0
Zuara	132	1.0	332	0.5
All Urban areas in Tripolitania	9,290	67.8	47,897	70.7

Table 81 (continued)

Locality	Establishments Number	Establishments %	Persons Employed Number	Persons Employed %
Benghazi	2,920	21.3	13,728	20.3
Agedabia	161	1.2	467	0.7
Barce	403	3.0	1,592	2.3
Beida	107	0.8	447	0.7
Derna	553	4.0	2,167	3.2
Tobruk	256	1.9	1,406	2.1
All Urban areas in Cyrenaica	4,400	32.2	19,807	29.3
All Urban areas in LIBYA	13,690	100.0	67,704	100.0

Source:- Census of Employment and Production 1956. Ministry of the National Economy.

In 1951, there were few occupations open to Libyans outside agriculture or public administration at the lower levels. In this setting, wages for agricultural workers were small, amounting to one shilling or one shilling and sixpence per day equivalent. Skilled agricultural labourers were paid more; up to three shillings equivalent per day. Administrative workers at lower grades received slightly over a pound a week. Since 1951, there have been basic changes in the structure of wages affecting large numbers of Libyans. The operations of the oil companies have expanded manyfold and there has been considerable employment of local labour at most levels of company organisation within Libya. The traditional picture of the Arab fellahin in Libya has changed irrevocably in the last decade: the present day Arab is increasingly an urban industrial worker in Tripolitania as a whole, and in Misuratino more than most areas of the province outside the inner Jefara.

The labour shortages following the second World War offered the Arab his first opportunity to become a semi-skilled worker, an important improvement in his status from the menial jobs which he had held previously. A second major contributary factor in the process was the 'Libyanisation' of the public administration after 1951, which allowed, in fact, more openings for Arabs in white-collar occupations than there were applications to fill the posts.(85) The employment of Arabs in administration now shows an 80% increase over the corresponding total for 1940, and a 50% increase over the number employed at the close of the B.M.A. (Vide Table 82).

Table 82 - Personnel Employed by the B.M.A. - January 1947.

Italian Civil Servants	Italian	665
	Arab	511
Civilians U.K. - Based		147
Locally Engaged (Excluding casual labour)		1,120

Source - Handbook on Tripolitania, B.M.A. April 1947.(48)

In the period of independence additional monies have been made available to the Libyan Government in the form of rent payments provided for in the Libyan-American and Anglo-Libyan Treaties of friendship. These have included payments for bases and the rights to training areas for military purposes.(89) Aid grants and development agency activities have also resulted in the creation of more employment opportunities for Arabs. Responding to this influx of foreign capital, the structure of wages amongst the indigenous Libyans showed increased vertical cleavage.

The benefits accrued from the operation of foreign agencies and the expansion of Government services have largely, but not absolutely, been confined to the urban areas. The economic supremacy of Tripoli in respect to employment openings is indicated by the figures contained in Table 81. More than 80% of the persons employed in urban areas are located in Tripoli and Benghazi. Misurata accounts for approximately 2-3% of the actively employed population of Libya.

Table 83 - Structure of the Economically Active Population by Area, and Status in Libya 1956.

Status	Tripolitania		Libya
	Tripoli	Other urban units	
Self employed	6,560	2,297	12,896
Males	6,338	2,283	12,651
Females	222	14	245
Salaried Employees and Wage Earners	33,590	4,291	53,295
Males	31,631	4,155	50,583
Females	1,959	156	2,712
Unpaid Workers	1,007	152	1,513
Males	957	141	1,449
Females	50	11	64
Total	41,157	6,740	67,704

Source:- Census of Employment and Production 1956.

In Tripoli City, the average number of persons employed per establishment is 6.1. The average for the whole of the United Kingdom of Libya is 5. These figures further illustrate the economic differences between the capital and the provinces. In Tripoli and in Benghazi to a lesser extent, organised administrative, trade and industrial concerns are the normal units of employment. In the Provinces of Tripolitania, and in Misuratino

in particular, small workshops dominate the urban employment returns. Misurata Citta alone in the provinces shows characteristics typical of the small factory unit rather than the family workshop unit.

From this analysis of employment distribution and the nature of employing units two essential factors emerge. In order of importance these are:-

(a) In Misuratino, Misrata represents the largest sector of the industrially productive population.

(b) Other towns and villages display characteristics which show no signs of developing into true urban units. The urban classification according to the suks outside Misurata is purely a relative term applicable in Misuratino. The towns in this category are more integral parts of the rural economy than extensions of the urban complex.

The structure of the economically active population shown in Table 83 indicates the distribution of the workers in terms of sex and status. Of the 67,704 persons gainfully employed, 19% were employers and workers on their own account, 79% were salaried employees and wage earners and 2% were unpaid workers. These figures are for Libya as a whole. A significant point arising from the structure of employment is that male workers represent 96% of the economically active population and dominate the industrial economy in urban areas. Of the 3,021 females employed in urban areas in Libya, 74% were employed in Tripoli and 13% were employed in Benghazi. Misurata has a high employment rate for females in industrial activities (10%) which is a direct result of the predominant position held by the carpet manufacturing concerns in the town. Homs and Zliten, by contrast, have only

small numbers occupied in industrial pursuits, and are more typical of the rural centres of Libya. The differences between the capital cities and the remainder of the urban units except for Misurata arises through the existence of alien communities and missions in Tripoli and Benghazi which employ females of foreign extraction. Indigenous females are culturally and economically unemancipated, although it is possible that female employment will spread as the present labour shortage becomes acute. At present, Misurata, with extensive carpet crafts is typical of provincial Libya as a whole in respect to female employment, for there are few places in the Islamic World where women are so completely excluded from economic activity as they are in Libya. Local and traditional prejudice is strongly against emancipation, and unless there is any radical change in the governing authority, no alternative in the social structure may be expected. Thus, almost half of the population of Libya must be considered as outside the scope of normal economic operations.

Wage levels for persons employed in urban occupations have risen sharply in all sectors since 1951. The distribution of actively employed persons in Libya is shown in the following table:-

Citizen Population by Industry and Sex - U.K. of Libya, 1954.

Industry	Male	Female
Total Population (over 5 years)	463,846	424,119
Agric. Forest. Fishing	212,001	11,871
Quarrying and oil Explor.	412	10
Manufacturing	14,390	22,493
Public Services (Gas, etc.)	795	3
Construction	7,157	36
Commerce	16,874	246
Transport and Commun.	7,560	5
Services	76,174	274,433
Unclassified	128,483	115,022

Census of Libya 1954.

The branches of economic activity which have shown greatest increase in salaries and wages are those included under the headings of construction and petroleum prospecting. The rise in wage levels in other industries has tended to follow the competitive standard set by the European and United Nations agencies, although at a slower rate. In the absence of official statistics, sample figures are given in Table 84 to indicate present day wage levels in Tripolitania. The following points emerge from these figures:-

(a) the high scale of wages and salaries paid to educated Libyans working for alien and UN companies and agencies. This has been the main causative factor in the inflation of the indigenous cost of living.

(b) The low average incomes prevailing in other occupations, particularly agriculture, which accounts for the greater part of the actively employed population in Misuratino.

Table 84 - Gross Average Wages Paid to Selected Groups of Indigenous Population 1951-1959.

Occupation Group	Wage 1951	Wage 1959
Workers in Oil Comps. -		
- Manual		
Drivers		£L40-50 per month
Interprs.		
- Clerks		120-80 " "
Admin. Offs.		
Workers USAF		30-40 " "
Civil Police		
Labourers Urban	£L 4	10 " "
Labourers Rural	£L 3.28	3.60 " "

(c) The retarded response of the wage pattern in rural areas to the increase in average income in the towns. Field evidence suggests that wages in rural areas have increased in recent years. For example, a skilled agricultural labourer may now expect 3,600 piastres per day, whereas in 1951 his expectation of income from a day's labour was 3,280 piastres. In general the rise in income has been insufficient to keep skilled people on the land. Rather than fight for increased wages in their home areas, labourers tend to go to the towns where higher scales of pay already exist. The result of this trend is that there is a growing shortage of labour available for agriculture which is very noticeable during the harvest period. It must be borne in mind that this is merely a trend at the moment and the full effects of the shortage has not hit the smaller Arab farms so much as the Italian estates in the more isolated areas. Cheap labour may still be had by recruitment of semi-nomads during their annual residence in the oasis zone, which also, of course, coincides with the harvest of the grain and olive crops. This

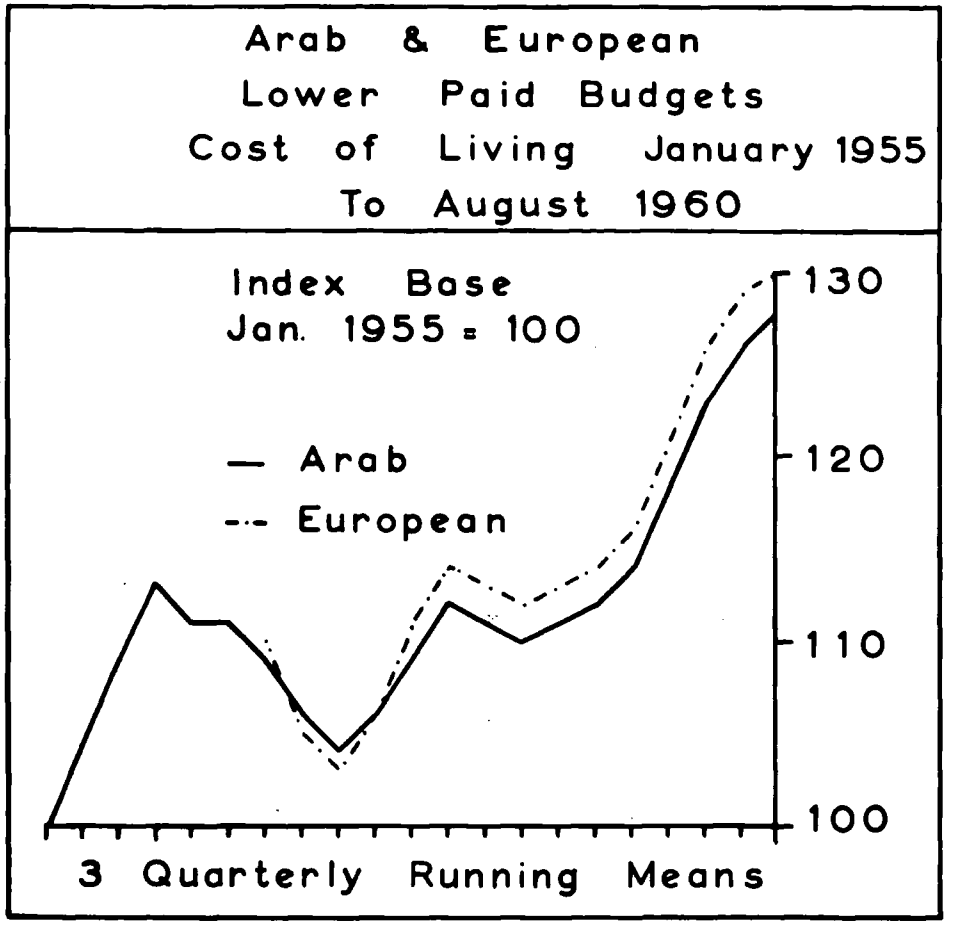
Arab & European
Lower Paid Budgets
Cost of Living January 1955
To August 1960
Index Base
Jan. 1955 = 100
— Arab
-·- European
130
120
110
100
3 Quarterly Running Means

Figure 89

type of labour has the disadvantage that it is unreliable in quantity from year to year, and the skill of these people tends to be inferior to that of the sedentary labourers. The movement of rural peoples to the towns is heaviest amongst the better educated sections of the farming population. This latter movement tends to be more of a temporary nature than the corresponding movement of landless labourers who once installed in the towns have little incentive to return to their tribal areas. The farmers, on the other hand, maintain an interest in the land even though they hold superior financial posts in the towns.

The purchasing power of wages has fallen slightly as indicated in Figure 89. The index is calculated on wholesale prices in Tripoli for the following items: olive oil, barley, wheat, peanuts, meat, sheepskin, local raw wool and goat hair. Excluding fluctuations reflecting market conditions characteristic of an agricultural economy; e.g. prices tend to rise before the harvest production reaches market; the cost of living has risen steadily since 1951. In the period of the British Military Administration, prices had remained steady, especially in Tripolitania:-

	1945	1948	1950	
Tripolitania	100	111	100	
Cyrenaica	100	140	135	- base index 1945 =100

Thereafter prices rose slowly until 1955, when the influx of foreign currency began to have a major effect upon the local cost of living. In the following years the cost of living continued to rise at an accelerated rate. In absolute terms, the cost of living index for Libya as a whole rose from a level of 100 in

January 1955 to 106 in October of the same year; in October 1956 the increase had been maintained and the index stood at 113. During 1957 costs stabilised for a short while. In the twelve months up to December 1959 prices have risen sharply to an index of 124 but have not overtaken the rise in wages in the corresponding period. There has, therefore, been a significant rise in real income in urban Libya in the last five years.

In Misuratino this trend is appreciable in the town of Misurata and has also been apparent in Homs and to a lesser extent in Zliten. Misurata has many characteristics of a small but true unit and the industrial pattern has been developing rapidly during recent years. With this background, the town has kept abreast of the rising cost of living in respect to wage levels of urban workers. Homs, with greater proximity to Tripoli and some small industrial units such as the soap factory has also shared to a small extent in the prosperity of the oil 'boom'. Zliten, as a market centre, has reflected a slight rise in costs but wages have not responded to this stimulus, since there is no specialised industrial or service activity in the area. It is difficult to discern any traces of either the rise in the cost of living or in wages in the minor suks such as Suk El-Khemis and Suk El-Giuma. In these latter cases local exchange and barter are still the major functions of the suk, hence exchange levels have remained entirely rural in standard.

There are several factors present in the economic situation in Libya which are likely to keep wages in urban areas in

advance of the rising cost of living:

(a) The probability of some exploitation of the recently discovered oil fields. Should this not prove to be the case, and oil revenues not flow freely into the territory, then conditions described in an earlier section would operate - the speculative level of present day wages would fall rapidly.

(b) The possibility of more aid and the expectancy of increased income from the strengthening of U.S. and U.K. bases in Libya as a consequence of the discovery of oil. Recent discussions between the United States and Libyan representatives over the base agreements indicates that the Libyans are prepared to press for far higher aid and rent in respect to military facilities offered to aliens. The strengthening of the U.K. Forces in Libya and the recent revised Treaty of Friendship between the Libyan and the British Governments affords further evidence on this score. In Misuratino factor (B) above will be the greatest direct influence in maintaining wage levels. Following upon the Anglo-Libyan Agreements, Homs is to be kept as a British garrison town with all the corresponding advantages for the local Arabs who are employed in large numbers by both the army and by private individuals attached to the Forces. At Misurata, a small American airstrip offers some service employment for Libyans. Using official army information and estimates of employment based on field observation, it is suggested here that almost £L2,000 enters the Homs indigenous budget in various forms each week. Direct payments by the Army to its Libyan employees amounts to

Table 85 - Gross Income of Arab Farmers in Misuratino Sample of 40 Farms (1959-60 - By Phase (Excluding Farm Privileges)

		No. of Farms	Av. Gross Income per Farm. £L	
I		0		
II	Crops	14	16.1	
	Livestock & Livestock Prods.		10.6	
	Off-Farm Labour		60.0	
	Other Sources		12.4	
				Total £L98.1
III	Crops	16	81.4	
	Livestock & Livestock Prods.		23.6	
	Off-farm labour		23.8	
	Other Sources		45.5	
				Total £L174.3
IV	Crops	6	130.8	
	Livestock & Livestock Prods.		16.0	
	Off-Farm Labour		11.3	
	Other Sources		228.3	
				Total £L386.4
V	Crops	4	150.0	
	Livestock & Livestock Prods.		0.0	
	Off-farm Labour		0.0	
	Other Sources		30.0	
				Total £L180.0

Table 86 - Gross Income of Arab Farmers in Homs Oasis Sample of 10 Farms 1959-60 - By Phase (Excluding Farm Privileges)

		No. of Farms	Av. Gross Income per Farm £L	
I		0		
II		0		
III	Crops	4	165.0	
	Livestock & Livestock Prods.		40.0	
	Off-farm Labour		21.5	
	Other Sources		4.0	
				Total 230.5
IV	Crops	2	200.0	
	Livestock & Livestock Prods.		100.0	
	Off-farm Labour		22.0	
	Other Sources		304.0	
				Total 626.0
V	Crops	4	150.0	
	Livestock & Livestock Prods.		0.0	
	Off-farm Labour		0.0	
	Other Sources		30.0	Total 180.0

Table 87 - Gross Income of Arab Farmers in Sahel El-Ahamed
Sample of 10 Farms 1959-60 - By Phase
(Excluding Farm Privileges)

		No. of Farms	Av. Gross Income per Farm £L	
I		0		
II		0		
III	Crops	4	165.0	
	Livestock & Livestock Prods.		40.0	
	Off-farm Labour		21.5	
	Other Sources		4.0	Total 230.5
IV	Crops	2	200.0	
	Livestock & Livestock Prods.		100.0	
	Off-farm Labour		22.0	
	Other Sources		304.0	Total 626.0
V	Crops	4	150.0	
	Livestock & Livestock Prods.		0.0	
	Off-farm Labour		0.0	
	Other Sources		30.0	Total 180.0

Table 88 - Gross Income of Arab Farmers in Zliten Oasis

		No. of Farms	Av. Gross Income per Farm £L	
I		0		
II	Crops	4	14.6	
	Livestock & Livestock Prods.		7.5	
	Off-farm Labour		25.5	
	Other Sources		9.0	Total 56.6
III	Crops	6	44.4	
	Livestock & Livestock Prods.		12.3	
	Off-farm Labour		23.6	
	Other Sources		28.3	Total 108.6
IV		0		
V		0		

Table 89 - Gross Income of Arab Farmers in Misurata Oasis
Sample of 10 Farms 1959-60 - By Phase
(Excluding Farm Privileges)

		No. of Farms	Av. Gross Income per Farm £L
I		0	
II	Crops	6	15.3
	Livestock & Livestock Prods.		10.3
	Off-farm Labour		35.3
	Other Sources		18.6
			Total 79.5
III	Crops	2	42.5
	Livestock & Livestock Prods.		22.0
	Off-farm Labour		29.0
	Other Sources		21.0
			Total 114.5
IV	Crops	2	72.6
	Livestock & Livestock Prods.		28.6
	Off-farm Labour		0.0
	Other Sources		200.0
			Total 301.2
V		0	

£L700 per week, whilst indirect employment of Libyans by the separate bodies within the Services amounts to £L500 per week. Bulk purchases of goods for consumption by the army messes varies from one season to another, but an average of £L350 is a fair estimate of this category. Other services including purchases in the local market make up the £L2,000 per week. The base at Homs is scheduled to be in operation for at least another twelve to thirteen years, hence the local populace may be expected to enjoy the benefits of this source of employment and income on a semi-permanent basis. The importance of military bases is not to be under-estimated as a key factor in wage levels in Libya as a whole. In the Homs area, urban characteristics of high wages and steady employment are to be accounted mainly to this influence.

The wages of urban unskilled labourers rose sharply in the period 1951-59. A similar though less marked trend was discernable in the wages of rural Arabs. Day labour is the rule in Libya, and the average wage per day for unskilled labourers varies between £L0.150 and £L0.200 per day. Even by Libyan standards this is poor and represents a bare subsistence level. Statistical evidence presented by the 1954 Census suggests that 4% of the population falls into this category of rural labourers, although the writer would prefer to take a figure twice that amount, since the census returns are incomplete. The possession of a small plot of land of less than half a hectare does not convert the day labourer into a land owner. In many cases the landless labourer would quote ownership of his father's land or tribal land in the

steppe rather than be thought to be totally without resources, and in spite of the egalitarian nature of land holding in Misuratino, it appears unlikely that so small a proportion of the people have lost their land.

The largest section of the rural population is the peasant proprietor class, Phase II and III. Wtihin this grouping there are variations, but Libya shows considerable homogeneity in social and economic structure in rural areas. Farm earnings amongst this group range from £L51 to £L250 per annum. The average earnings per farm units in Phases II and III are illustrated in Tables 85 to 89, which show the gross average incomes per farm throughout the selected phases of growth. The farms included in the tables are taken from the writer's Questionnaire Survey of 1959/60 in the Misuratino area. The pre-eminent position of the Sahel El-Ahamed is a clear factor emerging from the data. Here, total average income per farm unit in Phase III is £L230.5 per annum, which, exclusive of farm privileges, is a good income for an essentially self-sufficient farmer. This high wage level is explained by the fact that farmers in the Sahel classified at Phase III are in the incipient stages of graduation from traditional to transitional farming and are already heavily biassed towards commercial production. In the other component oases of Misuratino, the average income of the peasant farmer is depressed. At Homs and Misurata the influence of the Army base in the former case and the industrial establishments in the latter case, help to maintain a reasonable subsistence for the small farmers through

opportunity for part time off-farm labour. In Zliten income from all sources tends to be poor in comparison with the other littoral oases, with Phase II farmers reporting an average income per farm of £L56.6 per annum and Phase III farmers recording £L180.6 per annum.

Income from developed farming units at Phases IV and V for Misuratino as a whole shows a substantial improvement over subsistence farms. The average per unit difference for the area between farms at Phase III and these at Phase IV is £L212.1 per annum. The source of income for farmers shows a critical change when self-sufficiency gives way to commercial cropping, especially in respect to wages earned by off-farm labour. On pre-commercial farms in all the oases of Misuratino, though more particularly in the case of Homs and Misurata, income from off-farm labour represented an average of 61.2% for farmers at Phase II and 13.7% for farmers at Phase III. On commercial farms off-farm labour accounted for only 2.9% of total income at Phase IV and 0% at Phase V. An inverse relationship of the same scale is visible in income from 'other sources' i.e. income from investment and savings. Income from this class was 12.6% for farms at Phase II and 26.1% for Phase III in the traditional economy and 59.1% and 16.7% for the commercial farms at Phases IV and V respectively. The discrepancy arising in Phase V farms, as explained earlier, is a consequence of the recent development of the farms at Wadi Caam Project which represent hawaza units in the district. As urban markets expand, it is likely that gross returns from saniya

and hawaza farms will increase particularly in the sector of crop production.

A singular feature of income distribution amongst the various phases of growth is the direction of accumulated capital under the heading of 'other sources'. In the early stage of growth, the small amount of capital revealed by the farmers' operations tends to be hoarded in the form of livestock purchases, purchase of precious metals for the adornment of females, in cash retained on the farm premises and in pilgrimages to Mecca. This is reflected in the relatively low income amongst farmers in the pre-commercial groups from interest in investment either in terms of permanent farm improvements or in fixed cash dividends from industry or commerce. In many ways, however, the hoarding complex found so wide-spread amongst the farms at Phases II and III serves a useful purpose, for when the urge to take part more fully in market operations does become important, many small farmers are able to draw on these 'hidden' assets for capital investment in the farm improvement programme. In Phase III farms hoarding is less apparent than in Phase II, but the revealed returns on investment on the farm is negligible. In the later Phases of growth, concentrated investment in the improvement of farm operations accounts for a large part of the 'other sources', since there is a necessary increase in inventory values through purchase of high cost irrigation equipment and accessories for reticulation and cultivation. It is pertinent to mention at this point, that the absorption of rural capital into farming

operations will temporarily restrain effective investment by the rural population in urban industries. It is difficult to forecast the future projection of capital accumulation and investment in a country such as Libya, but two indications are present in the situation which suggest that rural capital might well play an important role in the urban economy.

(i) Even amongst Phase IV farmers banking is already habit. Confidence in the financial organisations within Libya has developed through the activities of the Italian banks in the pre-war era and through the extension of British banking since the war. Confidence in the banking system and the national currency should prove a firm basis for future rural investment indirectly, if not directly in the urban economy.

(ii) Many farm units in the commercial phases of production have a dichotomous character, as we shall explain in further detail later in this chapter. The well organised farms are those best situated to take advantage of the employment opportunities in the towns, and are those which are able to accumulate capital at a steady rate. Since the advanced classes of the farming community will be most understanding of the economic intricacies of investment, there is a good likelihood that monies gained by this level of the rural peoples will find its way back into urban investment.

(iii) <u>The Distribution of Income and the Implications for the Social Structure, Total Agricultural Production and the Rate of Capital Accumulation.</u>

(a) <u>Invisible Income - Rental Equivalent.</u>

In earlier sections of this chapter, the background was indicated to the standard of living prevailing throughout Libya, with reference to the economic standing of the groups of the community and the distribution of income. It will be of value to bring these previous statements into focus at a local and personal level. The data used has been taken from the Questionnaire Survey and from field observations made by the writer.

In the semi-subsistence farming economy of Misuratino a significant part of annual farm income is of an invisible nature rather than in the form of cash return for goods and services sold. Farmers tend to occupy houses constructed and extended gradually over many years by the farm group. A similar situation exists with respect to farm capital in goods and livestock. Inheritance provides a birth-right which is left to produce its due each year with a minimum assistance from the farmer in the pre-commercial Phases of growth, where the farmer and his family adjust their way of life to the quantity of production provided by the farm each year. In Chapter 3, which discussed the land tenure features of Misuratino, note was made of the egalitarian distribution of land in the area and it was pointed out that most of the farms at Phases II and III were viable economic units. This equality of land ownership allows a common mean in the standard of living of the farmers at traditional Phases of growth, which can be attained without undue hardship. The land is far from rich, but the demands of the Arabs have been of so simple a nature that production of the land has been sufficient to maintain

them above the starvation line except in years of great climatic adversity. Thus in evaluating the income of farmers in Misuratino, weight must be given to the hidden sources of income associated with permanent fixtures of property which make the standard of living tolerable.

The main element in invisible income from inherited capital fixtures is usually the haush or equivalent housing unit, which may serve as a case example of the importance of non-cash income. The estimated sale value of the farmhouses included in the sample survey of Misuratino ranged from £L1,340 to £L 200, depending upon the style of construction undertaken. A full traditional haush common to Misurata and Zliten generally costs £L 1,500, whilst a small two-roomed house such as are found at Wadi Caam Settlement costs only £L 300. The rental value of property in Libya for houses built before the Second World War is 4% of the original capital cost, and the equivalent rental value of post-war houses 20% of the capital cost of construction.(86) Hence there is a possible range of equivalent rent values in invisible income from about £L8 per annum to £L268. In the farms included in the Questionnaire Survey, the average value of farmhouses was estimated at £L491 and by Phase as follows:-

Phase I	Phase II	Phase III	Phase IV	Phase V
-	£L250.0	£L637.5	£L1225.0	£L325.0

for all permanent dwellings. This represented, by Phase, the following equivalent rental values in the year 1959/60:-

	Phase I	Phase II	Phase III	Phase IV	Phase V
Rent/Equi. -		£L 10.0	£L 25.5	£L 149.0	£L 65.0
% income -		10.2%	14.6%	38.6%	36.2%

Thus rental equivalent is an important source of income at all Phases. Since the figures used in the Questionnaire Survey were returns for farming operations during 1958/59, which was a close approximation to average climatic conditions throughout the area, the data above give a sound impression of the proportional importance of farm house values. The percentage values of annual income from this source is further enhanced by the fact that maintenance costs for the house are low. It is rare for there to be any over-head expenditure in the form of ground rents or other recurring annual fees. Repairs are generally undertaken by the farmer himself. Thus, annual equivalent rental value of farm-houses may be considered at a basic net level of 4% or 20% of the cost price, whichever obtains.

(b) Invisible Income - Farm Privileges.

The drawing off of farm produce for domestic use on the Arab farms varied greatly in the farms included in the Questionnaire Survey. The use of farm privileges varied according to the influence of two major factors. Small farms of Phases II and III tended to show more of this characteristic self-sufficiency practice than farms at later Phases of development, as would be expected, but of paramount importance in determining the percentage of produce kept on the farm were:-

(a) The number of people resident on the farm. If a farm of medium area, averaging about 3-5 hectares, must support more than

two families, the tendency is always in such a situation for the greater resort to farm produce for domestic consumption. Many of the farmers in the Oasis of Zliten fall under this category, where average farms of 3.6 hectares support an average farm population of 12-13 persons. The effects of this are mitigated to a varying degree in the other littoral oases, since the total population recorded in the 1954 Census in no way coincided with the number of people dependent upon the farm for income. Thus, in the En-Negiahat area of Homs Oasis, one bait group returned a total number of occupants of 23, which accounted for five families in the settlement unit. Two men were permanently resident on the farm and were totally reliant upon the farm for income. It is a typical feature of present day population trends in the area that the two men resident on the farm were the senior male and his eldest son. The other two sons gained a living in the towns and kept only a small interest in the farm. In this case, the drain of farm produce to the domestic kitchen was less than half of the total value of crop and tree production during 1958/59. Production of barley for instance was 50 quintals in the last year of which 20 quintals were sold at the market, 10 milled as flour for home consumption and 20 retained as a reserve for flour seed and possibly for sale. Normally, all the reserve total would be kept for farm and household, but the drought in 1960 has forced up prices on the market, and it is likely that the farmer will sell five quintals or slightly more of this barley in the hope of realising a high

price during the emergency of the drought. If the drought hangs on till 1961, he will lose heavily since he will have to make up his grain deficit on a market which is even more inflated.

As a final total for barley production from this farm in 1958/59, the unit will use the barley in a proportion of 50% for domestic consumption and 50% for marketing. Of the vegetable crops off this farm a higher percentage was marketed. In the agricultural year 1958/59 there were 200 gedula planted with broad beans, and of this 170 gedula were retained for marketing. Much the same ratio applied to other vegetable crops which can be sold at a good price. At the other end of the scale, some 100 gedula of sweet corn, 50 gedula of potatoes and tomatoes, and 10 gedula of vines were kept exclusively for domestic consumption. The tree crops were an integral part of the domestic garden system and there was no recorded sale of this produce from the farm in the last five years (Vide Table 90).

In cash terms, this sample farm unit used £L95 of its total production of £L245 in the year 1958/59 for household consumption. Some £L25 not included in this reckoning was retained on the farm as seed and fodder as indicated above. Other seeds were of negligible negotiable value and have not been accounted for in the cash summary. Thus, 38% of the farm production was drawn off to maintain two families whose sole source of income was from the family farm. This example contrasts sharply with the following example taken from Zliten Oasis. In the Ramlet district of Zliten one Phase II farmer, who worked a total of 3.5 hectares

reported that all his produce was for the use of his household.

Table 90 - Sample Farm No. 9 Direction of Crop Production 1959/60.

Crop	Retained on Farm for Seed etc.	Retained on Farm for Household Use	Marketed
Dates	-	75%	25%
Citrus	-	100%	-
Almond	-	100%	-
Olives	-	60%	40%
Vines	-	100%	-
Figs	-	100%	-
Barley	10%	40%	50%
Erba Medica	100%	-	-
Potato	-	100%	-
Tomato	-	100%	-
Fil-fil	-	50%	50%
Onions	-	100%	-
Sweet Corn	-	100%	-
Beans	-	15%	85%
Peas	-	20%	80%

Data from Questionnaire Survey.

He had two sons, both of whom were married and shared the farm with him. In good years, some barley was taken to Zliten market and occasionally, when high prices could be had for beans, these too were sent to market. This movement of goods to the commercial dealers was sporadic and of variable quantity. Cash for the purchase of goods used in the household and on the farm was obtained by day-labour on other larger farms as the necessity for it arose.

Off-farm labour.

The income from off-farm work also tends to govern the extent to which crop production is retained for domestic use. Members of the El-Ahamed cabila living in the Sahel run a medium farm of 6-7 hectares, which serves as a case example of later Phase development, which exhibits many characteristics of the

latter. The farm in question is occupied by three brothers who came into the inheritance from their father five years ago. During his life-time the father ran the unit himself with the help of hired labour, whilst two of his sons took employment in Tripoli and one moved to a job in Benghazi. This situation has continued after the death of the father. The sons have remained in urban employment and keep their farm as security against unemployment should their present jobs lapse. Both of the men working in Tripoli maintain their families in the rural haush and return home each Thursday evening, whilst the remaining brother has his family permanently resident in Benghazi. Cultivation is carried on by a resident labourer, who tills, three of the six hectares for grain and vegetables for use of the household and his own family. Additional income is made from the farm by letting the uncultivated land for grazing. Hence, all the production from the farm is kept for domestic consumption, but for different reasons than in the case of the farm in the Ramlet area of Zliten. The threat to rural production by the operation of urban attraction as in the example out-lined above is small at the moment, but it is a trend which could short-circuit steady economic growth in rural areas. In terms of the immediate question of rural supply of loanable funds to urban expansion, the trend for increased employment in urban industry should lead to more funds being made available from the country-side, since the capital accumulated in this way will filter back to urban investment in the absence of interest in rural investment.

(b) A secondary factor influencing the demand of the domestic kitchen upon total farm production is the amount of irrigated land available on each unit i.e. a direct response to the stage of growth. The greater the proportion of irrigated land on any given farm, the less the farm tends to be self-sufficient in nature. Thus farms having more than four hectares of irrigated land are able to support the demands of the largest of families in the district. This fact is evidenced by a farmer in the Gabila Hasnun of the Sahel, who owns a total irrigated hectareage of 4.5 to maintain himself and three married sons, all of whom are directly dependent upon the farm for the greater part of their income. In addition to providing ample food for the families, the farmer is able to market 60% of his grain production, and 80% of his vegetables in a good year, with only a slight lapse from this standard in years of poor rainfall. Farmers who have less than one hectare available for irrigation each year tend to be limited strictly to self-sufficient farming unless the household unit comprises a small family with no other dependents. Naturally, it is the Phase II and III farmer, who has to survive on a bare minimum of reliable irrigated land who is the least commercially minded, since pre-occupation with the immediate needs of the farm precludes extensive market activity, and makes him over-cautious in taking risks which are necessarily involved in cash cropping in Misuratino.

(iv) Farm Expenditure in Misuratino - Its Amount and Direction.

A clear distinction arises between the self-sufficient

farming units and the commercial units in respect to farm expenses. In the pre-commercial Phases of growth, there is a small income and a correspondingly low out-lay for purchases for the farm, whereas in the later stages of growth, expenditure increases as the necessity arises for purchase of equipment and the hire of labour.

The main features of farms at Phase II and III are the importance of livestock in annual purchases and the estimated costs of unpaid family labour. As we have noted earlier, the livestock dilemma remains long after the semi-nomadic families have moved from steppe occupance to a sedentary life in the oases and persists through to Phase IV. In the early Phase farms in Homs Oasis and Sahel El-Ahamed purchase of livestock represented the largest single outlay on all the farms. Gradually as development takes place the significance of this category falls off:-

	Phase I	Phase II	Phase III	Phase IV	Phase V
Average per Farm, £L	-	£L24.5	£L20.0	£L0.5	£L7.5
% of total Expenditure	-	66.6%	17.4%	0.1%	7.8%

One farmer in Phase IV and one in Phase V reported no expenditure on livestock in the year, whereas livestock purchases were recorded on each of the farms at early stages of growth.

Farm supplies in the form of seed and fertiliser enter into the economy of the commercial farming units where as in the self-sufficient farms they represent only an insignificant head of

expenditure. It would be expected that Phase V farms would show a clear lead in this respect over the saniya, but it must be remembered that the farmers on the Caam Settlement who were used in the sample Questionnaire Survey are provided with seed by the administration on the estate. Similarly with the recorded purchases of equipment during the year, Wadi Caam farmers tend to use facilities provided by the management and hire other smaller machines which they need. In the saniya farms the purchases of farm equipment are a key indication to capital investment in improvements particularly in irrigation facilities:-

	Phase I	Phase II	Phase III	Phase IV	Phase V
Average purchases of equipment for farm use 1958/59	-	£L0.0	£L28.7	£L105.0	£L12.5

This investment rate in Phase III farms determines the speed of change from essential self-sufficiency to commercial cropping. Similarly, the amount of capital spent during the year on the hire of labour brings out the balance of commercialism in any given farm; on Phase IV farms in the Oasis of Homs and the Sahel El-Ahamed the average annual expenditure on labour was £L105.0, whereas comparable returns for Phase III farms showed an annual out-lay of £L28.7 (Vide Table 91). Expenditure on other services and materials showed greater homogeneity as illustrated in Table 91.

UNPAID FAMILY LABOUR.

In the general statistics of expenditure shown in Table 91 unpaid family labour has been omitted from the sum total expenses of the farm units since even amongst farms at Phase IV there was

Table 91 - Farm Purchases by indigenous Farmers - Homs & Sahel Sample 20 Farms - By Phase 1959/60 in £L

HEAD OF EXPENDITURE	Phase II	Phase III	Phase IV	Phase V
Livestock	24.5	20.0	0.5	7.5
Equipment	0.0	28.7	105.0	12.5
Supplies	0.0	2.5	15.0	0.0
Repairs	5.0	5.0	6.5	0.0
Hire of Labour	0.0	21.2	105.0	0.0
Equipment	7.5	6.2	5.0	10.0
Transport	0.0	4.5	2.5	4.0
Travel	0.0	0.0	0.0	1.0
Veterinary	0.0	3.7	0.0	0.0
Insurance	0.0	3.8	1.5	0.0
Fuel	14.0	33.7	19.5	2.5
Others	5.0	16.0	3.0	90.0
Tax with interest	2.5	11.2	11.0	0.5
Unpaid Family Labour	30.0	38.5	82.5	23.5
AVERAGE TOTAL	49.5	167.8	244.0	128.0

no real knowledge of the amount or value of time spent on the farm by the family. Visits to the farms and questioning of the individual farmers brought out the point that the earlier the Phase of growth, the greater amount of time spent by the farmer and his family in work on the farm. The following factors appeared to be important influences on non-commercial farms:-

(a) Care of livestock, which needed constant attention. One or more members of a household would be permanently occupied with herding the animals in the steppe or in the oasis periphery; for the part of the year spent in the steppe pastures, a senior member of the family would be necessary, often with the help of his wife or son. In spring, when the flocks moved to the coastal pastures, junior members of the family could be assigned to herding whilst the senior males could devote their time to tilling and sowing the spring crops. In one case at Phase II, the cost of labour of the herdsmen in the steppe was defrayed by accepting care of another herd belonging to a Phase IV farmer who paid in percentage of kind.

(b) All farm activity had to be done by the farmer and his family. In particular the drawing of water by the dalu, normally done by a labourer, fell to the family; wall building, another specialised labour occupation in the oases, had to be undertaken by the family; all stages of harvesting were completed by the family.

(c) The non-specialised nature of the farmer was made more difficult by the features of dispersion, paramountly in respect to the fact that the Phase II farmer tends to be reliant upon cereal

production from the bait areas of the cabila land in the steppe. Thus division of cropping activity between oasis and steppe took up time and effort. Fragmentation of property in the oasis tended to be more evident amongst early Phase farmers than commercial farmers, hence the burdens of tilling small and scattered plots in the littoral added to the wastage of labour.

Phase IV farms were characterised by intensive use of family labour, but in this case hire of specialised labour for work on the dalu and the annual task of rebuilding the walls of the suani relieved the family of burdonsome and unprofitable employment. Of the Phase IV farmers in Homs Oasis and the Sahel El-Ahamed three employed labour the year round to help with farm activity. As we have seen previously, many later phase farming families have already lost many of the attributes of the traditional economic structure. Outside opportunities for lucrative labour or skilled work in the alien agencies and companies or the public administration have lessened the dependence of educated farming families upon the resources of their suani. Naturally, this change of economic alignment has forced other changes on the running of the farm unit particularly in respect to hire of labour. Thus in recent years the commercial farms have tended to be thrust into use of hired labour to a greater and greater extent.

The figures included in Table 91 showing the distribution of unpaid family labour hide the critical fact that low estimates of expenditure under this heading on non-commercial farms means in fact intensive application of family labour, whilst on commercial

farms family labour is specialised and relatively high value for short periods of application.

AGRICULTURAL TAXATION

Taxes levied on the rural communities reflect the fact that most areas in Tripolitania have only recently emerged from a pastoral and tribal background. Tax income as a whole in the Province comes in the ratio of 7:3 from indirect and direct taxation respectively, since the administrations from Turkish times have found it difficult if not impossible to assess production from the various sectors of the economy. Of the 30% direct taxation in the Province most is gathered from urban areas on fixed property. The residue, which comes from agriculture is negligible in relation to the fact that agriculture represents the largest part of the national product. The major problems of assessment in rural areas arise from the variability of the climate and the consequent fluctuations in production, and from the primitive nature of the steppe economy which prevailed until quite recently. The whole structure of taxation must change with the gradual move of farmers from self-sufficiency to commercial production, but at the present day the following system of taxation is used in Misuratino:
(a) Representatives of the Government and the local administration with the help of a local tax commissioner (Mucktar El-Mal) work out a tithe assessment of each cabila by consultations with the Shaikh. Since the tax commissioners cannot visit each and every field there is obviously a broad latitude of choice which the Shaikh can exploit to the advantage of his cabila. The general

result is a complete mis-estimation of production and areas cropped with a consequent under-circulation of taxable income.

(b) The scale of taxation applied in Misuratino is as follows:

Irrigated land	£L5.00 per/Ha.	Sheep	£L0.075
Olives	£L0.031 /tree	Goats	£L0.041
Palms	£L0.015 "	Tithe - 7% on cereals/Hamaza	
Other fruit trees	£L0.013 "	12% " " /other farms	
Vines	£L0.002		

Obviously, if the agricultural economy is going to be a source of taxation the present system will have to be rationalised. A decade ago, revision of the structure of taxation would have been exceedingly difficult, since at that time the rural areas exhibited characteristics of semi-nomadism and sedentary but primitive agriculture which appeared to defy the imposition of a high cost but certain method of tax collection. In the last decade the forces of economic growth have brought many farmers from a level of Phase II to Phase IV and the balance of development is hastening the process. Thus there is no reason why a sound system of taxation should not be introduced since commercial production should reveal substantial sums to the exchequer, and also make the process of assessment more simple, since cost accounting is no longer an unknown process in the oases. The present methods of tax collection have been outdated by economic growth and are merely an irritant; most commercial farmers interviewed in 1958/59 and 1960 asserted that a new and fair system would be welcome as it would eliminate the present inequalities in assessment and would remove the need for the tithe visits of the commissioners who delayed work on the farms during the

critical days of the harvest. In summary we may note the following points:

(a) Taxation of agriculture will be the base of national income even should the oil be exploited.

(b) There have been substantial developments in the rural economy which have brought many farmers up to or to the verge of commercial production.

(c) This transitional economy may be capitalised for the national good by a fair and sound system of taxation.

(d) Oil income is temporarily diverting attention from sources of domestic capital: this is dangerous both in respect to the loss to the economy and in relation to the detrimental effects of the present system of taxation upon rural areas.

(e) The agricultural economy is not yielding its proportional share to national development in the way cited by Rostow; but the potential is there (63).

PART THREE - The Standard of Living of Farm Families in relation to the likely future trends in Personal Income, Educational and Medical facilities and the Probable Effects upon the Demand for Urban goods.

(i) The present situation with regard to Education and Literacy. Prospects for the expansion and wider acceptance of Media.

(a) Education and Literacy: Literacy amongst Libyan males above five years of age amounts to 29.1%. The corresponding percentage for the female population over five years of age is 11.6%. It is important to observe that considerable variations occur between the age group 5 to 29 years and the group above 29 years. Literacy amongst Libyan males between the ages of 5 to 29 is 35.7% In the age group above 29 years, literacy falls to 20%. The same trend is appreciable in the figures for female literacy, but it is less marked.

At the present time, literacy is not wide-spread in Libya, and is confined in large part to Urban Arabs. There is a greater degree of literacy in Tripolitania than in Cyrenaica, where literacy is absolutely confined to the towns. Attempts to sedentarise the semi-nomadic tribes have been unsuccessful, and thus education is still in the early stages of development. Arab education in both Cyrenaica and Tripolitania is characterised by a large proportion of traditional Zavia, with emphasis on Koranic instruction rather than on basic teaching such as reading and writing.

Since Libya became independent in 1951, elementary education has been spread to all areas of Tripolitania and to many parts

of Cyrenaica. Literacy has been on the increase since the British occupation and may be expected to rise steadily in the next decade. Nevertheless, the written word cannot be expected to be the main medium of mass communication for several decades. Some 25% of the population of Libya is classified as nomadic or semi-nomadic, and this total may be expected to decrease only slowly since the momentum of economic growth at this Phase I stage operates sporadically against the bulk of traditional occupance. Thus, the written word can only reach an effective public of 75% of the total population, since the nomadic peoples are to all intents and purposes illiterate and are likely to remain so for some years in the future.

The rural nature of society and the isolated position of Misuratino have tended to retard the spread of literacy in the region. The following figures illustrate the regional differences within Misuratino against the scale of national literacy:-

AREA	MALES ALL AGES	MALES 5-29	MALES 29 above	FEMALES ALL AGES
Libya	29.1%	35.7%	20.0%	11.6%
Misuratino	25.0%	35.4%	17.0%	10.0%
Homs	25.0%	31.2%	17.0%	21.0%
Misurata	28.0%	37.0%	18.0%	-
Zliten	22.0%	28.0%	16.0%	7.0%

The data is taken from the final Census of Libya 1954 published 1960. Homs holds a position which is closely approximate to the national average, although the 5 to 29 age group has deficiencies which suggest an imminent decline in percentage status if not in absolute status. Misurata shows a lead over

other component areas of Misuratino largely through the presence of the Italian-built secondary school in the town. Zliten area returns figures which are more reminiscent of the remote inland oases rather than of a littoral oasis. This fact is surprising in view of the fact that Zliten oasis is populated by peoples who are largely sedentary (90.61%), and it is thus unimpeded in its educational programme by the annual drift of the tribes to distant grazing zones. Homs, where only 83.32% of the population is static, has better returns for literacy in spite of the problems involved with nomadic tribes within its catchment area. Misurata has long been the most developed of the townships along the coast and education there has a continuous tradition dating to pre-Italian days.

Italian population throughout both the rural and urban areas shows an even distribution of literacy. For all Italians in Libya, the literacy rate is greater than 80%. Other small alien communities have high rates of literacy similar to that recorded by the Italian groups.

(b) Education and the dispersion of information.

The limited spread of literacy amongst Libyans has the effect of restricting the catchment of written material. Newspapers are circulated in the towns of Misuratino, but only have influence amongst those who are already aware of the problems facing rural areas. In Homs and Misurata, which are the largest developed urban areas, it is estimated that one in twenty Italian households receives one newspaper per day. For the Arab

section of the population it is likely that one household in 50 receives one newspaper per week. Figures for other literature are not available, but from personal experience, the writer suggests that the potential value of written matter in influencing rural Arabs to adopt improved agricultural techniques will remain latent for several decades.

Broadcasting in Libya is relatively an innovation. Broadcasting is under Government control, although the UNESCO Mission in Libya has undertaken most of the preliminary organisation of both technical and programme material. There are farm information broadcasts as an integral part of the programme system, and usually these are worked in close liaison with the Nazara of Agriculture. The programmes deal with particular topics of farming practice, i.e. fertilisers, animal feed and chemical preparations used in farming. Whenever possible, they are used to sow an idea in the minds of the farmers listening to the programme, which may be followed up by visits to field trials or extension demonstrations at the experimental and pilot farms under the control of the Nazara of Agriculture. It is noticeable that since the radio has been used to disseminate farm information, interest shown by the Arab farmers has been far easier to channel along productive lines. Whereas before the introduction of the farming bulletins on radio service, an extension demonstration could be expected to draw an audience of 20 - 30, this may now be doubled if the ground is broken by preliminary broadcasts advertising the event and explaining what is intended. The

spoken word has a potential catchment of almost 100%, since most Arab farmers have their own wireless or access to one at the local coffee houses.

The most important means of presenting educational and intelligence material to the rural peoples is through the medium of the cinema. This means of influence has the great advantage of mobility and may be used throughout the length of Misuratino, having a potential catchment of all the sedentary farmers. At present, the films used in the cinema are of two varieties:

A - one to show farming in other parts of the world where techniques are more modern than they are in Libya,

B - films showing how local Libyan methods can be adapted to give better results.

In essence the propaganda deals with simple projects, e.g. the effects of weeding, the uses of crop spray, the value of manure and fertiliser; all shown with the intension of improving the indigenous methods of cultivation. Later no doubt, it will be possible to demonstrate more advanced material.

Several bodies have been instituted to co-ordinate research and development with incentives to persuade the farmers to adopt proven results by means of demonstrations and lectures. Broadcasts have also been used as indicated earlier. Several major difficulties have emerged since the activities of the extension services began to operate. The farmers are unacquainted with farming practices in other countries of the Middle East and the

Maghreb. The writer has found that many of the farmers in one district may be completely unaware of improved practices which are being used in the next district. In consequence the local farmers believe sincerely that the traditional methods of cultivation handed down from their fathers are the best for them and their farms. Until recent years there were no means for showing him that other techniques did exist and were more profitable.

Even when the farmers had seen sufficient films of alien methods of cultivation, it was difficult to persuade them that it would be in their own interest to try out the new techniques on their own farms. Confidence in the extension authorities took many years to develop, and is not fully established. The most powerful influence upon farmers was to show what had been grown on a trial plot at the Ministry farm and then to demonstrate how he himself could attain the same results. Even so, farmers tend to feel that they prefer a small but guaranteed return from their traditional methods rather than attempt something new which might fail completely. If one farmer can be convinced of the value of a new method of husbandry, and after being given careful guidance can show greatly increased market returns for his produce, then it becomes an easy task to make the methods more widely known. Thus the extension demonstrations are mainly of importance in attracting one or two more advanced farmers, who can then be used as a first hand example of what a new approach may do in terms of financial reward. The advantage

of this method over that of experimental trials on the Government farms is that the gross influence is not confined to a few go-ahead farmers who take the trouble to travel to the experimental farms, but is dispersed amongst the backward people in the oases who are unaware of the official activity. It should be noted that this method of rural education, whilst it has proved successful, is also expensive and slow, and will only show results after a long period of time.

Human difficulties encountered in extension work are very great. Most of the experts who were in charge of the demonstration teams were of foreign origin, and this tended to make the farmers sceptical of their knowledge of local problems. Odd day visits to the farms by experts who travelled in from Tripoli offices proved most unsuccessful, since they had neither the time nor the interest to develop local contacts with individual Arab farmers. Only by living on the spot, and by cultivating the friendship and confidence of the farmers was it possible to make progress in the improvement of agricultural techniques. Experience in recent years, particularly in respect to the Wadi Caam Settlement, has shown that the Arab farmers are willing to learn from experts of foreign extraction, and that rewarding results may be obtained after several years working on the same site. In future schemes for extension services, it could be suggested that more emphasis be placed on activities in the <u>suani</u> belonging to the Arab farmers than on the rather detached demonstrations on the Government farms.

The extension services have been responsible for a certain amount of research on agricultural topics in Libya, but many of the services have only a limited impact upon the farmers themselves since the extension media employed are ineffective. Extension services at present operating in Tripolitania are as follows:

(i) Nazara of Agriculture. Experimental farms at Homs and Zaviet El-Maguib which support a programme of demonstrations. Has probably been the most influential organisation amongst the Libyan farmers.

(ii) F.A.O. - Field services and agricultural advisory service. To date has scarcely influenced the normal agricultural routine in Misuratino, although they have been engaged on several research topics connected with the development of the area.

(iii) Other Agencies
- Libyan-American Joint Services (USOM). Have been very active in Misuratino especially in regard to the Wadi Caam Settlement. Now incorporated in Libyan Government.

- UNESCO presenting film and broadcasting media which to a limited extent have covered farming topics.

- LPDSA. This concern has engaged in engineering activities associated with agricultural development. Contact with Libyan farmers through renovation of Roman cisterns.

(ii) Medical Services and Endemic Disease in Rural Areas.

Medical services are inadequate throughout Libya as a whole. This is especially true of the services provided for the Arab section of the population. The main problem in this situation is the shortage of trained doctors and nurses. Most of the general practitioners are not of Libyan origin but are aliens from other countries of the Middle East or from Italy. The latter cater mainly for the Italian communities in Libya. In addition to the staffs of the central hospitals in Tripoli there

are several practitioners distributed throughout the major towns of Tripolitania. In Misuratino there are doctors at Homs and Misurata. These local doctors who treat the local Arab population are frequently of Turkish or Lebanese extraction with no real qualifications; they do not command a great deal of confidence amongst the more educated sections of the populace. The W.H.O. reported adversely upon the standards general amongst the local doctors.

In association with the W.H.O. the Government has attempted to fill in the worst gaps in the network of medical facilities. Doctors sponsored by W.H.O. occupy the more isolated and neglected towns and outposts in Libya. At present there are Libyan students training for medicine and nursing in U.K. who are destined to staff the hospitals at Tripoli (1,300 beds) and the smaller sub-hospitals in the rural areas. Under the present Government and W.H.O. programmes there will be an appreciable expansion of medical services in the next decade. This will be achieved partly through the establishment of new hospitals and also by the construction of small supplementary hospitals and clinics in rural areas. Misurata hospital supplies most of the needs of the eastern extension of Misuratino, whilst the smaller hospital at Gasr Khiar on the Tripoli road serves the west of the region.

It must be pointed out that Libya is an endemic area for trachoma, and exhibits strong tendencies towards chronic infection with syphilis. A W.H.O. survey in 1956/57 reported

that more than 80% of the indigenous population suffered from trachoma, and that more than 75% suffered from syphilis.(87) Until recent times infection with trachoma has been accepted as a normal part of the environment. The Italians attempted to bring its spread under control but were largely unsuccessful, since the attitude of the mass of the people was apathetic towards the disease. Nutritional deficiencies in the diet of the indigenous Arabs results in poor resistance of the Arabs to disease and poor physical development of the body. In view of the low standard of health enjoyed by most of the Libyan farmers, it is scarcely surprising that the input of effort into agricultural enterprise is small. In assessing the man-power problem and the feeble human response to demands of development activities in rural Libya, it must be borne in mind that man-units are at a disadvantage in respect to European standards: and this simply a result of disease and deficiencies in the diet imposed by the poverty of the environment and the limited spread of medical knowledge.

The influx of Europeans and the diffusion of new ideas has accelerated at an increasing rate since the grant of independence in 1951. European standards of health and hygiene have become accepted by most urban Arabs, and are in process of spreading to rural areas. In this latter movement, the Italian agriculturalists have had much influence by example. Trachoma is no longer an infliction of Allah, but is treated as an ailment which can be remedied. A powerful factor in this growth of health

consciousness is the influence of the large employing organisations. The Oil Companies, the United Nations Organisations, the Army and other civil branches of the public service have imposed stringent health standards for their employees. Medical examination is the inevitable prelude to any interview for a well-paid position with one of the alien agencies, and the Arabs are well aware that trachoma is a great handicap for the interviewee. This fact above all others is creating economic pressure for improvement of health generally and of trachoma in particular. A Government sponsored health service and social security system has done much to realise a better standard of health.(90)

Since oil has been discovered in Libya and will probably be exploited in the near future, it appears likely that the present trend towards European standards of health will continue. It is worthy of note in this context, that in addition to the national health schemes, the British and American military establishments, and most of the U.N. agencies in Tripolitania maintain a free internal health service for their employees. As urbanisation increases and employment opportunities expand with the extended operations of the oil companies and the development of the internal economy, it may be expected that health consciousness, and a better balanced dietary will become associated with the rural units such as Tripoli and Benghazi.

(iii) <u>The standard of Living and the Implications for the Demand for Urban Goods</u>.

In Part Two of this chapter a broad indication was given of

the distribution of income, of the purchasing power held by the economic groups within the community in relation to the standard of living. To elaborate these previous comments, we shall review here the possible markets for urban products in Libya especially in respect to the potential market represented by the rural areas of Tripolitania including Misuratino. In the first place we shall analyse the relative strength of the present urban markets in Tripolitania.

URBAN MARKETS.

A singular feature of the towns of Tripolitania since pre-Italian days has been the alien character of the population. This cosmopolitan nature has been increasing steadily since the beginning of oil exploration, and although this element is largely 'floating' it is nevertheless a significant portion of the urban peoples. Aliens (non-military) in Libya totalled 47,274 in 1954 at the time of the census and an estimated total of 40,482 in June 1960. On the basis of numerical strength, the Italian community is the most important, totalling 80% of the aliens in Libya. Most of the Italians are now urban dwellers in Tripoli City, and the Italians are confined absolutely to the geographical area of Tripolitania. Urban Italians are engaged in most sections of commerce, trade and company administration. They enjoy a high standard of living well above the local Arab average, but lower on average than the other European elements. It is commonly accepted that the Italians are financially better off in Tripolitania than they would be in the metropolitan

country. Rural Italians occupying demographic farms are less affluent than their urban compatriots, but their income tends on average to be three times as great as the rural Arabs amongst whom they live.

Other alien communities within Libya, which represent high income groups are those of the UK, Malta and USA, totalling 1,849, 1,490 and 600 respectively. The residue of the alien elements are concentrated in the towns, especially in Tripoli and Benghazi, although to a lesser extent they may be found in the coastal towns such as Homs and Misurata. For purposes of income and consuming habits they may be classified with the Anglo-Italian section. Since 1951, there has been a steady increase in the numbers of highly paid aliens in Tripolitania. Exploration activities have intensified since the discovery of oil at Bir Zelten and there has been a consequent increase in numbers of skilled alien staff. Should there be serious exploitation of oil resources in Libya within the next two or three years, it is likely that there will be a further expansion in the proportion of aliens. Oil activity apart, it is forecast that aliens working for the extension services will be operational in the country in the next decade, which in itself will involve the residence in the area of foreign technicians.

Losses in the total numbers of aliens in Libya between 1954 and 1960 has been through a decline in the strength of Italians on demographic estates.

RURAL MARKETS

(i) Farm Supplies - Purchases of farm supplies by farmers are increasing at a rate closely commensurate with the general movement of economic growth. To give an impression of farm purchases by rural Arabs details are given here of the normal expenditure on products which could be manufactured in urban areas. The data were collected from the limited geographical area of Misuratino but represent a fair sample of family and farm budgets in rural areas. Manufacture of basic compositions such as simple fertilisers, compound manures and insecticides are all projects which have been discussed in relation to 'industrialisation' of the urban economy in Tripolitania, hence the availability of rural markets is of key importance:-

Farm Budget (i) Misuratino 1958/59

Average Annual Expenditure per Farm on Farm Supplies - Arabs

Type of Supplies	Average per Farm which bought Supplies - £L	Average for all Farms - £L
Seeds	14.4	8.0
Animal Feed	36.6	24.4
Fertiliser	7.1	4.8
Manure	8.3	6.4
Insecticides	7.7	3.4
Others	33.8	18.7

Data from Questionnaire 1960.

(i) Zavia Oasis 1952

Average Annual Expenditure per Farm on Farm Supplies - Arabs.

Type of Supplies	Average per Farm which bought Supplies - £L	Average for all Farms - £L
Seeds	12.9	3.5
Animal Feed	4.6	1.8
Fertiliser	5.1	0.7
Manure	9.0	0.5
Insecticides	1.0	-
Others	4.6	0.7

Data from Theodorou(39) Italian and Indig. Ents. - Zavia, FAO.

Farm supplies under the headings in the preceding tables represent a small amount of farm capital on Libyan farms, 5% in the case of the Oases of Misuratino and 2% in the Oasis of Zavia. Consumption of supplies of this nature is increasing rapidly; seven of the sixteen farms classified in the Phase III category in Misuratino in 1958/59 reported that they had not previously bought farm supplies of any kind. Progress in this field may be accounted primarily to the influence of the extension services who have brought a certain degree of education to the rural areas covering the use of fertilisers and other chemical and organic aids. As yet the domestic market for farm supplies is monopolised by foreign producers particularly Italy, UK and Holland, but the opening, with obvious limitations, is there and is likely to expand in the future.

(ii) Household Budget - The household budget shows variations from year to year and from one class to another; but throughout the post-traditional phases of society the trends are identical; the pattern is changing from acceptance of rough local products to demand for 'Western' products. A ready symbol of this change may be taken from the numbers of vehicles registered in Libya under private ownership; in January 1956 the number of registered private cars was 5,854, whereas in December 1959 some 13,500 private cars were registered. Whilst most of these cars are absorbed into the urban economy, many also enter the farming economy as utility trucks.

Theodorou presented a detailed list of household expenses

for farming families in the Zavia area which indicates the consumption habits in rural areas (Table 92).

Table 92 - Cash Expenses per Household & per person in 1952 Sample 70 Libyan Farms Zavia.

Household Expenditure Items	Per Household £L	% of the Total	Per Person £L
Barley for Bread	8.90	12.0	0.81
Wheat for Bread	1.83	2.0	0.16
Rice, Macaroni	1.44	2.0	0.13
Meat	5.60	7.0	0.51
Vegetables	0.10	0.1	0.01
Oil and Fat	3.43	5.0	0.31
Tea and Coffee	7.01	9.0	0.64
Sugar	9.03	12.0	0.83
Tobacco	3.86	5.0	0.35
Clothing	17.56	23.0	1.62
Shoes	3.80	5.0	0.35
Soap	1.62	2.0	0.15
Fuels	1.20	2.0	0.11
Education	2.32	3.0	0.21
Medicine	4.21	5.2	0.38
Recreation	1.49	2.0	0.13
Contributions	0.13	0.2	0.01
Festivals	1.51	2.0	0.13
Servants	0.36	0.5	0.03
Other	0.91	1.0	0.08
TOTAL	76.31	100.0	6.95

Taken from 'Report to the G. oL. on Indigenous and Italian Farm Enterprises in the Zavia Area' FAO, Rome, April 1954. (1939

The interesting factors apparent from these figures are as follows:-

(a) Purchases of food other than that produced on the farm account for an average of 49.1% of expenditure on the seventy farms included in Theodorou's 1952 Survey.(39) As we have pointed out from farm samples in the Misuratino area, commercial farms at Phases IV and V are specialist production units and are

thus reliant for supplementary foodstuffs on the general market. Experience in Misuratino, reinforced by work in Cyrenaica shows that families with an income of less than £L20 per month spend 60-80% on food and provisions - i.e. at growth Phases II and III.(88) Families in receipt of £L30 or more per month spend from 40-50% on food and provisions.

(b) Consumption of coffee, tea and sugar accounted for an average of 21% of expenditure in farm households. Since these items are regarded as social necessities, they form a fixed proportion of the household budget even in farm units which are relatively poor.

(c) The average cash expenses per person per year on Theodorou's scale is £L7, with a range for seventy farms of £L1 to £L25.

(d) Spending on general consumer goods apart from foods and clothing represented about 10% of total annual expenditure, but as we saw above (a), this varied greatly from the non-commercial class of farmers to the later Phase farmers.

<u>SUMMARY - the relative importance of the rural markets in relation to production from urban areas</u>.

(A) The major urban markets in Libya are concentrated

i. In Tripoli and Benghazi
ii. In the smaller urban units of Barce, Derna and Misurata.

(B) The major markets in rural areas are to be found in Tripolitania.

(C) The following groups are important consumers of manufactured and processed goods amongst the indigenous population:-
i. High income groups indicated in Table 84 with £L15 or more per month. Mainly urban areas.

ii. Limited number of rural notables with income above £L1,000 per annum.

(D) Alien groups in Libya with high incomes. Form a significant part of the Tripoli market but are less important in provincial areas except in Homs.

(E) An increase in real wages may be expected amongst urban Arabs and the number of highly paid aliens is likely to expand.

(F) The present markets for urban goods may thus be defined as follows:

Location	Persons
Urban	67,704
Rural Alien	4,585
Rural Indigenous	1,475

(G) The future market in Tripolitania depends upon the impact of the income changes in the cities, upon the rural areas and relatedly, the momentum of economic growth in rural areas both in response to internal dynamics and external influence from the towns. Should the spread of prosperity take in the rural areas, as we have seen it appears to be doing, then the civilian market in Libya may be expected to expand considerably. In terms of local development; - Misuratino at the moment offers poor scope for marketing manufactured goods since a sample ratio of 3:1 farmers are non-commercial. In the coming years in the normal phase of growth this ratio will be reversed and at this stage Misuratino will represent a valuable market.

(H) Large sections of the indigenous population will be inaccessible for a long while, a factor which will have a great restricting effect upon local industrial growth since the total population of the territory is minute in any case. The groups excluded from market activity are as follows:-

(i)	Semi-nomads and nomads	287,343
(ii)	Females	524,439

Conclusion

Study of the geography of economic growth in Misuratino has shown that the area is at present undergoing a sustained period of advance.

(i) The Causes of Advance

(a) We have demonstrated that initial movement towards economic growth in the indigenous economy may be accounted to internal forces. Particularly relevant in this context is the fact that individuals and fragment groups within the cabila were becoming persistent in their claims to hold their share of the cabila land constant from one year to another without necessity for annual re-distribution. The emergence of private property rights against the claims of the cabila was only a matter of time in this situation.

(b) Turkish influences upon the indigenous trend to sedentarise had a two-fold effect - in the first place, the prolonged period of peace during the Turkish administration paved the way for Arab sedentarisation; on the other hand, Turkish attempts to enforce private property rights and taxation delayed the sedentarisation of the tribes in some localities.

(c) The advent of the Italian colonial regime was the most important non-indigenous force behind the movement to economic advance. The following heads summarise the major points of impact between Arab and Italian sectors:-

- systematic attempts at de-tribalisation by the Italian authorities following the Italic-Sanusi wars.
- systematic land alienation in the Balbo era for the

purposes of Italian colonisation projects.

- mass employment of Arabs in the public services, army, industry and agriculture.

(d) The so-called boom period since 1955 has stimulated further economic growth, mainly in the urban sphere, but also to an increasing extent in rural areas of Tripolitania.

(ii) The Mechanism of Advance

In the main body of the thesis, it was demonstrated that there was a broad, but discernable pattern behind the workings of economic growth of the following order:-

(1) Phase I - Traditional semi-nomadism located mainly in the peripheral and inner steppe lands.

(2) Phase II - Beginnings of sedentarisation, development of dry-land oasis cultivation on private land.

(3) Phase III - Suani farming by conservative peasants utilising primitive dalu irrigation techniques. Market activity based on fortuitous surpluses in years of good rainfall.

(4) Phase IV - Transitional farming economy; capitalisation of water resources for market production.

(5) Phase V - Hawaza farming; represents most advanced stage of economic evolution based on modern farming practice and intensive use of capital.

We have seen that the mechanism of growth provides us with a convenient measuring rod for assessment of the standing of both individual farmers and localities within the oases of Misuratino. In fact, we have indicated that each Phase of growth represents the effective influence of rising standards of education, of appreciation of capital investment and of all

the facets necessarily involved in the growth process upon both individual and group unit in the environment of Misuratino.

(iii) Evidence of Advance

The rate and direction of economic growth in Tripolitania was traced by means of deductive, derived and, mainly, field work material as follows:-

Sources (a) derived information from departmental and government libraries in Libya. Further reference was available from the comprehensive library of modern works relevant to Libya in the Rockefeller Collection, Department of Geography, Durham Colleges.

(b) conversations with government officials, cabila notables, local farmers, school teachers and foreign experts of United Nations and associated agencies.

(c) land use survey of Misuratino - Spring 1959.

(d) Questionnaire Survey of Misuratino - Year 1959-60.

Evidence (a) The survival of semi-nomadic society in Misuratino until the latter quarter of the Nineteenth Century is vouched for by reporters such as Cowper(58) and Franchetti(60) and is further reinforced by the word of the Commissioner and Mudirs of Misuratino. It is significant too, that Turkish land registry records begin at the turn of the century.

(b) Using official statistics and local estimates, we have shown that production of crops and crop products has increased steadily in the past 60 years. Separate consideration of Arab and Italian sectors of the agricultural economy demonstrated that increases in production of crops have not been confined to the modern Italian economy in Tripolitania. Similarly, it was shown that Arab farm units are exploiting a broader range of crop production especially at the hawaza level.

(c) Modern trends in the pattern of growth were illustrated by reference to changes in land use and land holding in Misuratino which were apparent from the maps of land use (Figures 53-77).

(d) Trends of development in terms of the farm and farm management were indicated by analysis of the modern farm unit with particular reference to the rate and direction of investment in the farm unit as apparent from the Questionnaire Survey.

(e) The general picture of national economic and social growth was shown by means of examination of national income, of internal trends in migration and of the rate of expansion of urban units.

The writer has shown that Misuratino represents an interesting study of economic geography by virtue of its position as an emergent economy moving under pressure from internal and external change from traditional to transitional society.

(iv) Results of the Advance

(a) The prime result of economic growth in Tripolitania may be seen in a gradual but distinct re-appraisal of the environment and its resources by the indigenous and alien populations. It may be expected that human control on the environment will increase at an accelerating rate in future years; yet sixty years ago, human occupance in the area was governed to a large extent by environmental limitations.

(b) We have pointed out that economic interaction of communities in recent years has been reinforced by the influence of oil exploration. The nature and rate of the economic advance described in this thesis undoubtedly will be affected by future developments in oil exploration and exploitation in Libya. On the basis of our earlier discussion, we might say that the impact of oil revenues upon the agricultural economy

should be beneficial. The agrarian economy, moving rapidly to transitional status, could well be stimulated to further advance by growth of the urban sector and the availability of investment funds. The mission of the International Bank to Libya indicated that oil income would bring more problems to the country than it would solve; the growing discrepancy between the rates of growth apparent in urban and rural sectors gives just cause for concern(91). Nonetheless, we suggest that recent growth in the indigenous economy, generally disregarded by official literature including the International Bank, may preclude damaging recession in the agricultural sector.

(c) The speed and direction of the transitional economy which is emerging in Misuratino -

- indicates that much of the Italian colonial investment in capital over-heads and agricultural estates may be integrated into the indigenous economy.
- indicates that there is a sound future for highly capitalised and adaptable agricultural enterprise.
- indicates that the sub-surface water supplies may be utilised to effect in crop production for export markets.

LIST OF APPENDICES

APPENDIX 1

CISTERN SURVEY - CLEARANCE REPORTS 1954-55

Map: 1375, 1475, 1376, 1476

Name of Cistern		Map ref.	Capacity	Depth from crib
Sidi Gabu		504252	352	4
" "		"	432	4
Hasnum		590193	225	3
Zouiet el Grara		453063	332	4
Ulad Hmam		454063	252	3
" Dhow		450065	225	3
Maragna		443088	315	3
Ulad Utman		476296	496	4
" Mema (Shatan)		588148	304	4
" " "		582141	216	3
" Zaid (Grara)		462052	272	4
El Chuel (Shakhatna)		513315	243	3
Sidi Gnalla		553293	96	3
Shabat el Dhaba		517322	270	2
M Zekni, Dahar Hmar		436168	117	2
Zaela el Hella		546228	117	2
Ulad ben Ras		521236	280	4
M el Hadab		578205	284	4
Sualim (Ard el-Grara)		466058	180	3
Mahamud		450060	270	4
Um el Dhaba		425177	153	3
Shab el Adib		517252	198	4
Ulad Shara Dar		568271	171	3
Jebalia Zetuna		614183	216	3
El Adiab (Aro el-Grara)		404043	277	3
El Amama		446049	160	4
	ZLITEN AREA		Length	
M. Shetun		656945	40	4
El Gutfa	i.	615805	39	4
Gsa'a		580975	20	3
Seba Zouia		675930	29	5
Kimaw	i.	810850	30	4
Twaisha		590050	31	5
Lataif	i.	780780	56	4
	ii.	780770	12	4
Graiz Endara		840800	37	5
Um es Sidea		775730	28	4
Ueshea		725030	26	4
Gshua		749920	25	3
Um el Hamara		585470	10	4
Um e Jedari	i.	460000	26	5
" " "	ii.	460770	30	5

Name of Cistern	Map. Ref.	Length	Depth from Crib
ZLITEN AREA (cont'd)			
Kimaw ii	815050	24	5
Buruel I	900765	64	5
Gas el Arka i	550860	22	4
" " " ii	"	35	3
El Henshir	625805	20	4
Grea Shehub	770800	16	4
Buruel ii	725780	50	4
Kimaw iii	820850	49	6
El Gutfa ii	840840	26	3
Medrassa Magea	735150	12	3
" Kadush	775150	12	4
" Fuatir	825125	12	
Muderia "	825116	12	
Merassa el Juma	690185	12	
Muderia " "	"	"	
Sahrij el Baja iv	775180	30	
Grer el Amr	860850	22	
Faschia Zigherif	475775	60-5-4	
F Zagarff	410815	17-4-2	
F "	"	19-4-2	
F Agal Daumen	535980	14-4-2	
F Nisheba	551870	12-5-2	
F Nimun	710660	32-4-2	
F Shtib el Gesbia	515700	17-5-2	
Um el Jadar	430820	20-4-2	
El Kuiba	630680	22-4-2	
MISURATA AREA			
Faschia Scirra			
F	..... logs of the cisterns not complete.		
ZURRUG			
F Vaschia		40-4-5.5	
F Gabu		42-4-5.5	
F "		34-4-3.2	
F Recemud		42-3-3.5	

SOURCE L.P.D.S.A.

APPENDIX 2

The land use survey conducted in Misuratino - 1959-60.

Objective

To establish the pattern of land use prevailing in the Oases of Homs and Sahel El-Ahamed, agricultural year 1959-60.

Method

(i) Mapping in the field was accomplished with the use of -

- 1:100,000 Italian Geografico-Militare.
- 1: 20,000 L.P.S.D.A. Air Photos.(L.P.D.S.A., Tripoli).
- 1: 32,000 U.S.A.F. Air Photos.(L.A.R.C., Tripoli).

Field sheets produced from the above sources by pantograph: 1:20,000. Obvious disadvantages arose from the use of a large scale base sheet, but the supplementary use of the air photographs enabled accurate location of field areas. In order to minimise the copying error, final copies of the sheets appearing as Figures 60 to 77 were taken direct from the field sheets.

(ii) Field plotting was achieved by field to field visits in the spring of 1960 by the writer. It was originally intended to cover the entire littoral of Misuratino by land use survey. Unfortunately, this proved impossible in the time available to the writer. In most farm visits in connection with the land use survey, farmers were interviewed to ascertain supplementary information concerning summer cropping and husbandry techniques practised on the farm.

(iii) Where 'kitchen garden' cropping occurred, the predominating crop is recorded on the maps of land use; usually this

implied an over-emphasis upon irrigated vegetables.

Distribution of Survey

(a) The Oasis of Homs and the Sahel El-Ahamed were covered in respect to the oasis gardens alone.

(b) In the Italian sector, the entire estate of La Valdagno Concession was surveyed on the same scale.

Results

The results of the survey are contained in 18 sheets retained in the collection of the Department of Geography, Durham Colleges in the University of Durham.

Onions
Beans
Others.

(xiv) How many animals have you of the following varieties ?

	Number of animals	Value sold 1959-60	Number sold 1959-60
Cattle-young			
adult			
Sheep -young			
adult			
Goats -young			
adult			
Camels-young			
adult			
Horses			
Donkeys			
Pigs			
Chickens			

(xv) Estimate the value of the following items on your farm.

	Average Value	Size
Farm house		
Workers house		
Stable		
Granary		
Other buildings		
Well ..... First water table		
Second water table		
Irrigation works		
Fences		
Others		
Machinery		
Implements		
Hand tools		
Other equipment		
Motor pumps for irrigation		

(xvi) How much of the following stock did you have in Spring 1960 ?

	£L
Seeds	
Animal Feed	
Fertiliser	
Manure	
Insecticides	
Others	

(xvii) How much labour did you employ on your farm last year ?

	Number of days	Costs £L	Unpaid family labour
Men			
Women			
Children			

(xviii) How many days did you work your own farm ?

(xix) Indicate the sources of your income during 1959.

	£L
Crops sold	
By-products sold	
Livestock sold	
Livestock by-products sold	
Income from labour on other farms	
Other non-agricultural work	
Other income	

(xx) Indicate the amount of money spent during the year 1959.

	£L
Purchase of livestock	
Purchase of farm equipment	
Purchase of farm supplies	
Repair of buildings and equipment	
Hired labour	
Hired animals	
Hired equipment	
Transport	
Travelling for farm needs	
Veterinary	
Insurance	
Electricity	
Fuel	
Other expenses	
Taxes and interest on loans	
Unpaid family labour	

(xxi) How much money do you owe ?

(a) Remaining mortgage for the farm.
(b) Loans for farm supplies and equipment
(c) Private loans for your own use.

(xxii) How many of the following have you in your farmhouse ?

Kitchen .....
Bath .....
Toilet .....
Eledtricity..
Running water

PLEASE KEEP THE FORMS YOU HAVE FILLED IN UNTIL THEY ARE COLLECTED FROM YOU.

For Arab farmers (a) Name of cabila
(b) Location

(For Italian Farmers (a) Name of Concession.)

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Si prega di non includere qualsiasi nome su questo documento.
Le riposte saranno confidensiali e per l'use unico dell' Universita.

(i) Quante famiglie abitano nella casa vostra ? .....

(ii) Quante persone abitano nella casa vostra ? .....

	Maschii	Femine	Mestiere
(a)	.....		
(b)	.....		
(c)	.....		
(d)	.....		

(iii) Quante persone sanno leggere ?

Quante persone sanno leggere e scrivere ?

(iv) Da quanto tempo abita lei qui ?

(v) Quant' e grande il vostro podere ? ettari.

(vi) Possedete adesso del tutto il vostro podere oppure ci vorra ancora qualche anno ?

(vii) Quanta terra puo essere irrigata nel vostro podere ?

Quanta terra irrigata c'e nel vostro podere quest' anno 1960 ?

(viii) Quanto terreno coltivato a secco che non e mai stato irrigate ?

(ix) Quanta terra rimane senza coltivazione ogni anno ?

Questa rimane cosi per una parte dell' anno ? 0 per tutto l'anno.

(x) Quanto terreno e alberato e seminato ?

Che alberi e coltivazioni ci sono insieme ?

(xi) Prodotti di alberi -

Nel seguente, date il numero delle piante nel vostro podere, il loro valore e quantita della produsione dello scorso anno.

(a) IRRIGATO

	(i) Alberato Solo			(ii) Alberato e Seminato		
	A Prodotto 1959 Quintali	B Numero	C Valore £L 1959	D Prodotto 1959 Quintali	E Numero	F Valore £L 1959
Palme da Datteri						
Cedri						
Mandorli						
Vigna						

Olivi
Altri Frutti

(b) TERRENO SECCO

	G	H	I
	Prodotto 1959 Quintali	Numero	Valore £L 1959
Palme da Datteri			
Cedri			
Mandorli			
Vigna			
Olivi			
Altri Frutti			

(xii) Prodotti di altri raccolti

(a) IRRIGATO

	(i) Seminato Solo			(ii) Alberato e Seminato		
	A	B	C	D	E	F
	Prodotto 1959 Quintali	Ettari Seminati 1959	Valore £L 1959	Prodotto 1959 Quintali	Ettari Seminato 1959	Valore £L 1959
Orzo						
Grano						
Nocciole						
Erba Medica						
Potate						
Pomidori						
Pepe						
Cipolle						
Fagioli						
Altri racc.						

(b) TERRENO SECCO

	G	H	I
	Prodotto 1959 Quintali	Ettari Seminato 1959	Valore £L 1959
Orzo			
Grano			
Nocciole			
Erba Medica			
Potate			
Pomidori			
Pepe			
Cipolle			
Fagioli			
Altri racc.			

	Numero	Valore di prodotti animali venduti 1959-60
Buoi		
Vitelli		
Agnelli		
Capretti		
Cammelli		
Cavalli		
Asini		
Porci		
Galline		

(xiv) Stimati il valore dei seguenti fattori nel vostro podere:

	Valore £L	Ettari
Casa colonica		
Magazzeno		
Granaio		
Altre costruzioni		
Pozzo		
Canelizzazioni di irrigazione		
Altri lavori di irrigazione		
Muri		
Paletti		
Macchine		
Masserizie		
Utensili a mano		
Altro fornimento		
Pompe a motore pir irrigazione		

(xv) Date il valore delle vostre scorte nella stagione primaverile 1960.

	£L
Semi	
Foraggio	
Fertilizzanti	
Concimi	
Insetticida	
Altri	

(xvi) Quanta mano d'opera avete impregato nel vostro podere durante l'anno scorso ?

	No. di giorni	Prezzo £L	Lavori della famiglia (senza paga)
Uomini			
Donne			
Ragazzi			

(xvii) Perquanti giorni avete lavorato nel vostro podere ?
(xviii) Quale rendita avete avuto durante il 1959 ?

	£L
Prodotti alimentari venduti	
Coltivazioni vendute	
Bestiame venduto	
Prodotti animali venduti	
Mano di opera in altri poderi	
Paga per altri lavori	
Vari rendita	

(xix) Date il totale delle spese durante l'anno 1959.

	£L
Compra di bestiame	
Compra di fornimenti	
Compra di scorte (seme ecc)	
Riparazione delle costruzioni (macchine ecc)	
Mano d' opera	
Animali a noleggio	
Trasporto	
Trasporto in genere per l' uso del podere	
Materiale a noleggio	
Veterinario	
Polizze d' assicurazione	
Elettricita	
Combustibile	
Altre spese	
Tasse e interesse su prestiti	
Lavori della famiglia (senza paga)	

(xx) Quanto e il vostro debito ?

	£L
... sul podere	
... Debito per attrezzi ecc.	
... Debito per uso personale.	

(xxi) Quanti dei seguenti avete nella vostra casa colonica ?

	Valore £L
Cucina	
Bagno	
Gabinetto	
Elettricita	
Acqua corrente	

Vi preghiamo di custodire questa circolare finche sara raccolta presso di voi.
.. Per i coltivatori Rome della concessions.

جامعة درهام انجلترا

لا تضع اسمك من فضلك على هذه الصفحه ، ان اجابتك سوف تكون موضع ثقة ولا جل استعمال الجامعة من الناحيه العلميه فقط.

١) ـ كم عدد العائلات التي تعيش في بيت مزرعتك ؟

٢) ـ كم عدد السكان الذين يقيمون في البيت؟

أ ـ عدد الرجال.

ب ـ عدد النساء

جـ ـ الحرفه .

٣) ـ كم عدد الاشخاص الذين يستطيعون القراءة ؟

٤) ـ كم عدد الاشخاص الذين يستطيعون الكتابة ؟

٥) ـ ما هي المدة التي قضيتها في مزرعتك الحاليه ؟

٦) ـ ما هي مساحة مزرعتك (سانيتك) ؟

٧) ـ ما هي عدد الملكيات الزراعيه التي تملكها (أى عدد الاراضي المتفرقه)

أ ـ الموجوده في الساحل (السانيه)

ب ـ الموجودة في الداخل (البر)

٨) ـ هل تملك مزرعتك (سانيتك) ملكيه تامه ؟ أو هل هي سوف تصير في حوزتك بعد عدة سنوات ؟

٩) ـ ما هي مساحة الارض التي تروى في مزرعتك ؟ (بالهكتار أو الجايبه)

١٠) ـ ما هي مساحة الارض التي تروى فعلا لسنه ١٩٦٠ ؟

١١) ما هي مساحة الارض التي تدخل تحت نظام الزراعة الجافه ولا تروى أبدا ؟
(أى الارض التي تعتمد اعتمادا كليا على مياه الامطار الساقطة أثناء السنه)

١٢) ـ ما مساحة الارض البور لكل سنه (ربع ، نصف ، ثلث الارض ..الخ)؟

١٣) ـ أ ـ هل هي تكون بورا لجزء من السنه أم طيلة السنه كلها ؟

ب ـ ما مساحة أو نسبه الارض التي تزرع قمحا أو شعيرا بين الاشجار (أى نسبة الارض التي تزرع أو شعيرا في أرض بستانك بجنانك أو أى قطعة أرض تملكها) ؟

١٤) ـ ما هو نوع الاشجار التي يزرع القمح أو الشعير بجوارها (زيتون ، نخيل ..الخ) ؟

١٥) ـ ما هي مساحة الارض التي تستعملها لزراعة القمح أو الشعير خارج ارضك بالساحل ؟
(أى الاراضي التي تملكها في البر) بالهكتار أو الجايبه أو أى مقياس محلي خاص.

١٦) ـ أذكر ما هو عدد اشجارك الخاصه وقيمة محصول آخر السنة الاخيره ، وقيمة الاشجار في القائمه الاتيه :-

زراعه تعتمد على الرى		زراعه جافه تعتمد على الامطا	
ذات محصول	محصولين ـ القيمه	ذات محصول	محصولين ـ القيمه
أشجار النخيل			
أشجار الزيتون			
اشجار الموالح (برتقال وليمون)		اشجار العنب	
اشجار اللوز		اشجار اخرى .	

١٧)ـ ما مساحة الارض التي تبذر قمحا أو شعيرا كل سنه ؟

١٨)ـ ما مساحة الارض التي لا تستعمل على الاطلاق من أراضيك الخاصه ؟

١٩) ما مساحة الارض المنزرعة بالهكتارات أو (الجايبه) قيمة الارض المنزرعه ٠ حاصل الهكتار أو الجايبه ؟ وذلك بالنسبة للمحصولات الاتيه /

الشعير	القمح	الكاكاويه	البرسيم (الصفصفه)
البطاطس	الطماطم	الفلفل	البصل
الفاصوليا	حاصلات	أخرى	

كم عدد الحيوانات التي تملكها من الفائة الاتيه ز

البقر (بقر صغير عجول ـ بقر كبير	الغنم (اغنام صغير ـ أغنام كبيره)	الماعز (صغيره ـ كبير
الابل (جمال صغيره ـ جمال كبيره)	خيول (خيول صغيره ـ خيول كبيره)	الحمير (صغيره ـ كبي
الخنازير (خنازير صغيره خنازير كبيره)	دجاج	

٢٠)ـ اذكر قيمة المواد الاتيه الموجوده في مزرعتك من ناحيه /

أ ـ متوسط القيمه ب ـ الحجم ٠

الحوش (البيت التي تقيم فيه ٠	حوش العمال (البيت الذى يقيم فيه العمال الزراعيون
الخاصون بالمزرعه	الاسطبل (زريبه الحيوانات)
مخزن الحبوب والحاصلات الزراعيه الاخرى	البئر
المنطقة المائيه الاولى	
المنطقة المائيه الثانيه	

أعمال الرى (قيمة اجور الجباده وسقي السانيه)

السباخ (الطوابي)

الاعمال الميكانيكيه الاخرى

أدوات الحراثه والعزق والزراعه	الادوات الزراعيه المستعمله باليد (ـ المنجل المحشه الباله)
ادوات زراعيه أخرى	ماتور سحب الماء ٠

٢١)ـ ما هي قيمة تكاليف المواد ازراعيه التي صرفتها على مزرعتك لسنه ١٩٦٠ مقدره بالجنيهات وذلك من ناحيه ؟ البدور (الزريعه) علف الحيوانات (صفصفه حشيش اشياء اخرى) السماد الكيماوى الذى تستعمله في تسميد ارض مزرعتك سانيتك ٠ السماد الحيواني (الزبل) المواد الكيماويه التي تقضي على الافات التي تصيب الحيوان والمزروعات ٠ أشياء أخرى ٠

٢٢)ـ ما عدد العمال (الفلاحين) الذين قمت باستخدامهم في مزرعتك حتى نهاية اخر السنة المنصرمه أى نهاية سنه ١٩٥٩ (وهل يوجد لديك عمال اضاجون من أجلى الحراثه ؟ والحصاد أم لا)

عدد الايام	تكاليف اجور العمال	عائلة المزارع نفسها
عدد الرجال	عدد النساء	عدد الاطفال

٢٣)ـ ما عدد الايام التي تقوم فيها بالعمل في مزرعتك الخاصه (سانيتك حوازتك جنانك) ؟

٢٤ـ اذكر مصادر دخلك السنوى لسنة ١٩٥٩ وذلك بالجنيهات بالنسبة للاشياء الاتيه

أ ـ قيمة الحاصلات الزراعيه التي تملكها ككل ٠ ب ـ قيمة ما بيع من هذه الحاصلات٠

جـ ـ قيمة الحيوانات التي تملكها بصفة خاصه ٠ د ـ قيمة ما بيع في السنون من هذه الحيوانات

ط ـ اذا كان لديك دخل مالي من العمل في مزارع اخرى (اذكر قيمه)

ع ـ قيمة ما تحصل عليه من نقود من اعمال غير زراعيه (اذا كان لك دكان أو بيت مؤجر) ؟

هـ ـ اى دخل مالي تحصل عليه ؟

٢٤)ـ اذكر قيمة ما صرفت من جنيهات خلال سنه ١٩٥٩ على مزرعتك وذلك من ناحيه الاشياء الاتيه /

شراء حيوانات • شراء مواد زراعيه تلزم المزرعة (السانيه الارض الخ)• اصلاح البيت (الحوش) واصلاح معدات اخرى بالبيت • اجرة عمال (اجرة كراء العمال الذين يقومون بالعمل الزراعي في المزرعة أو السانيه • حيوانات مؤجره • ادوات زراعيه موجوده كالمحراث تركتور الخ • قيمة ما صرفت على عمليات نقل الانتاج الزراعي الى السوق • السفر من اجل مصالح المزرعة الى مدينه طرابلس أو غيرها من المدن السا حليه • علاج الحيوانات • التأمين (اذا كنت مؤمنا على بعض الاشياء في مزرعتك كالماطور أو غيره • الكهرباء الموقود (الفحم ـ الحطب) • مصاريف اخرى • ضرائب وفوائد على الارباح اذا كنت تتعامل مع البنوك • مصار عائليه •

٢٥)ـ اذكر ما القيمة النقدية التي تملكها من الجنيهات والقيمة النقديه للاشياء الاتيه /

أ ـ العقار ~~الارض~~ (الحوش أو البيوت الموجوده بالمزرعة أو السانيه التي تعتبر ملك الخاص•)

ب ـ ما هي قيمة القروض الماليه التي تقوم بها من اجل تجهيز المزرعة بالبذور والمعدات ؟

جـ ـ القروض الماليه الخاصه والتي تقع ضمن استعمالك الخاص •

٢٦)ـ ما عدد الاشياء الاتيه والموجوده في مزرعتك أو سانيتك ؟

عدد المطابخ عدد الحمامات عدد بيوت الادب عدد الحجرات أو البيوت المناره

عدد البيوت التي يتوفر فيها الماء الجارى عن طريق حنفيات (شيشمات)• بالكهرباء

ملاحظه /

ارجو من فضلك أن تعمل على حفظ اوراق الاسئله والاجابه عنها الى حين استلامها منك

أ اسم القبيطه

ب اسم المصرفيه أو المديريه التي تقيم بها

APPENDIX 4

Decrees Relevant to the formation and expansion of ENTECOL

(i) Royal Decree Law No. 696 11 June 1932 - Institution of a company for the colonisation of Cyrenaica.

(1) There is instituted under the supervision of the Commission for migration and internal colonisation and the Minister for the Colonies a company for the Colonisation of Cyrenaica.

(2) The company has the object of putting to use, by way of colonisation with families from the Mother Country, the lands of Cyrenaica which will be attributed to its patrimony on the part of the State.

(3) The patrimony of the company, besides the lands referred to in the preceding article, will be formed by a contribution of the following (See Page 629, Part One (iii). The sums concerned will be paid in five annual installments as from the date of approval of the statute.

(4) The organs of the company are the assembly of contributors, the president, the Council of Administration and the panel of controllers.

(5) The assembly is formed of the contributors of not less than Lire 500000 and they are entitled to one vote for each contribution. The representatives of the Provincial Councils for corporate economy referred to in Article (3) will be nominated according to the total contribution of the councils, by the Minister for Corporations. The State which is represented at the assembly by the President of the company will be entitled to a number of votes equal to the total votes held by the other contributors. The assembly is competent to resolve:-

(a) upon the proposed statute of the company and eventual modification.
(b) upon the estimates and the balance sheets.
(c) upon the nomination of seven members of the Council of Administration selected from persons specially expert in the problems of colonisation.
(d) upon the nomination of the controllers.

(6) The president is nominated by decree of the Head of Government upon the recommendation of the Commissioner for Migration and Internal colonisation in concert with the Ministry for the Colonies.

(7) The Council of Administration is composed of the President and 14 members, of which seven are nominated by the assembly

of contributors in accordance with Article(5), and seven more delegated respectively by the presidency of the Council of Ministers, the Commission for migration and internal colonisation, the Minister for the Colonies, the Minister for Finance, the Minister for Corporations, the Government of the colony and the Chamber of Colonial Commerce.

The president of the Company must hear the Council of Administration in regard to the nomination and dismissal of personnel, the estimates and balance sheets and on all matters that exceed ordinary administration.

(8) The panel of controllers is composed of three persons designated by the assembly from outside of the contributors, one by the Head of Government and one by the Minister of finance.

(9) The statute of the company and the eventual successive modifications that are proposed by the assembly of contributors and approved by decree of the Head of Government having heard the commission for migration and internal colonisation and the Minister of Colonies. The Head of the Government at the sitting for the approval thereof can make such modifications thereto as he deems necessary.

(10) The company can be granted the contributions and subsidies provided by the rules in force in favour of colonisation in Tripolitania and Cyrenaica and of internal migration.

(11) The documents and contracts stipulated by the company are subject to the treatment established for documents by the State. The legacies and donations in its favour are exempt from every kind of taxation thereon.

(12) A representative of the Commission for migration and internal colonisation is called to take part in the Superior Colonial Council Institute by Royal Decree No. 1817 of 31st Dec. 1922.

(13) By decree of the Head of the Government there can be effected modification and addition to the rules actually in force regarding the control and development of migration and internal colonisation and will be issued the necessary depositions arising from the present decree.
The present decree will come into force on the day of its publication in the Official Gazette of the Kingdom and will be presented to parliament for its conversion into law.

(ii) Royal Decree No. 2038 of 11 Oct. 1934.

(1) The company for the colonisation of Cyrenaica, instituted by Royal Decree Law No. 696 11th June 1932 is authorised to

extend its activities also to Tripolitania for capitalising by way of colonisation with families of the Mother Country the lands of that colony which shall be attributed to its patrimony on the part of the State.

In consequence it assumes the name of Company for the Colonisation of Tripolitania and Cyrenaica.

(2) The Government of Tripolitania will reserve at the disposal of the company all the zones available in the eastern territory of the colony included in a line that connects Gasr Garabulli-Tarhuna and Ben Ulid. Within the zone the Government of the colony, before providing for the transfer of land to other concerns or private companies for the purpose of colonisation will question the company for colonisation as to the eventual exercise of the right of preference as above established fixing a period within which the company must declare if it does or does not intend to avail itself of its right.
In the affirmative case the assignment will be made to the company. When the capitalisation of the territory delimited in the first paragraph has been completed the company will be able to extend its activities to other zones that appear to be available in the remaining territory of the colony giving over these the right of preference as stipulated above.
The right of preference referred to in the second paragraph of the present article will have no effect with regard to requests for the concessions in the said territories for which the Government of the colony has already assumed engagements towards interested parties.

(3) The Government of Tripolitania and Cyrenaica can entrust to the company for colonisation the execution of the works of maintenance of roads and re-afforestation according to the plans thereof which have been prepared and in accordance with the arrangements to be made from time to time.
In every case the company, provided it assumes the said works, must execute them at the prices already stipulated by the Administration to the constructors for similar works and when that is not possible upon the basis of market prices.

(4) The value of the lands in Tripolitania and Cyrenaica attributed to the company on the part of the State will be considered as contributions of the said Government in the formation of the patrimony of the said company, taken into account together with the amounts subscribed by other concerns indicated in article (3) of R.D. No. 696 of 11th June 1932.

(5) The families that shall be sent to Tripolitania and Cyrenaica will be selected, with technical professional judgement exclusively from amongst those inscribed with the National Fascist Party, those belonging to the National Security

volunteer Militia, and ex-combatants.

(6) On the Council of Administration of the company, provided for in article 7 of Decree Law 696, will take part also a delegate of the Government of Tripolitania.
In case of equality of vote, that of the president will prevail.

(7) On the eventual increase in contributions that shall be resolved upon the subscribers in respect of those fixed by Decree Law 696 will be paid at annual interest of 3½% for the duration of 20 years from the budget of the Commission for migration and internal colonisation.

(8) The company will continue to be regulated by the rules contained in the Decree Law 696 which will remain in full force where not modified by the present decree.

(9) The decree of the Head of Government in concert with the Ministers for the Colonies and Finance, the activities of the company can be extended also to other colonies.
By the same decree will be established the limit and the form which the company can exercise its activities. The present decree will come into force on the day of publication in the Official Gazette of the Kingdom and will be presented to Parliament for its conversion into Law.

(iii) Royal Decree Law No. 2283 26th September 1935

The denomination of the Company for the colonisation of Tripolitania and Cyrenaica is changed to the Company for the colonisation of Libya.

APPENDIX 5

1954/5, 55/6, 56/7 ESTIMATED FOOD SUPPLIES - TRIPOLITANIA

Commodity	Per Capita Consumption				
	Kgs. Per Annum	Grms. Per Day	Calories Per Day	Protein Per Day	Fat Per Day
	kgs	grms	calories	grms	grms
Meat					
Beef	1.2	3.3	5	0.5	0.4
Mutton	4.3	11.7	14	1.5	0.8
Goat	2.0	5.5	7	0.7	0.4
Camel	1.0	2.7	2	0.1	0.1
Meat prepared	0.1	0.4	1	0.1	0.1
TOTAL	8.6	23.6	29	2.9	1.9
Eggs	0.4	1.1	2	0.1	0.1
Fish					
Fresh	0.1	0.4	-	-	-
Prepared	0.1	0.4	-	-	-
TOTAL	0.2	0.8	-	-	-
Milk					
Cow's	3.9	10.6	7	0.4	0.4
Sheep's	10.7	29.4	29	1.7	1.9
Goat's	13.1	26.0	26	1.4	1.6
Camel's	3.7	10.2	7	0.4	0.5
Preserved	0.5	1.5	5	0.5	-
Cheese	0.4	1.1	4	0.3	0.3
TOTAL	32.3	78.8	78	4.7	4.7
Oils and Fats					
Animal fats					
Olive oil					
Other veg. oils.					
TOTAL	4.3	11.7	103		11.7
TOTAL			1880	54.1	27.3
Animal				7.7	
Vegetable				46.4	

Data prepared by G. Ferro-Luzzi - FAO Report to G.O.L. on Nutrition 1958.

APPENDIX 5 (continued)

1954/5, 55/6, 56/7 ESTIMATED FOOD SUPPLIES - TRIPOLITANIA

Commodity	Per capita consumption				
	Kilogram Per Annum	Grms. Per Day	Calories Per Day	Protein Per Day	Fat Per Day
	kgs.	grms.	calories	grms.	grms.
Cereals					
Wheat	27.7	76.0	266	8.9	1.1
Wheat flour	35.9	98.2	357	10.7	1.1
Barley	60.6	165.9	551	18.2	3.0
Millet					
Rice (Milled)	2.5	6.9	25	0.5	-
TOTAL	126.7	347.0	1199	38.3	5.2
Potatoes	13.4	36.8	26	0.6	-
Sugar	10.3	28.2	109	-	-
Pulse and nuts	2.0	5.5	21	1.0	1.7
Other pulses	3.6	9.8	34	2.2	0.2
Almonds (in shell)	1.1	3.1	8	0.2	0.8
TOTAL	6.7	18.4	63	3.4	2.7
Vegetables					
Tomatoes	1.9	5.1	1	0.1	-
Tomato Paste	3.4	9.4	4	0.2	-
Onions	11.7	32.1	12	0.4	0.1
Pumpkins	3.7	10.2	1	0.1	-
Peppers (green)	2.3	6.3	1	0.1	-
Peppers (Red-dry)	2.3	6.3	16	0.6	0.2
TOTAL	25.3	69.4	35	1.5	0.3
Fruits					
Citrus	2.8	7.7	2	-	-
Others (Fresh)	3.3	9.0	4	-	0.1
Dates (Dry)	3.6	86.5	215	2.4	0.6
Figs (Dry)	2.7	7.4	18	0.2	0.1
TOTAL			239	2.6	0.8

Data prepared by G. Ferro-Luzzi - FAO Report on Nutrition 1958.

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APPENDIX 7

Glossary of non-English terms used in the text.

apoderate (It.)	divided into geometrical plots.
ailet (Ar.)	family group.
arbi (Ar.)	sedentary agriculturalist esp. in littoral oases.
bab (Ar.)	gateway.
bait (Ar.)	joint family group.
bazin (Ar.)	Arab staple dish.
bir (Ar.)	well.
bokha (Ar.)	fermented sap of the date palm.
cabila (Ar.)	unitary tribal group.
casa colonica (It.)	farmhouse.
centre (It.)	estate; estate centre.
dalu (Ar.)	goat skin bag; used for irrigation system.
dar (Ar.)	room.
effendi (Tk.)	master; official.
Ente (ENTECOL) (It.)	Company for the colonisation of Libya.
enzel (Ar.)	tenancy contract
fellah (Ar.)	peasant.
fil-fil (Ar.)	pepper
gasr (Ar.)	fort
gedula (Ar.)	basin irrigation system; irrigated basin. Approx. 1 x 1 m.
Ghibla (Ar.)	south (i.e. desert).
Ghibli (Ar.)	wind from the south.
ginan (Ar.)	inundation garden.
hara (Ar.)	ghetto.
haush (Ar.)	house
hawaza (Ar.)	modern Arab farm.
imam (Ar.)	religious adviser.
INPS (It.)	Institute Nazionale Providenza Sociale (v. Appendix 4).
kus-kus (Ar.)	staple Arab dish.
Kaimakam (Ar.)	2 i/c Dist. Commiss.
laghbi (Ar.)	beer from date palm sap.
lahma (Ar.)	subsidiary tribal aggregate.
leben (Ar.)	fermented milk
mezzadria (It.)	share tenancy.
mogharsa (Ar.)	share tenancy.
Mukhtar (Tk.)	advisor.
Mudir (Ar.)	local official.
mudiriyat (Ar.)	local admin. area.
mulk (Tk.)	exclusive interest in land.
Mutaserif (Ar.)	Dist. Commiss.
Mutaserifya (Ar.)	District.
olificio (It.)	olive press.
podere (It.)	field plot.
ramla(et) (Ar.)	dune area.
sanza (It.)	olive shell.

sebkha (Ar.)	salt flat.
sgifa (Ar.)	entrance hall.
suani (saniya sgl.) (Ar.)	irrigated field.
suk (Ar.)	market.
taam (Ar.)	wheat.
wakf (Ar.)	religious endowment.
waset el-haysh (Ar.)	courtyard.
zavia (Ar.)	school.
Zavia (Ar.)	religious brotherhood.

APPENDIX 8

Location of settlements mentioned in the text.

Benghazi	32	degrees	10'	N	20	degrees	5' E
Ben Ulid	31	"	50'	N	14	"	30' E
Bizerte (Tunisia)	37	"	25'	N	9	"	50' E
El-Kussabat	32	"	30'	N	14	"	5' E
El-Agheila	30	"	15'	N	19	"	5' E
Ghenima	32	"	40'	N	14	"	10' E
Goz Ed-Dchela	32	"	30'	N	14	"	25' E
Homs	32	"	40'	N	14	"	15' E
Misurata	32	"	20'	N	15	"	10' E
Marada	29	"	0'	N	19	"	5' E
Ras El-Hammam (Mnt.)	32	"	35'	N	14	"	20' E
Ras El-Magen (Mnt.)	32	"	10'	N	15	"	5' E
Suk El-Giuma	32	"	25'	N	14	"	30' E
Taorga	32	"	0'	N	15	"	0' E
Tarhuna	32	"	20'	N	13	"	35' E
Tripoli	32	"	48'	N	13	"	13' E
Zaviet Maghib	32	"	20'	N	15	"	5' E
Zavia	32	"	45'	N	12	"	35' E
Zliten	32	"	30'	N	14	"	40' E

Other locations are indicated in Figure 1.
Further locations included in 1:100,000 Geografico-Militare 1937, Revised 1942, Reprinted by 42 Sur. Eng. Rgt., December 1953.