

178

The Indian Geographical
Journal

1960 - July - Sept and Oct - Dec

VOL - 35. NO - 3 and 4



JL-
U. 2, N 46
1460-1461-93
1461-1462

128

THE INDIAN GEOGRAPHICAL JOURNAL

Formerly

THE JOURNAL OF THE MADRAS GEOGRAPHICAL ASSOCIATION

Vol. XXXV

JULY - SEPT. and OCT. - DEC. 1960

Nos. 3 & 4

*The Editor takes no responsibility for the views expressed in the Journal.
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VITTALAM VILLAGE*

By

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I. INTRODUCTION

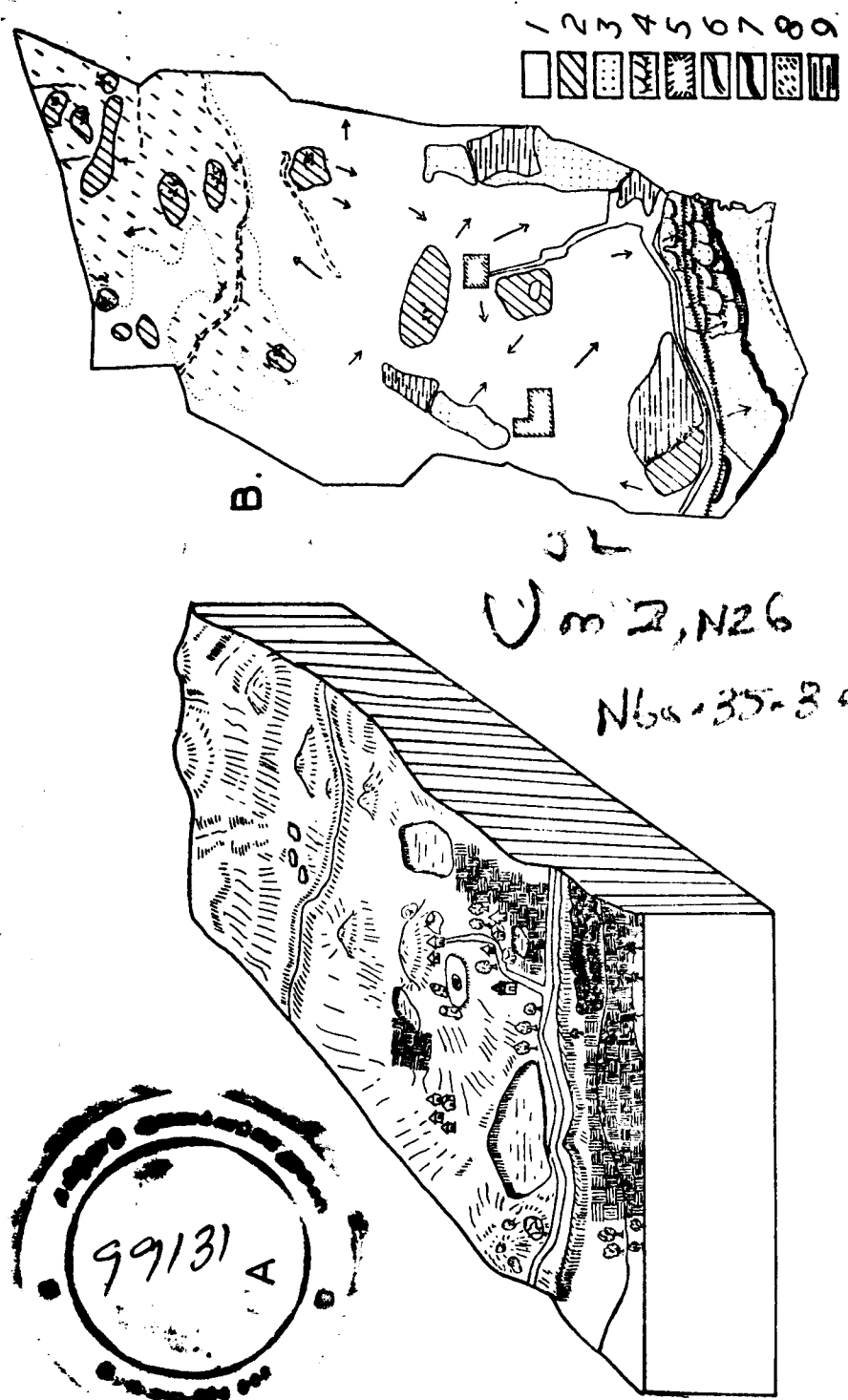
The village Vittalam ($13^{\circ} 41' 15''$ N and $78^{\circ} 40' 00''$ E, area 1.88 sq. miles or 1203.22 acres) is situated in the south-western corner of Vayalpad taluk of Chittoor District in Andhra Pradesh. The village includes within itself the main settlement of Vittalam and the hamlets of Pandalagudisalu and Kundellavaripalle. The main road, from Madanapalle to Piler and to Chittoor proper, passes through this village. The meter-gauge line from Pekala to Dharmavaram passes through the village, though the village itself is not a station. Vayalpad and Chintaparti are the nearest railway stations, each about four miles away. The location of the village is thus favourable from the point of view of communications.

The village derives its name from the ruined temple of Sri Vittaleswaraswami. It has considerable importance in the neighbourhood because of antiquity. Evidences seem to show the existence of this village prior to the times of Sri Krishnadevaraya, i.e., the early 16th century. The temple at Vittalam was certainly built during his reign for the presiding deity there is the same as that of Hampi and there are some inscriptions of this time. The temple is, however, in ruins today.

II. THE PHYSICAL SETTING

The surrounding country forms a pleateau of 2000 - 2500 ft. in elevation. The village lies 3 miles to the east of an isolated chain of hills 3500' high known as 'Nurukuppala konda'. The hills in and around the village present every form and shape. "Most have craggy peaks consorted into fantastic shapes. On several there are lofty stones standing erect like

*Adapted from the Village Report submitted for the B.Sc. (Hons.) degree in Geography of the University of Madras.



A. Block diagram : Scale—horizontal (4" to 1 mile), vertical—1" to 4 ft. (along the front edge of the block); vertical exaggeration—20 times (approximately).

B. Regional diagram : Scale 4" to 1 mile; 1—Land 20' to 30' above general level and very undulating; 2—Rocky hillock with relative height; 3—Irrigated lands; 4—Terraced fields; 5—Village site; 6—Non perennial streams; 7—Canal; 8—Grazing lands; 9—Tank bed.

Note—Arrows indicate the direction of the slope.

monuments visible for many miles around. The ground is very undulating and it would be difficult to find a perfectly level square mile...it is a rugged region broken by numerous great rounded hills..."¹

Thus the two square miles of the village are extremely undulating in nature (Fig. 1). This is especially true of the northern rocky portion of the village. In the south slopes are not so steep because this section forms the bank of a river valley but they are steep enough to necessitate a type of terracing known as contour bunding for the cultivation of crops. This situation is also favourable from the point of view of distance from the fields because both the dry fields of the north and the wet fields of the south are quite near the site.

The rock types outcropping in this area are certain varieties of gneiss. The gneiss is very granatoid. In hand specimens it resembles fine-grained granite. It is grey to greyish black in colour. The granites and gneisses are quarried and used for fencing the fields and as building material for houses, roads, railways, etc. It can be easily cut into rectangular blocks. The area is mature and the relief is senile. Maturity is suggested by the river, thalwegs and the rounded hills.

The altitude (1900') partly keeps the region cool over most part of the year. During the three hottest months (from March to May) the thermometer in mid-day is rarely over 92° F in shade. The mornings and evenings are always cool. The average annual temperature is 76.9° F.

The village lies in the rainshadow area of the Western Ghats, on the eastern rim of the Deccan Plateau. Even here the monsoon winds dry out and the monsoon clouds thin out as they reach these interior regions. The village has an average annual rainfall of 32", most of which (53.3%) is received during the retreating monsoon. The south-west monsoon period is the next important for rainfall giving over 25% of the total. The number of rainy days in the year is 47. Variability of rainfall is very great. The region is one of the danger zones from the point of view of liability to famine in that it has a rainfall of less than 40" with a variability of more than 30%. The delaying of rains, be they slight showers, becomes disastrous in such an arid region as this. Once in every 6 or 7 years the rainfall is abnormally high and between these maxima we get a symmetrical abnormal low. This cycle does not certainly repeat itself every time with strict punctuality but a rough correlation does seem to exist.

Due to the moderate nature of the slopes there is no stagnation of water. Marshes and swamps are thus uncommon. The general slope of the land here is from north-west and north to south-east and south. Locally, however, in the northern section the terrain is so irregular that the hill-streams (*Vagulu*) follow courses consequent on local slopes. These streams are highly effemeral in nature and they flow for 10-15 days during and after rains. When they are dry even the bottoms (*thalwegs*) are hardly recognisable.

The Bahuda³ is the important stream of this region forming the southern boundary of this village separating it from Kuraparti. The Bahuda rises in

1. *The Cuddapah Manual*, Chap. II.

2. Kuriyan, G. — *Irrigation in India*, I.G.J. Vol. 22.

3. It derives its name from the two words *Bahu* — arm, and *da* — dan or sacrifice; and this refers to the legend of a Brahmin who sacrificed his arm when the rains failed. Also see *The Cuddapah Manual*, Chap. I.

the hills of Madanapalle and after passing through an underground tunnel in the vicinity of Telakona, enters the Vayalpad taluk cutting its way across the Nurukuppala Range. This river flows north and enters the Cuddappah district to join the Pennar. The bed of the river at Vittalam is a mere expanse of sand about 50'-100' wide and of very gentle slope. If it be the rainy season we come across a pool of water here and there but otherwise it is quite dry. Only after the heavy monsoon rains does the flow of the river offer an obstacle to passage by foot for a period of one to two months. This seriously hampers the economic activities of certain pastoral villages (e.g. Gollapalle) on the southern bank which sell milk and milk products at Vayalpad.

There are patches of natural vegetation essentially of the Xerophilous type. The ordinary types of trees like *neem*, banyan and tamarind are found plentifully. The other familiar plants are the *Kalli-Jammundu* (*Euphorbia Tirukalli*), the *Naga Jambu* or the Prickly Pear, the *Mushti*, the *Moduga*, the *Jambu* and the *Tumma*. The epiphytes seem to be more common than the parasites and most of the plants are annuals because of the pronounced drought during a particular season. The growth is essentially in the form of scrubs and bushes and what is a reserved forest on the map is not more than a maze of bushes and scrubs on the field.

For purposes of discussion the soil types could be divided into two familiar regions—the North (north of the road) and the South. In the North, as stated above, the rock outcrops near the surface at several places in the form of huge sheet or in the form of isolated hillocks and mountains. Even where the rock does lie under the surface of the ground the thickness of the soilmantle above it is essentially small. The north is characterised by a worst type of red sand and the thickness of the soil-cover varies with the slope but in the extreme north till the limit of the Pandalu Griselu, it is not more than one foot. As we come further south the soil changes from the worst type and near the road we have red sand of ordinary fertility.

The South is characterised by black loams which have a moderate to high clay content. They are some-times classed under the *regur* soils but their colour texture, irrigability all point to the fact that they are not *regur* soils. The depositional nature of this soil as contrasted with the residual soils of the North is strikingly brought out from the sand grains which are contained in this.

The one feature of this region is that here and there best red loams occur in tiny patches. One such patch occurs in the south of the village with the best sort covering 0.36 acres, and the good sort covering 2.30 acres. These soils are claimed to have exceptional fertility. The table on the next page shows the extent of the types of soil with its sorts found in the village.

The category 'unclassified waste' includes either the rocky outcrops or the unassessed waste lands where the soil is red sand of the worst type. By sorts the best soils cover an area of 47.64 acres and form 4%, the good soils 3.76%, the ordinary soils 14.48%, the poor soils 0.56%, and the worst soils 77.2%. It is seen thus that the worst variety dominates while the ordinary comes next. The best and good varieties form a mere 8% or just over 1/12 of the total area of the village but again these are of great significance.

TABLE No. I—SOILS BY SORTS

Sort.	EXTENT IN ACRES					Total.
	Best.	Good.	Ord.	Inferior	Worst.	
Black Loam	47.28	17.56	17.33	5.52	6.71	88.40
Red Loam	00.36	02.30	—	—	—	02.66
Red Sand	—	25.34	156.96	—	306.11	487.36
Total	47.64	45.20	174.29	5.52	312.82	578.42

Unclassified waste — 501.81 acres; Poromboke — 121.99 acres.

The discussion of soils leads naturally to a discussion of the water resources of the village. The water resources may be classified as (1) Natural and (2) Artificial.

The only natural resource is the rain water. The river Bahuda is not used at all for irrigation because — (a) the volume of water is never so large (b) when there is water in it irrigation is out of question because the lands are at a level 10'-20' higher than the surface of the bed. During rains, the Vittaleswara Kaluva brings some of its water. Though the water itself is not used for irrigation the river is of great importance in that it maintains a water table 0 - 4' below the ground level in average years. The wells of the southern part benefit tremendously from the existence of this river. The adverse effects of a continuous failure of rains for 2 to 3 years in succession are mitigated by the presence of the river though the bed of the river itself is dry.

The importance of rains as a source of water supply cannot be exaggerated for it is they that supply the tanks. Moreover, an area of as much as 258.35 acres out of a net cropped area of 354.77 acres (72.81%) — roughly $\frac{2}{3}$ is under rainfed crops without any type of irrigation whatsoever⁴.

Here not only the actual amount of rainfall is important but its time of occurrence is of immediate consequence, for delayed rains hamper agricultural operations of dry crops and cessation of rains or their total absence when the crops are on the field means wastage of seed, labour, etc.

A net area of 96.42 acres (27.19%) of irrigated land is left for the artificial sources. Thus irrigation is barely protective. Nevertheless the important food and cash crops are all irrigated. The main sources of irrigation are — (1) Tanks, (2) Canals and (3) Wells.

(1) *Tanks*:—The area irrigated by the tanks (and the canals referred to later) is the only area classified under the head 'irrigated' by the Revenue Department. All the tanks of the village are government owned. The sources of irrigation of this village (in fact for the whole of the western taluks of Chittoor District) fall under the classes IV and V in the Revenue Department Records i.e., they are amongst the most inferior both from the

4. Unirrigated area forms 61.76% of the gross cropped area (418.39 acres) or less than 2/3; the whole of the second crop is irrigated and even then this area is significant.

5. Of this rain-fed area, groundnut occupies over 2/3, i.e., 68.86% being an important cash crop.

point of view of capacity and reliability. There are three main tanks in the villages :—

(i) *The Ramaswami Cheruvu* — It is a class IV source. *Ayacut* (irrigated area) is 42.41 acres, 29.79 acres is *do fasli* i.e., double cropped).

(ii) *The Chirrareddi kunta* — It is a class IV source. *Ayacut* 5.52 acres (3 acres is irrigated twice).

(iii) *The Tsamireddi kunta* — It is class IV source adjacent to the village site. *Ayacut* — 18.72 acres (8.75 acres is *do fasli*). It is also used for domestic purposes.

(2) *Canals* :—The Sri Vittaleswara Kaluva is the only source under this category and is a mere gully. This canal is extremely unreliable in its being subject to evaporation and percolation in such an arid country. The presence of the Bahuda river aids in maintaining water in this canal and both together serve in maintaining the water-table high so that the wells become dependable.

It has a total *ayacut* of 26.48 acres of which all but 1.37 acres are *do fasli*. This canal irrigates the maximum amount of *inam* lands. The *kist* rate under this is highly variable and for *do fasli* the Government rates are high.

The *Kalva Kinda Bhumi* (i.e. the land irrigated by this canal) is definitely of less fertility than those irrigated by Ramaswami Cheruvu and Tsamireddi kunta and some of them are found unsuitable economically for raising a crop of GEB 24 (*Kichilli Samba*)⁶.

(3) *Wells* :—It could be said that tanks are the main source of irrigation (superficially) while wells are the dependable source. There are 32 wells in the village and all these are private owned. Of these 10 may be classed as *pacca* (masonry) but even those that are *kaccha* (non-masonry) are not mere hovels in the ground since they are extremely important as source of irrigation and the money spent on them is not wasted. Moreover, the Government has realised the tremendous importance of wells and grants a loan of Rs. 500/- to Rs. 1,000/- for the construction of wells to *ryots* (farmers) on a very small security.

These wells are mostly square and are usually of the size of 10' x 10'. Five wells are operated by electric pumping sets of 15 H.P. each. An area of 8.02 acres is irrigated wholly by wells (out of 8% or over 1/12 of total irrigated area) and another 52.50 acres are irrigated by tanks and supplemented by wells (i.e. over 50% of the irrigated area). The depth of water in the wells varies from 15' below the ground level in the north to nearly the same as the ground level in the south during the rainy season; 25' and 5—10' respectively during a normal dry season. The method of lifting water is invariably the bullock mhothe. The table on page 60 shows the irrigation by sources.

III. AGRICULTURE

A. Land use (Fig. 2) :—

The 'regional diagram' (Fig. 1) gives us the land use zones of the village. This diagram is self-explanatory. Briefly we get 2 zones on the basis of relative height — the land above 20' and the land below 20' — the

VITTALAM VILLAGE

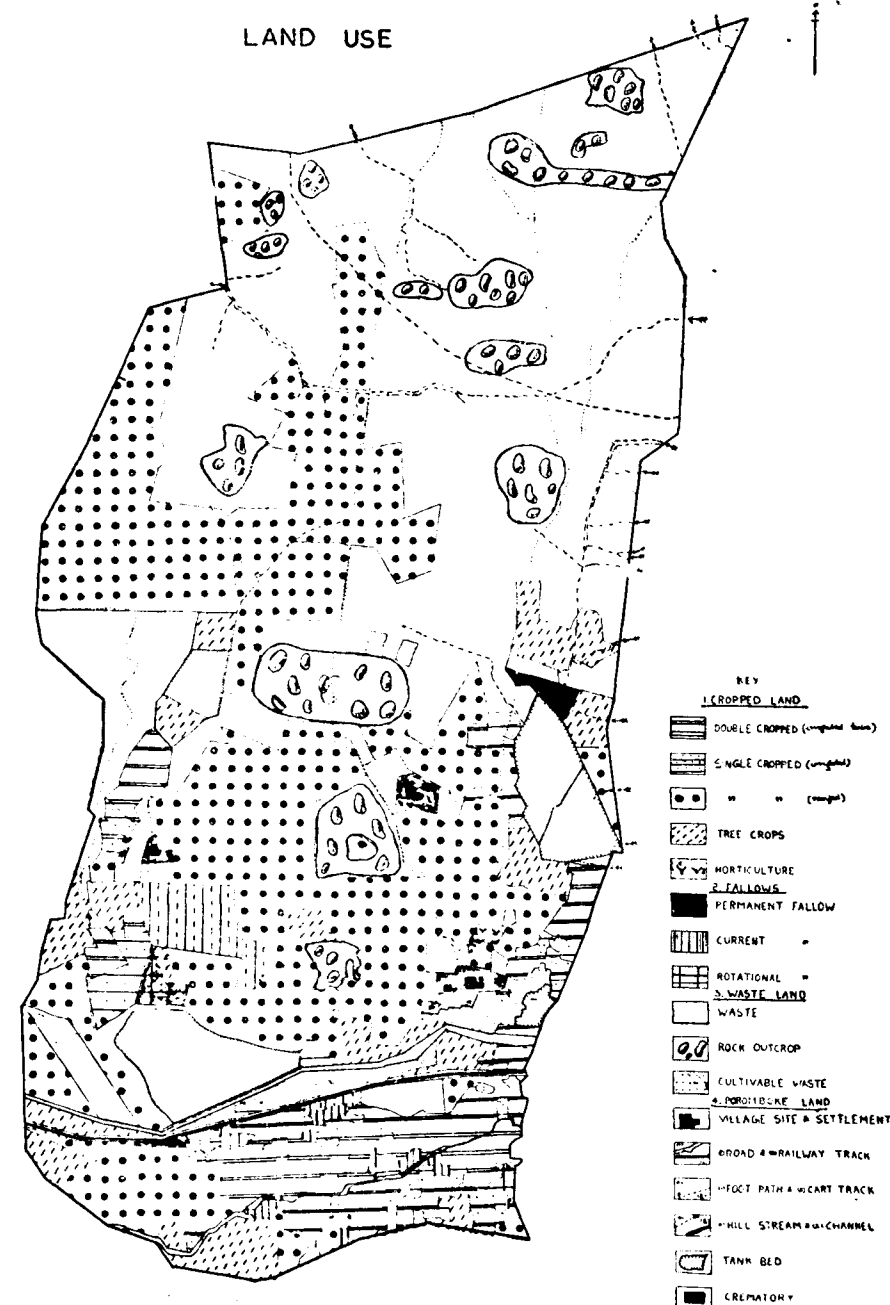


Fig. 2

6. The variety CEB 24 is not known as *Kichilli Samba* here but is called *Number Vadlu*.

TABLE No. II—IRRIGATION BY SOURCES

Source.	Area irrigated (in acres).	Percentage to total irrigated area.
Tanks (including canal)	88.40	91.67
Wells	8.02	8.33
Tanks supplemented by wells	52.50	53.21
Total	96.42	

level of the village site sloping from north to south. The northern zone (i.e. the zone north of the road) could further be sub-divided into:—

(1) The northern-most region of isolated hillocks and of moderate slopes used till recently for grazing. This zone has several effemeral hill streams and is very rocky in nature.

(2) The central zone of dry crops. This is the zone where irrigation is absent and extends to the road. The two exceptions to the rainfed nature of cropping in this region are:—

(i) the single field north of Kundellavaripalle.

(ii) the southern region of irrigated fields sends out a 'tongue' to the east of the village site which extends approximately to the centre of the village north-south.

(3) The southern region of irrigated fields is mostly contour-bunded to the north. The central dry crop region again sends a shoot into this region south of the road.

For the purposes of village records the crop lands are divided into —

(1) *dofasli* irrigated (*Tari* or *Nanja*) lands which have the highest revenue (2) the *ek fasli* (single crop) irrigated lands which have a lower tax rate; (3) the *Punja (kushki)* or the dry lands — these are the lands of rainfed crops which are classed as dry even if well irrigation prevails; (4) the assessed waste lands (*Ayacut banjar*) these lands are government owned and assessed i.e., they come normally under the category of 'cultivable waste'. (5) the *Gayalu* or waste lands — these are reclassified on the basis of their nature observed in the field; and (6) the *Poromboke* (waste) lands — discussed under reclassification.

Under reclassification we have — (1) Arable land — (a) Double cropped land (irrigated twice) these lands could be *ekfasli* or *dofasli*; (b) the category of 'Double cropped' irrigated once is absent because only the wet fields have multiple cropping and even there both crops are irrigated: (2) single cropped land — (a) irrigated; invariably it is the first crop that is sown. These lands may be *ek* or *dofasli* (b) Single cropped dry lands — (i) the millets etc., which are not tree crops, and (ii) the tree crops.

The fallows have been classified into three categories — (1) current fallows which are fallows due to disputes, etc., (2) The seasonal fallows, would obviously include all single cropped lands and (3) the rotational fallows, when a field is under sugarcane for one *fasli*, it is generally (though not

essentially) a fallow for the next year. This is the only crop for which resting of the land is practised.

The wastes have been classified as — (1) Uncultivable waste (particularly rock waste) due to sheets of rock especially the gneiss outcrops. This may be a continuous sheet of rock. If it is not level but rugged it is useless. If it is level it is used for threshing, winnowing, etc; (2) The rocky hillocks have patches of soils then a little grazing is found especially during the rainy season; (3) the cultivable wastes which have not been cultivated because of the presence of trees; (4) the reclaimable waste includes assessed waste which have been newly assigned. There are no *poromboke* grazing grounds in the village. This is because once the lands are transferred to Poromboke grazing it is difficult to assign them when necessary. However, these lands include:—(1) roads and railways and a small portion of the adjacent land. These are sometimes cultivated by poor people with permission from the authorities; (2) some thopes of coconut etc., commanding a negligible area; (3) the tank beds occupying on the whole 60 acres; (4) the village site covering an area of 10.44 acres. The site of Pandalaguisalu occupies 2 acres and the hamlet of Kundellavaripalle occupies 5.41 acres.

As regards the tenure, a distinctive feature of the village is that most of the lands are owner cultivated. Labourers are hired from this and the neighbouring villages for agricultural purposes. Four Chetties (merchants of Vayalpad) possess 20 acres in this village which are cultivated by 10 cultivators, four of them being landless. They hold among themselves an area of 45.75 acres (less than 1/10 of the total cultivated area). There are two types of tenancy — (1) The *Gutla* system, (2) the *koru* system.

(1) The *Gutla* system — is followed by richer tenants. Here the land is held under lease by the tenant. The tenant is completely responsible for all the agricultural operations and the owner does not interfere. The tax is paid by the owners in the form of a definite amount of grain (not proportion) per acre he cultivates. This system is of definite advantage to the tenant in that he gets 4 to 5 times of what the owner gets. It is absentee landlordism which favours the prevalence of this system and as such the system is not so widely prevalent in this village. The two or three non-cultivating 'absentee' owners being hardly 2 miles away.

(2) The *Koru* system — Here all the expenditure (except tax grain and labour) is contributed equally by the land-lord and tenant and the yield is also shared in the same proportion. If the tenant is wealthy with lands of his own, this method fosters carelessness on his part for the simple reason that the returns are not so attractive. But the system works well with a landlord who is on the spot and looks after everything and where a tenant is poor and cannot afford to cultivate all of his own accord.

The total *kist* (revenue) collected in *fasli* (crop season) 1366 was about Rs. 732/-. It could be paid either in cash or kind but it is generally paid in cash. Needless to say that the rates are higher for black and red loams as compared to those for the red sand. Sometimes the assessment rates are altered, due to failure or abundance of crops.

The total area of 1203.22 acres is held under 595 plots giving an average size of 2.02 acres. The total number of holdings is 572. The smallest holding is one cent in size and the largest is 17.4 acres. An analysis

(7) Based on the information collected during the course of field work.

of the data on land holdings has brought out some interesting details viz. plots of less than 20 cents form 32.2% (184) or about 1/3. If we take plots less than 44 cents they are 42.3% (242). Again over half (53.8% — 308) are less than 50 cents. If we view this from another angle, as much as 33.6% or over 1/3 (192) of the holdings are of over one acre in extent and within this the plots of one to four acres dominate (25% of the total). The least number of plots seems to exist in the area — 50 to 100 cents (72) forming 12.6% or 1/8 of the total. Incidentally, the largest holding is 17.4 acres and the smallest is one cent. This distribution shows characteristic irregularity in the concentration of holdings attributable partly to the slope and partly to the irrigability *viz.* the dryfields are bigger inspite of slope. The shapes of the individual plots are extremely irregular. Fields take all curious shapes.

Fragmentation of holdings does exist but scattering is less common. This does not mean that scattering is absent. Actually there is scattering but the dispersal is not so great. It is the wet field that becomes the most significant from the point of view of distance as the dry crop is left to itself. It is interesting to note that all the fields lie within 20 minutes walk from the village. Scattering is found to a greater extent in the case of owner cultivators than tenants. The reason for this is obvious. In the case of the tenant he has the option of choosing the lands he wishes to cultivate and he invariably chooses plots contiguous with his own or nearer his home. In the case of the owner cultivator, with the utmost extensive fields, has an advantage in that the lands are under joint family and one member looks after fields of one area. There is scope for exchange but there has not been an attempt at this. The villagers, especially the poorer classes, are ready to take up the idea. But variations in fertility, slope, etc., are so great that it is difficult to suggest a compromise. Since the lands are mostly owner cultivated lands there is a love for one's land and exchange is difficult.

B. Crops (Fig. 3):

The following are the major crops:—

Crop.	% of the total area.	% to cultivated area.
Paddy	9.0%	25%
Bajra	4.0%	10%
Ragi	3.0%	7%
Groundnut	15.0%	42%
Kanuga	1.0%	4%
Sugarcane	—	1%
Mango	—	1%
Others	2.0%	10%
	34.0%	100%

It is clear that the dry crops are more important than the wet crops. Out of a total cropped area of 418.29 acres, 63.22 acres are double cropped and nearly all of this is under paddy. The rotation practised in a wet field is paddy with ragi. In such cases ragi is the first crop and this is obviously because ragi forms the staple food crop of the villagers together with bajra and jowar. Paddy forms the cash crop part of which is consumed in the village itself.

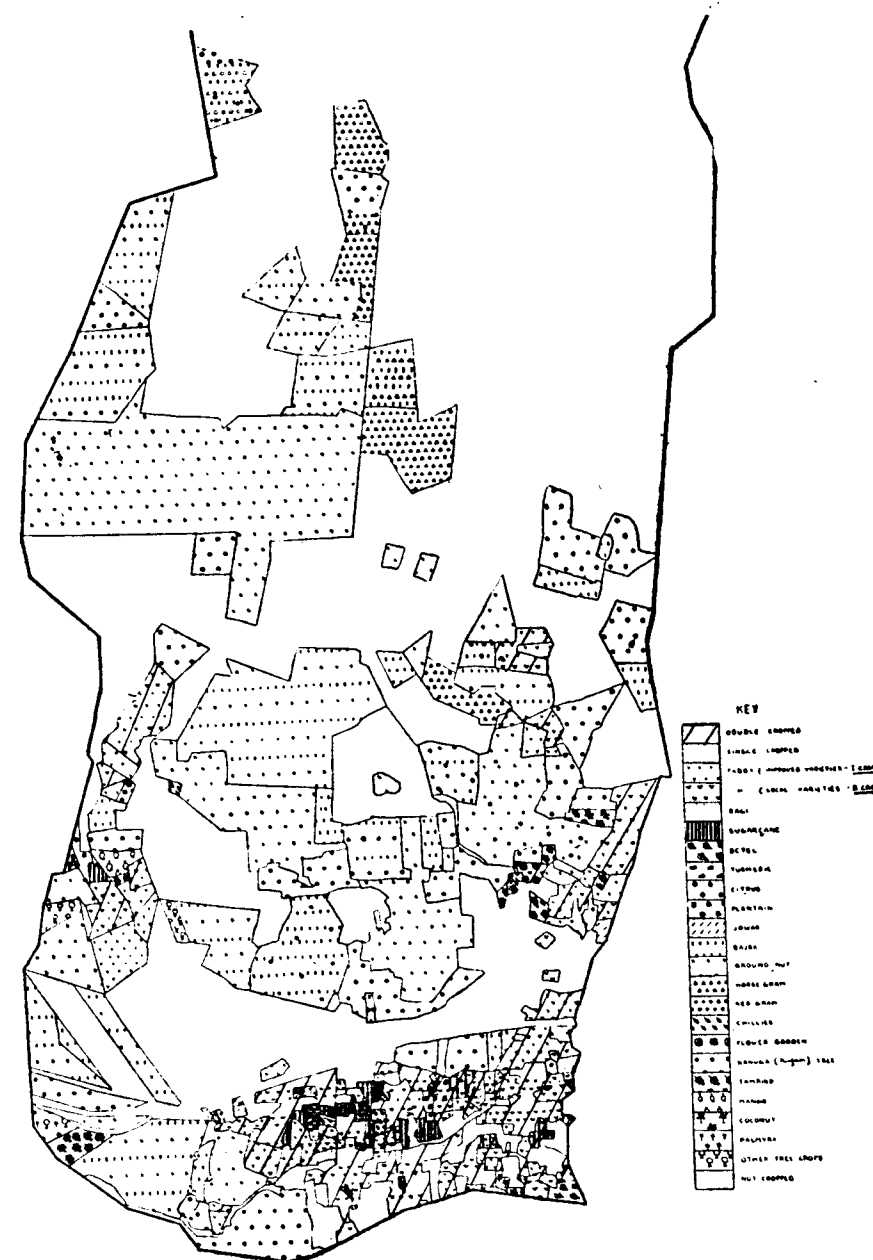


Fig. 3. Crops.

Looking at the crop map we notice that there is no pattern with respect to the distribution of crops. This factor needs some explanation. Firstly, it is naturally because of the wide variety of crops which are possible from the point of view of optimum climatic requirements. Moreover multiple ownership, especially in the area south of the road, results in the cultivation of diversified crops. In spite of this there is practically no problem from the economic point of view i.e., transport, irrigation etc., for in any case each field is a separate unit by itself because of contour bunding.

In spite of this lack of concentration as might be expected at the first instance from the distribution of physical factors, we may nevertheless clearly bring out a conspicuous correlation between crops and the distribution of physical and other factors; in short, logically explain the distribution of crops.

From the point of view of soils the important relationship is obvious that the superior soils of black loam and red loam are dominated by the important food and cash crops of the village which need fertile soils viz. paddy, ragi, sugarcane, vegetables, etc. The coarse and less fertile red soils in the more difficult terrain of the north and central sections are devoted to the dry crops mostly millets and groundnut. The coarser the variety the poorer the millet to which the soil is devoted. Thus basically the type of soil does influence the nature of the crop to which it is devoted.

Taking up irrigation we find that the type of irrigation is a product of soil because in the softer and deeper soils the water table is higher than in the porous soils of the rocky north and so well irrigation is easier in the south. The unirrigated lands again are devoted to millets and groundnut and the irrigated lands to paddy, ragi and cash crops, thus establishing a correlation between irrigation, and crop distribution.

To sum up, the north is a region of dry crops and inter culture with its rocky terrain, coarse, porous soils and unirrigated rocky lands; whereas the south is the zone of soft, mellowed, rich and fertile soils with irrigated crops. In the transitional zone we get well irrigation. This intermediate zone is expanding northwards which is certainly beneficial economically. However, there is a limit to this expansion due to the rocky, highly sloping ground with worst red sand. Such in brief, is the zonal distribution of crops in relation to physical and other factors⁸.

C. Some Agricultural Practices :—

I. *Manuring* :—It is a general belief that the yields are directly proportional to the *sattava* (amount of manuring). Consequently, manuring is adopted extensively.

(i) *Green manure* :—is most popular. Usually a field prepared by ploughing is 'overfed' as it were with green manure. The *Kanuga* or *Pungam* leaf (*Pongamia Glabra*) is very important. The leaves of this tree are leathery. They are cultivated sometimes on separate fields interspersed with tamarind etc. or they may be cultivated in tank beds, on tank bunds or as avenue trees. The *Kanuga* has a number of uses and it is still true that "a very large proportion of the disputes amongst the natives originate in claims to the enjoyment of these trees⁹."

8. The minor details regarding crop requirements have been deliberately omitted here for either they are too elementary or are easily accessible from the various official publications viz. *Memoirs of the Department of Agriculture*, Vol. II.

9. *Cuddappah Manual*, Section on 'Products'.

As significant an area as 31.19 acres (4% of the cropped area) is under these trees alone.

The other green manures used are the miscellaneous leaves from forest trees (*kondaku*). Indigo was once cultivated extensively but for obvious reasons it has gone out. *Kalabanda* (*Agathi Sebbania Grandiflora*) is also used. Now, wild indigo is used as manure. The dose of green manure applied normally is 3600 lbs. per acre for a paddy or sugarcane field¹⁰.

(ii) *Farm manures* :—A commendable feature of the village is that not even a small amount of cowdung is wasted by burning as fuel. All the dung is converted into manure and put back into the farm. Stalks of bajra, jowar, firewood from forest trees or dried up branches of *Kanuga* trees are the major sources of fuel. The refuse and rubbish of the house is dumped into pits and composted to be used as manures.

(iii) *Composting manures* :—are sold by the Agricultural Depots at Vayalpad. They were purchased extensively till recently as they were cheaper. But now the ryots have come to realise that the refuse in the town is composted as such they have developed an aversion to this type of manure.

(iv) *oil cake* :—is used as fertiliser as well as a fodder. There is considerable scope for expansion.

(v) *Chemical fertilisers* :—Ammonium sulphate, Super Phosphate and Urea are the three extensively used chemical fertilisers. About 75% of the total chemical manure used is for paddy. The use of chemical fertilisers is however limited. There are only 6 to 7 owner cultivators who use these manures. The ryots seem to have realised that extensive use of chemical fertilisers without discretion harms the soil especially the slightly calcareous soils of the south. Hence more of farm yard and green manures are used than chemical fertilisers.

2. *Terracing* :—is one of the practices adopted in the case of the irrigated lands, gentle to moderate slopes (up to a gradient of 1 in 15) being terraced. The height of one bench above the next is usually 1' and the benches descend at random in all directions. This is because the slopes do not vary uniformly but they vary abruptly. The width and the height of the terraced bench vary according to the slopes and the extreme cases with lengths and widths of 10' to 15' or less are not wanting. This accounts for the tiny fields especially in the south. This is because the crops here are irrigated crops and terracing is essential. The bunding may be merely with small stones just enough to support the terrace or they may be supported by moderate sized boulders of stone available locally.

3. *Lifting of water* :—The bullock *mhote* used with *Kapila* (leather bag) is the sole method used for lifting water. The vessel used to lift water is an inverted cone with a funnel-like bottom. It has a diameter of 3' and a depth of 1½'. Its capacity is thus about 10 cu.ft. The process of lifting water by this method is extremely tedious and wasteful. Several farmers have to share the same well. It is also hard for the weak bullock.

4. *Implements* :—There are 94 ploughs (20 iron), 19 carts, 4 cane crushers and one oil mill in the village. The modern ploughs (74) are used

10. The 'optimum' dose is estimated to be 3440 lbs.

more extensively because of the cheapness. Improved iron ploughs are being introduced but they are rather heavy for the weak bullocks. Carts are extremely useful and the richer ryots usually hire them to those who do not possess one for the purpose of transporting grain to the field. The cane crushing machines are also hired.

5. *Livestock*:—There are 131 bullocks (one useless), 57 cows (40 useless) and 29 buffaloes (19 useless) besides 190 sheep, 185 goats, 2 donkeys and 127 pigs in the village. Out of this the working stock is only 50%. This stock is in a fairly good condition when it is purchased but deteriorates because of over-working and poor feeding. This deterioration forbids the slaughter of useless cattle. Milch stock is also declining as it is uneconomic to maintain them. The poorer classes have gradually changed from cattle to sheep and goats because the fodder requirements of the former are more exacting. Pigs are reared by the low caste people of the *Pandala Gudiselu* (rearing of pigs) settlement. There are nine pigs per family and the occupation is profitable, each pig brings Rs. 20/- for a negligible sum spent on it. Cattle are kept in thatched sheds which may or may not form the part of the house depending upon the social and economic status of the individual. There is a Veterinary Dispensary at Vayalpad with one doctor and three assistants. This has yet to go a long way to make itself felt among the masses.

IV. THE PEOPLE

A. *General*:—The population of the village according to 1951 census was 590 persons (106 houses; males 304; females 286.) Ever since 1871 the general trend has been towards an increase. By occupation, by far the greater proportion is of the cultivating labourers and the tenant-cum-owner cultivators came in the second category. Muslims are very few (10, Hindus 580). About 55 to 60% of the population consists of Reddis (non-brahmins) and the rest are either Harijans (depressed classes) or tribal people of *Pandala Gudiselu*.

The cultivated area per head of population is .7091 acres. Obviously, the figure is very low. This becomes more poignant when it is realised that most of this is dry land. No person is solely a tenant-cultivator or an owner, for the tenants also go to other fields to work as labourers. When labour is required the inhabitants of the neighbouring villages do not go out. Almost all the families maintain livestock and poultry. But they do not have any other subsidiary occupation.

The diet of the villagers is simple and consists of ragi (except for a few upper classes). This is eaten with 'pulla kara' prepared by boiling tamarind juice, chillies and salt. This is the meal given to the labourers as well. Milk and buttermilk are consumed in large amounts (especially the goat's milk). Except for a few families most of the inhabitants of the village are non-vegetarians. During festivals the special dish prepared is simple—a pudding prepared by boiling rice, jaggery and a little milk. Jaggery is used instead of sugar. Onions, garlic, etc., are used in large quantities.

There is little furniture in any of the houses and there is no necessity for any. The utensils used are mostly earthen (even in the richest families). Improved smokeless ovens are being introduced. Except for a couple of upper class families the women too work in the fields with men. But the

wages are lower. The Reddis are among the most orthodox and so their women, especially the richer classes, are in a sort of semi-purdah system.

B. *Village site* (Fig. 4) and *houses* (Fig. 5):—The main settlement consists of a street running south to north from the main road. The street lies adjacent to the temple. On the left there is a row of houses. On the right though they are in a line, face random directions. The settlement pattern may be termed scattering in a linear type. The houses favour easterly orientation. A northward orientation is least favoured because there is no breeze and facing the north means facing away from the road. Preference for south and westward orientation is about the same, southward being preferred to the westward. Whether or not a house faces the road is not the criterion.

VITTALAM

SETTLEMENT PLAN

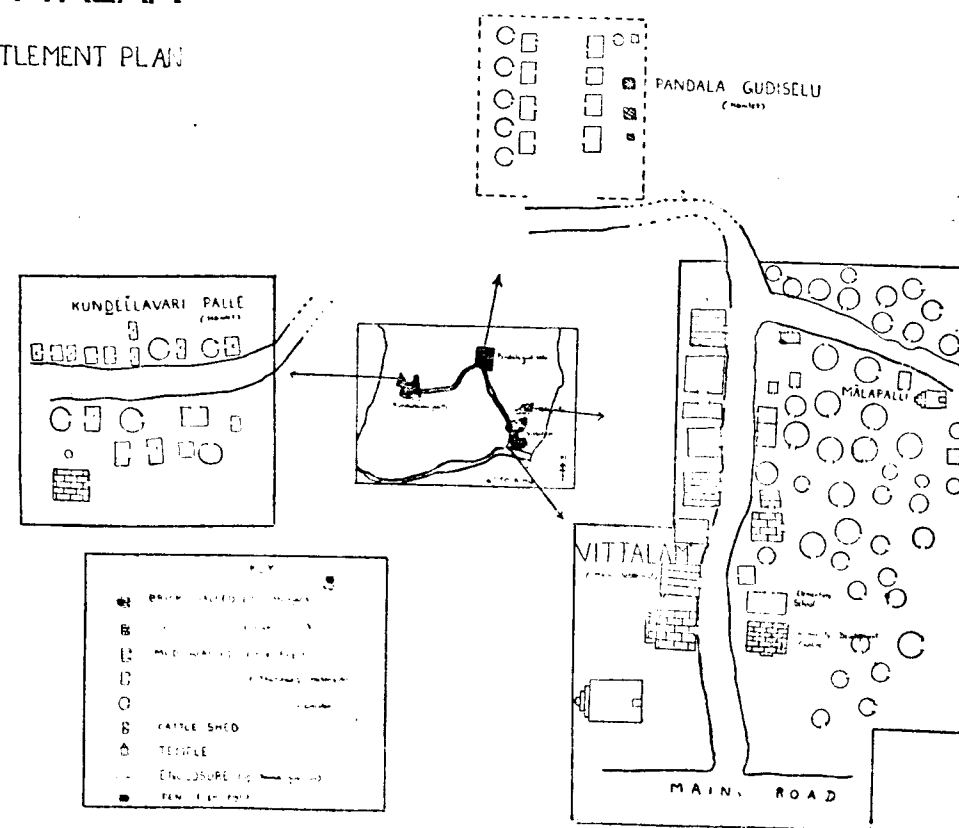


Fig. 4

The following typical houses have been studied :—

The type A belongs to the Village *Munsiff*. The owner has property worth about 1 to 1½ lakhs. The house is electrified. Its other features are the basement and roof of hard stones (local granite). In the case of all the *pacca* (masonry) houses the main apartment serves more for storing than for residential purposes. The house has a first floor with a room and a verandah used by the male occupants. The kitchen is lower in level. There is a kitchen garden in the side yard. The drainage is proper and the house is neat. This is the best house in the village and was built eight years ago. There are five more houses of the *pacca* type like this but not as modern.

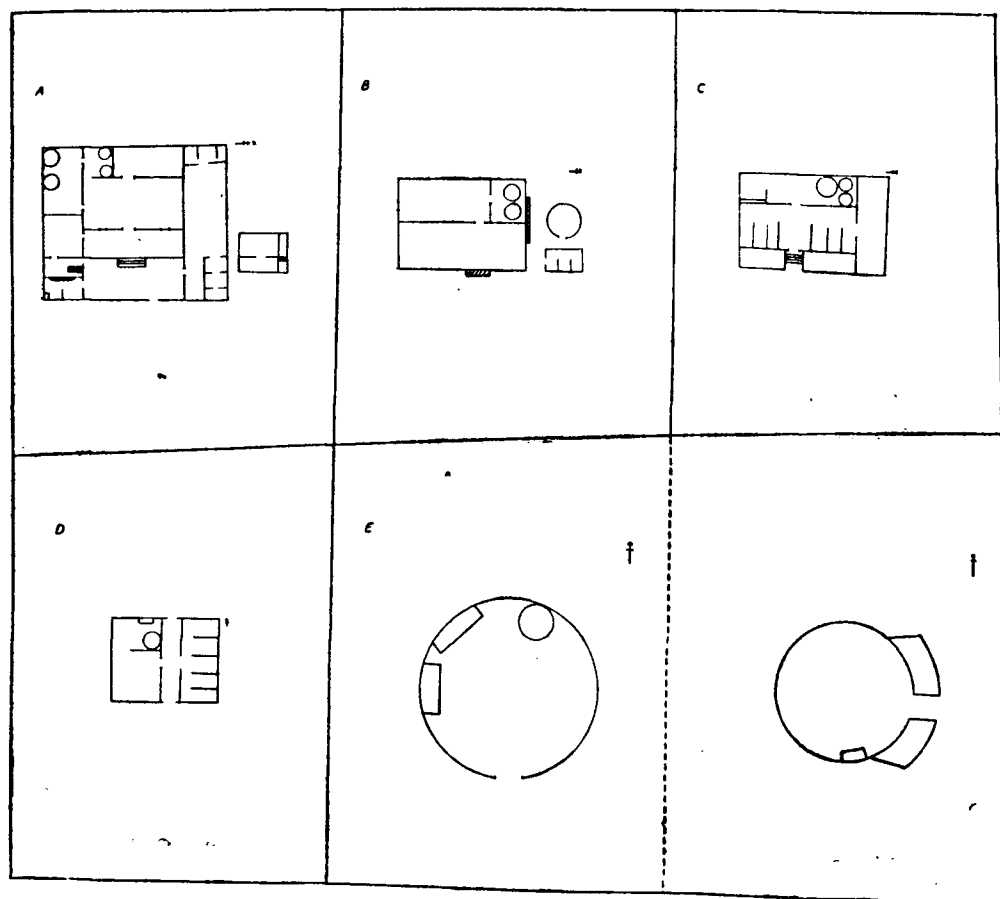


Fig. 5. House Types (ground-plans).

The type B is found in the settlement of Kundellavaripalle and is owned by a tenant. The house is smaller and is made of brick and stone, the store house portion being that of stone. The function of this house is completely different, the house serving the purpose of storage and for sleeping. Cooking is done in a thatched shed to the right and the cattle-shed is situated in front of the kitchen.

The type C is situated in the main settlement of Vittalam. We find here a thatched roof but the house is rectangular. There is only one room

with a partition for the kitchen. There are two elevated platforms at the entrance and beyond the entrance door is the cattle-shed on either side. Sometimes there is a side yard. The thatch is of *Boda* grass. The house leaks in the drizzling rainfall of March, April and May but not during the continuous rains of retreating monsoon.

The type D found in the hamlet of Kundellavaripalle, and has no platform at the entrance. It is smaller in size, the roof is lower and it is pitch dark and suffocating inside due to the absence of windows and the small door is about 5' high, sanitation is poor.

The type E—Finally we come to the thatched huts. They are found in all the four settlements. They are mostly circular in shape. There are few rectangular huts as well which are rather low. The roof of a circular hut is highly inclined. This is a natural consequence of the circular shape. The advantage is that the slow drizzling rainfall does not penetrate in. The thatched huts of the Pandala Gudiselu are the lowest and those of Vittalam proper are highest with the elevation of the wall alone going up to 9'

C. Social and Economic conditions:

The percentage of literacy is low, only 61 persons (53 males and 8 females) are literates. Under the Community Development Project there is an elementary school with two teachers and 50 children. The school, however, has not progressed much. About 12 children attend the High School at Vayalpad and two boys are studying at the Colleges of Madanapalle and Tirupati. Only the three R's are taught in the school. So, it must be admitted that the type of education given is of little use to them and this accounts for their lack of interest in spite of the fact that education is free. Moreover, there is a lack of hands for the various types of work and the children look after the livestock.

A commendable feature is the neat and clean roads. The villagers too are tolerably clean except for some of the members of the lower castes. The general health is good. But the region is subject to some epidemic diseases, notably plague and this results in periodic losses of population. The village falls within the confines of the intensive B. C. G. campaign of Arogyavaram Sanatorium and X-Rays of all the inhabitants are taken and thorough medical examinations are made. Unfortunately the venereal diseases are widespread, especially syphilis and little notice is being taken of this fact. The nearest dispensary is at Vayalpad and there is a big hospital at Madanapalle, about 15 miles away.

There is only one shop in the village run by a Muslim who sells betel leaves etc. The villagers attend regularly the weekly markets at Vayalpad, Chintaparti, Kalikiri, Gurramkonda and occasionally at Madanapalle, Piler, Pallamaner for purchasing cattle. Most of these village markets lie within a 5 mile radius. The villagers sell their livestock and agricultural produce at these places and purchase their necessities. Except for cattle most of their requirements like clothes, provisions, etc. are easily got at Vayalpad.

There are regular bus services to the various places. Buses go to Vayalpad through this village nearly every half an hour and so there is no difficulty of transport. There are buses for Chittoor, Tirupati, Madanapalle, etc.

Village administration is carried on by the *Munsif*, the Reddi and the *Karnam* (the village accountant). Except the *Karnam*, who lives in Vayalpad, others live in the village itself. There is no separate village *chavadi* (village council) but meetings etc., take place in the *Munsif's* house.

D. The National Extension Service and Community Development Projects :—

The *firka* (administrative area) of Vayalpad including the village of Vittalam is a unit for a Community Development Project. The officers concerned are staying at Vayalpad. The Block Development Officer is the head of all the departments. Much has been achieved in the field of agriculture in the form of better yields, more extensive use of fertilizers and improved implements. Still there is not the complete co-operation between the Agricultural Demonstrator and the villagers. Each complains against the other. Yet, all the officers concerned who have had experience on the same lines in various other districts of Andhra and taluks of Chittoor District appreciate the readiness with which the people co-operate in the introduction of new methods of agriculture in this taluk. This is because the villagers are extremely conscious of their economic instability and are determined to improve their lot. A Community Development Project centre has been built in this village with two rooms and a small yard. All modern amenities like — reading room, radio etc. are awaiting the sanction of the Government. The villagers have readily contributed a sum of Rs. 1,000/- towards the construction of this centre but it is the Government which is not quick in its action because of the lack of funds. The total sum allotted for this taluk is 15 lakhs which is far below the actual needs. Still there are many lines on which economy could be practised and the money spent could be diverted to more useful channels. Such activities as "communal dinners" are wasteful and the populace naturally resents such wastage and thinks twice before contributing money. Moreover, such campaigns instigate the already politically conscious populace into undesirable activities without productive work.

V. RETROSPECT AND PROSPECT

The village on the whole may be said to be a prosperous one when looked upon from the point of view of total environment as compared with the villages of the neighbourhood. It has self-sufficing economy. The responsibility of improving the conditions lies more on the Government than on the people, for whatever the people are rendering for their improvement, is the maximum that they possibly can.

In planning the future, certain important facts should not be lost sight of. Too much of dependence on agriculture with such a meagre rainfall, such phenomenal and chronic unreliability, such fluctuations in amounts portrays in itself the precarious conditions of existence; even if one ignores such other significant factors as terrain, soils, yields and the general standard of living. The villagers should be made as independent of agriculture as is possible in an agricultural country, for agriculture here is a gamble in monsoons.

Alternative occupations must be introduced to provide more security. But this implies that the villagers have to be released from their all absorbing agricultural activities which do not give returns proportional to the input of labour. The solution lies in a more extended use of electricity.

Already it is gaining popularity. The wells could be installed with electric pumps and this would release both men and cattle from a major occupation of watering the crops. The export of groundnut could be stopped and oil could be extracted instead which would mean more creative employment, more income and more manure. Installation of electric pumps in the northern half and cultivation of fodder crops would improve the condition of the livestock. A better and more organised livestock industry could be established, for the region, as it were, is more suitable for pastoral activities than anything else. Sheep rearing could be practised on a larger scale and this would provide a useful cottage industry in the form of weaving carpets etc. This industry is practised in several neighbouring villages and there is no reason why it should not be introduced here. Other industries as bee-keeping etc., could also be started. It is useless to try to introduce such cottage industries as spinning and weaving at this stage, for the complaint of the *ryot* is not under-employment or unemployment but only a dismally disproportionate return from the farm for the labours put in. Only such a mobile power as electricity could come to the rescue of the people here and it is already working miracles in such a short span of time as four years.

MAHAMMADUPURAM*

By

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I. INTRODUCTION

The village of Mahammadupuram ($12^{\circ} 49' 00''$ N/ $78^{\circ} 55' 27''$ E, Vellore Taluk, North Arcot District), is situated on the southern side of the Upper Palar Valley, close to the foot of the Jadavi Hills. The village is located on the metalled road from Sinnapallikuppam to Komavattam. The above road joins the Madras-Bangalore trunk road which passes through Vellore at Sinnapallikuppam. From Madras, Vellore is 87 miles to the west and the village is 20 miles to the south-west of Vellore. Odugattur, a local collecting and marketing centre is about five miles to the south of the village.

Madras and Vellore are closely linked by road and by rail. From Vellore there are buses running to Odugattur and Mahammadupuram is on the way. The settlements in Mahammadupuram are connected by cart tracks and foot-paths to the metalled road.

Contrary to our expectation, the village Mahammadupuram has a negligible Muslim population. There is only one Muslim family consisting of three members out of a total population of 1290 persons in the village. In 1901, the number of Muslims was 26 out of a total of 1145.¹

The survey number of the village is 55. The boundary of the village was altered by excluding 644.03 acres of Paravamalai Reserve Forest. The present area of the village according to the settlement register is 983.63 acres. The land is classified under several categories as given below:

	Wet	Dry	Total
Occupied	210.17	440.39	650.56
Un-occupied	0.70	33.52	34.22
Inam	—	—	74.84
Un-assessed	—	—	2.73
Poramboke	—	—	221.28
Total	210.87	473.91	983.63

The Poramboke comprises the following:—(i) village site, (ii) burial ground, (iii) temple, (iv) channels, (v) roads, (vi) tanks, (vii) grazing ground, etc. The area under each of these categories is—Settlements

* Adapted from the Village Report submitted for the B.Sc. (Hons) degree in Geography of the University of Madras.

- On enquiry it was found that the village was occupied by Muslims about 2000 years ago. During this time there was a big land owner by the name Mohammed Kasim and the village derived its name from him. But later, the Muslims migrated and the Hindus came in. The causes for this reversal are unknown.

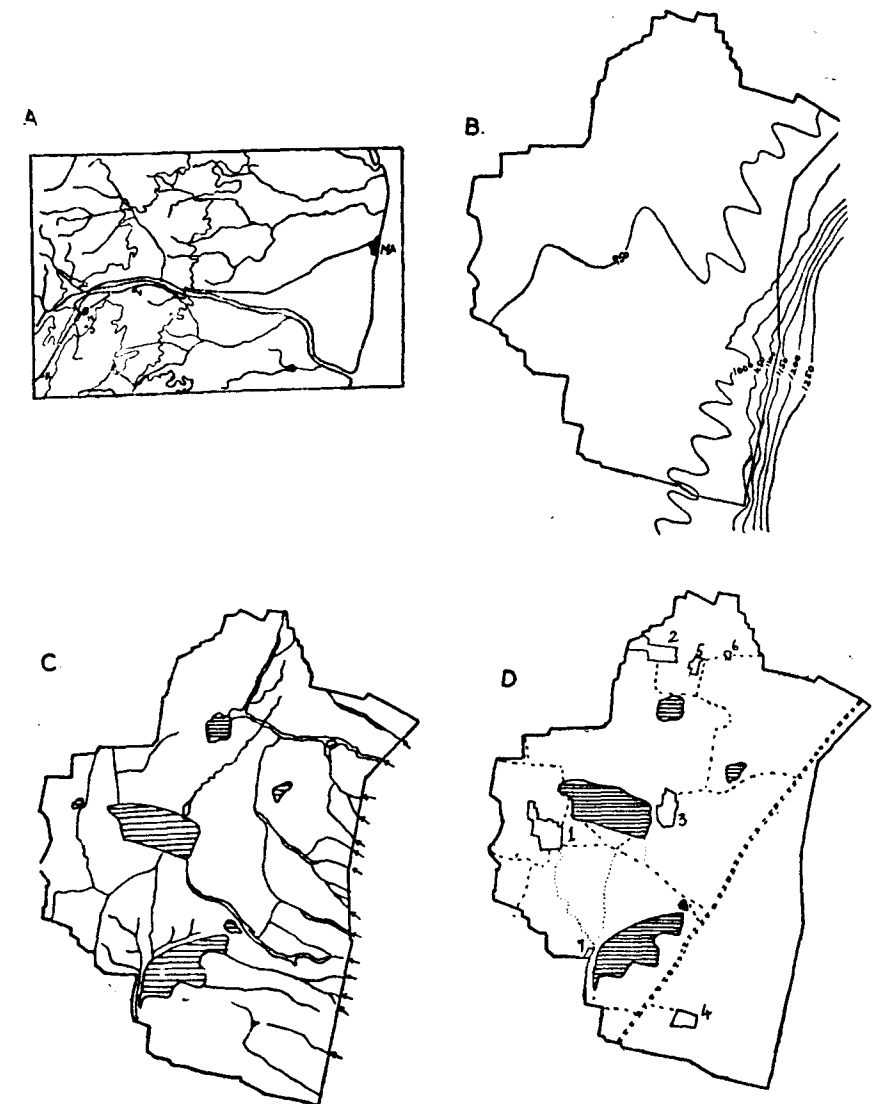


Fig. 1

- A. Location (Scale 1: 1 million):—M—Mahammadupuram; D—Duggatur; G—Gudiatam; V—Vellore; Ma—Madras. (Contours are shown for 150 and 300 meters).
- B. Relief (Scale 5.3" = 1 mile).
- C. Drainage (Scale 5.3" = 1 mile).
- D. Settlements and Communications (Scale 5.3" = 1 mile):—1—Mahammadupuram; 2—Govindappan Kotayi; 3—Rajapalayam; 4—Malayadivarapalayam; 5—Chakkili Huts; 6—Lala Sahib Kotayi; 7—Chakkili Mattam.

(28.13 acres), burial ground (7.8 acres), temples (0.38 acres), grazing land (16.52 acres), canals (37.06 acres), roads 26.74 acres and tanks (88.12 acres). The price of wet land in the village is about Rs. 2,000/- per acre and that of the dry land is about Rs. 1,000/- per acre.

II. PHYSICAL FACTORS

The general elevation of the village is above 900'. To the east of the village we have the Paravamalai Hill, while to the west we have the Agaram Ar flowing in northeast-southwest direction, just half a mile away from the village. The village is actually on the valley slope of this river and hence the general slope is from east to west. In the eastern half of the village the land slopes much more steeply than in the west. This fact has produced a different land-use pattern in the eastern and western parts of the village. The small area in the western part of the village is slightly higher than the middle portion and it is on this that the prominent settlements are located. Consequent on this slight elevation there is a difference in the crops cultivated. Also there is no irrigation in this area. The middle portion of the village is almost a level flat land having very gentle slope towards the north. It is the most intensively cultivated part of the village where rice is the dominant crop.

The hill streams in the western half of the village flow from east to west, but once they enter the middle portion of the village they show a tendency to turn northwards. This fact and also that the bunds of the tanks are on the northern side of the tanks indicate that the general slope of the middle portion of the village is from south to north. There are evidences of soil erosion resulting from the swift flow in the streams in the western half of the village.

No data are available for the village on climate but we could perhaps safely assume that they are not different from those of Gudiatam which is about 15 miles to the north of the village. Gudiatam has a hot summer (May, June and July) with a maximum in May having a temperature near about 90°F with occasional thunder-showers. Summers are followed by a warm and rainy autumn (August-September-October). The winter months of November, December and January are cool and rainy in the beginning and cool and dry at the end. The spring season (February, March and April) is warm but dry. The annual rainfall is 42.30" and the number of rainy days in a year is 56. Rainfall is distributed over the five months—July to November. Advantage is also taken of the few showers that occur in May and June for preparing the land for the ensuing agricultural season.

The soils of the entire village consist of red-ferrogenous loams. The quality of the soil varies in different parts. Ordinary red loams are the most dominating type in the village covering about 30% of the area. The best red loams occur in the middle portion of the village and are chiefly devoted to rice cultivation. Double cropping is more of a function of irrigation than of the soil, although a greater part of the double cropped area is found in the best and good loams. In spite of the poor quality of the soils, double cropping is practised in the fields to the east of Mahammadupuram settlement. This is due to the availability of water from the Naga Eri and the wells. The inferior loams are found on the slopes in the western part of the village. The ordinary loams occur on the western side of the inferior loams. Both the above soils are used mainly for the cultivation of groundnut and the dry crops. Here again one should not under-rate the significance of the availability of water since paddy is grown in ordinary and inferior loams in a few fields where water is available. The soils of the village are good with regard to fertility and respond well to irrigation.

A number of hill streams descend down the Paravamalai Hills in an east-west direction and drain themselves into the tanks of the village. This hill has a thick vegetation cover on its upper slopes. But at the foot of the hill where the slope is not great the vegetation cover is thin and the whole area is covered by boulders and gravelly soils. Due to these reasons the hill streams begin to widen and deepen their valleys in this area. As these gullies enter the village from the east they are quite big—some of them are 10 ft. wide and 5 ft. deep while others are narrow and deeper. These streams contain water during rains and are very effective as agents of erosion. They are still in their young stage and are widening their valleys. Unless this valley widening is prevented by artificial methods the neighbouring fields are likely to lose a part of their rich soil cover. Our suggestion would be to build small bunds parallel to the contour lines on the uncultivated hill slopes and plant trees on the ditch to the hillward side of the bund. Such bunding and planting of trees is being done by the Agricultural Department of the State of Madras in the nearby village of Polur where the gullies pass through the cultivated lands, low bunds of rock boulders which are easily had from the hill slope could be built across the streams to check the swiftness of the stream and also to check further deepening of the stream bed. This method will ensure an effective check on further erosion of soil of the fields nearby.

As we have already seen, the rainfall is low, seasonal and variable and hence the need for irrigation. Secondly rice could be cultivated successfully only with the help of irrigation. Thirdly, double cropping is not possible without irrigation and this is an incentive to irrigate the land and get better returns. The two important sources of irrigation in the village are wells (375.59 acres) and tanks (109.52 acres). During the first crop season all irrigation is by wells and in the third crop season all irrigation is by tanks. In the second crop season wells irrigate 90.58 acres while tanks irrigate 86.37 acres. The tanks are not dependable since if the monsoons fail, they also fail. The depth of water in the tanks is low and is only 10' during the floods. The depth of the wells depends upon the depth of the water table which is 12' in the central area, 18' in the western parts and 20' to the east of the village. Naturally most of the wells are therefore in the central portion of the village. There are about 100 wells in the village excluding those which are found within the settlements.

From the above it follows that the area irrigated is mostly in the central part of the village. Another factor is the location of the two main tanks in this region. Out of the total area of 290 acres which are irrigated, about 118 are irrigated only once, 149 twice and 22.1% thrice. About 285.01 acres of land are irrigated during the first crop season, which is about 37% of the area shown under first crop. The second and third crops are wholly irrigated.

Rice is by far the most important crop which is irrigated, cane comes next. Cane has become an important cash crop and it thrives well with irrigation.

The bullock *mhote* is the only device used for irrigation. It consists of a leather (or a metal) bucket with a leather tube attached to its bottom. The bucket is hauled by a rope over a pulley which is drawn by a pair of bullocks down a slope. The tube discharges the water automatically once it reaches the surface. The water then flows into the fields along a channel.

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The bullock *mhote* requires a certain initial capital to be invested. A pair of bullocks costs about Rs. 300/- and the necessary accessories i. e., bucket, tube, rope, etc., will cost about Rs. 50/-. The cost of maintaining a pair of working bullocks is Rs. 50/- per month. The salary for the person employed to work the cattle is Rs. 10/- per month. For a single crop of paddy, lasting about three months the cost of irrigation is Rs. 90/- for an acre.

III. LAND USE

Out of the total area of 983.63 acres, 762.47 acres or 79% of the area is cultivated. About 90% is covered by tanks, 4.1% by settlements and the rest are occupied by roads and canals, etc. All parts of the village are cultivated and uncultivated lands occur as patches in the cultivated area. But differences occur in the intensity of cropping, irrigation and types of crops cultivated in the various parts of the village.

Out of the total cultivated area of 762.47 acres, 472.31 acres are unirrigated. These lands are cropped only once in a year. The unirrigated single crop regions are found in three parts of the village as compact units. One of them occupies the eastern half of the village. This area extends north-south across the village and has an average width of three furlongs in the east-west direction. The second area of unirrigated land lies to the west of Mahammadupuram settlement. This region covers the extreme western part of the village. The third region lies to the north of the Govindappankottai. It is the smallest of the three.

The irrigated lands are found in the central and western parts of the village. The total irrigated area is only 290 acres. The water-table in this area is near the surface and in addition, the tanks offer water for irrigation. The dominant crop in this area is paddy and most of this land is double cropped. Both tank and well irrigation is practised in this area.

About 60.3 acres are cultivated only once a year, 153.80 acres are cultivated twice while only 23.15 acre are cultivated thrice in a year. All double cropping and triple cropping is confined to the irrigated area. Triple cropping is entirely confined to the area to the north of the tanks where tank irrigation is possible. The double cropped lands are generally the best of the good loams except near the settlements where the proximity to the settled area has induced double cropping.

About 21% of the total area of the village is uncultivated and this is used for various purposes. About 16.36 acres come under culturable wastes. These are mainly marginal lands. The soils are poor and the land is sloping in many cases. These lands are not cultivated because the yield will be extremely poor. The cultivable waste to the south of the Rajapalayam has now been put under the plough. It is going to be cultivated by a poor farmer, who has but no other go than to cultivate this land to feed the increasing members of his family. In a few years' time the other cultivable wastes are also likely to be brought under the plough.

Other uncultivated land consists of areas devoted to settlements, burial grounds, roads, canals, foot-paths, streams and the grazing lands. The grazing lands are the rugged lands. They are covered with grass and thorny bushes. They are used for feeding sheep and cattle. The tank bed in the dry season is a better grazing land and has always been used for that purpose. The area devoted to burial ground is rather far great than

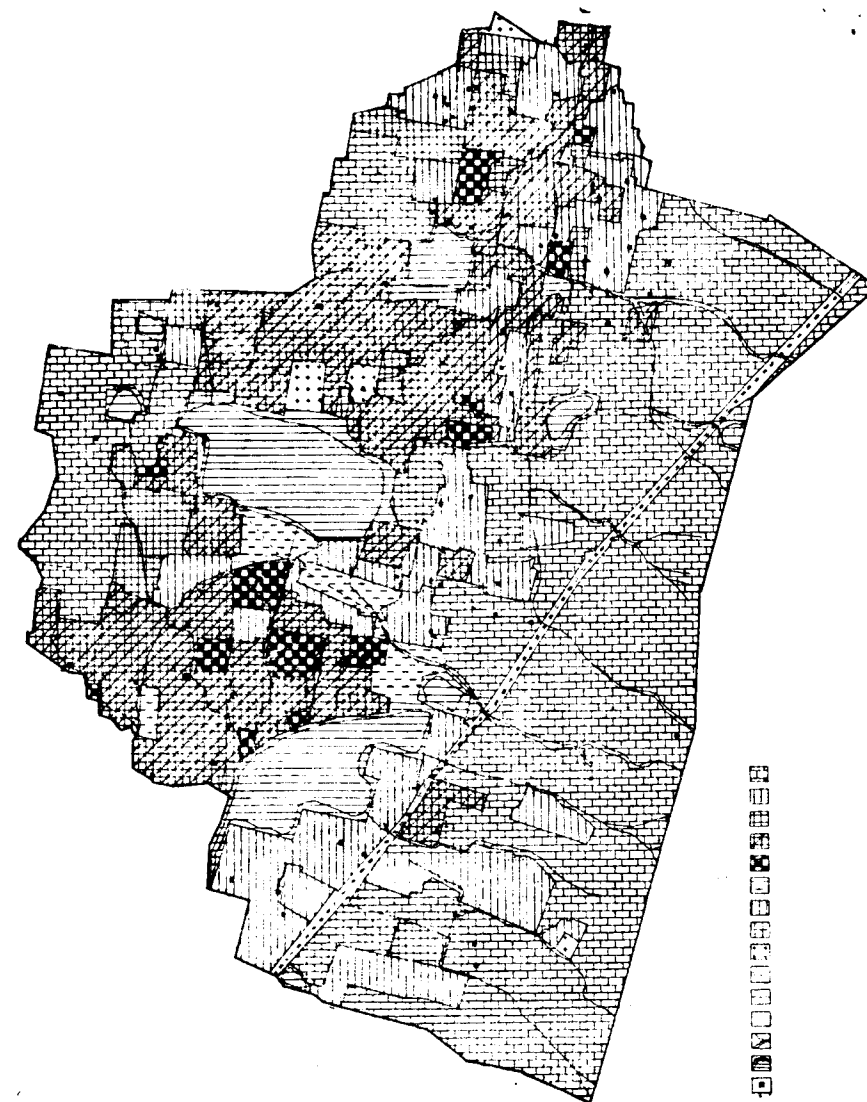


Fig. 2

General Landuse:—1—Unirrigated single cropped; 2—Irrigated single cropped land; 3—Irrigated double cropped land (only one crop irrigated); 4—Irrigated double cropped land (both crops irrigated); 5—Irrigated triple cropped land; 6—Grazing grounds; 7—Cultivable waste; 8—Settlements; 9—Burial grounds; 10—Road; 11—Cart track; 12—Foot path; 13—Streams and Canals; 14—Tanks and tank beds, 15—Well.

required. This is mainly due to the caste structure of the population. The Naidus have a separate burial ground to the north-west of Rajapalayam. The burial ground for the Chakkies is to the north-east of the Malayadivara-palayam. The only Muslim house at Lala Saheb Kottai has a burial ground nearby.

Land use units:—The part of the village, namely, the eastern half and the western half, show clearly two distinct types of use to which the land is put to. The eastern half is a single cropped land which is not irrigated. The

dry crops dominate here. Among dry crops, groundnut is the most important. The general slope of this area is towards the west. The soils of this area are mainly the ordinary and inferior loams which are suited for the dry crops. The western part of the village is a fertile rice land. Irrigation and double cropping are the chief characteristics. The soils are mainly the best and good loams.

IV. CROPS

Rice is by far the most important crop (432.34 acres). Next come groundnut (258.52 acres), cholam (133.44 acres), cane (66.81 acres), and samai (23.61 acres). Rice fields are confined to areas where irrigation is practised i.e., to the central and western half of the village. Rice is not cultivated in the eastern parts due to the absence of any facility for irrigation and also due

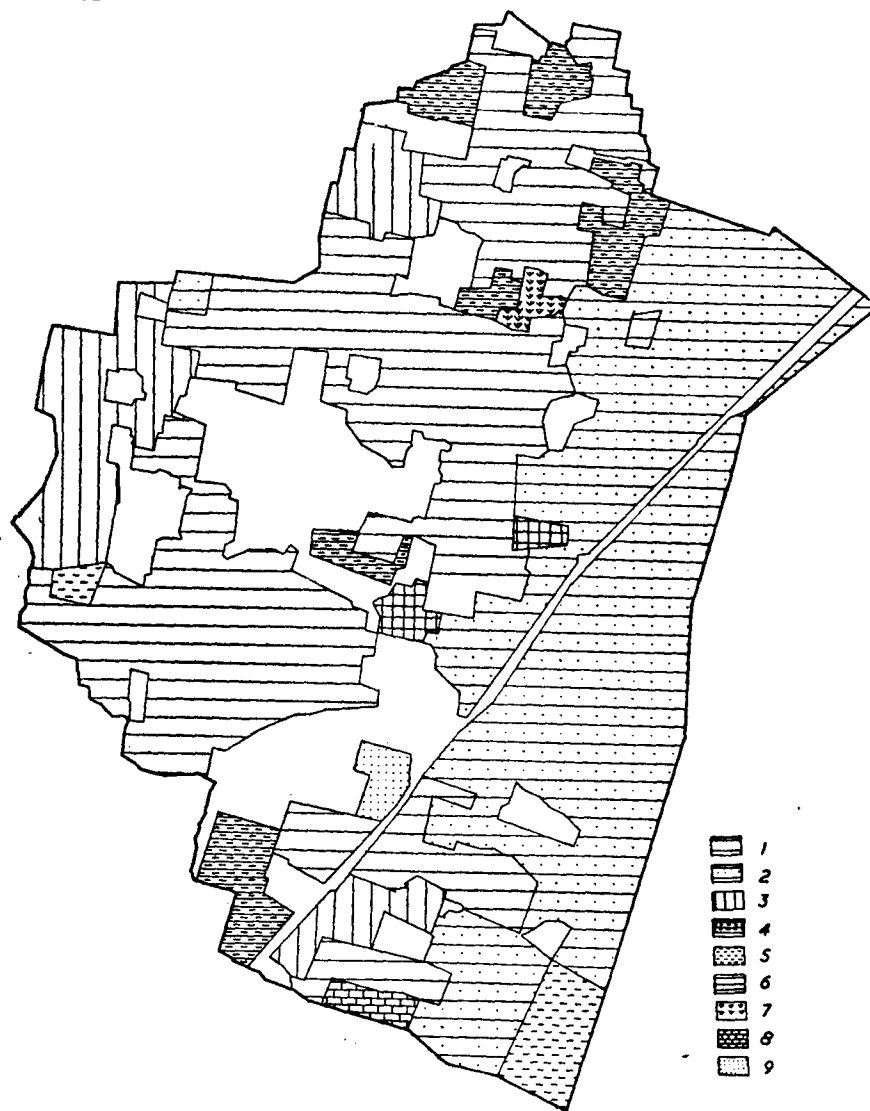


Fig. 3

First Crop Map :—1—Rice; 2—Groundnuts; 3—Cholam; 4—Sugarcane; 5—Samai; 6—Plantains; 7—Onions; 8—Varagu; 9—Chilles.

to the poorer nature of the soils. The rice growing area is an area of tanks and wells and is the low lying very gently sloping part of the village. Groundnut is grown mostly in the eastern part of the village. It is found in some fields in the extreme east of the village also. Cholam is confined to the fields west of the Mahammadupuram settlement. Cholam is used as a food grain by the poorer people of the village. Cane is grown in the rice fields i.e., in the middle portion of the village. Samai is found in two places, one in the south-east corner of the village and the other in the fields to the south-west of Mahammadupuram settlement.

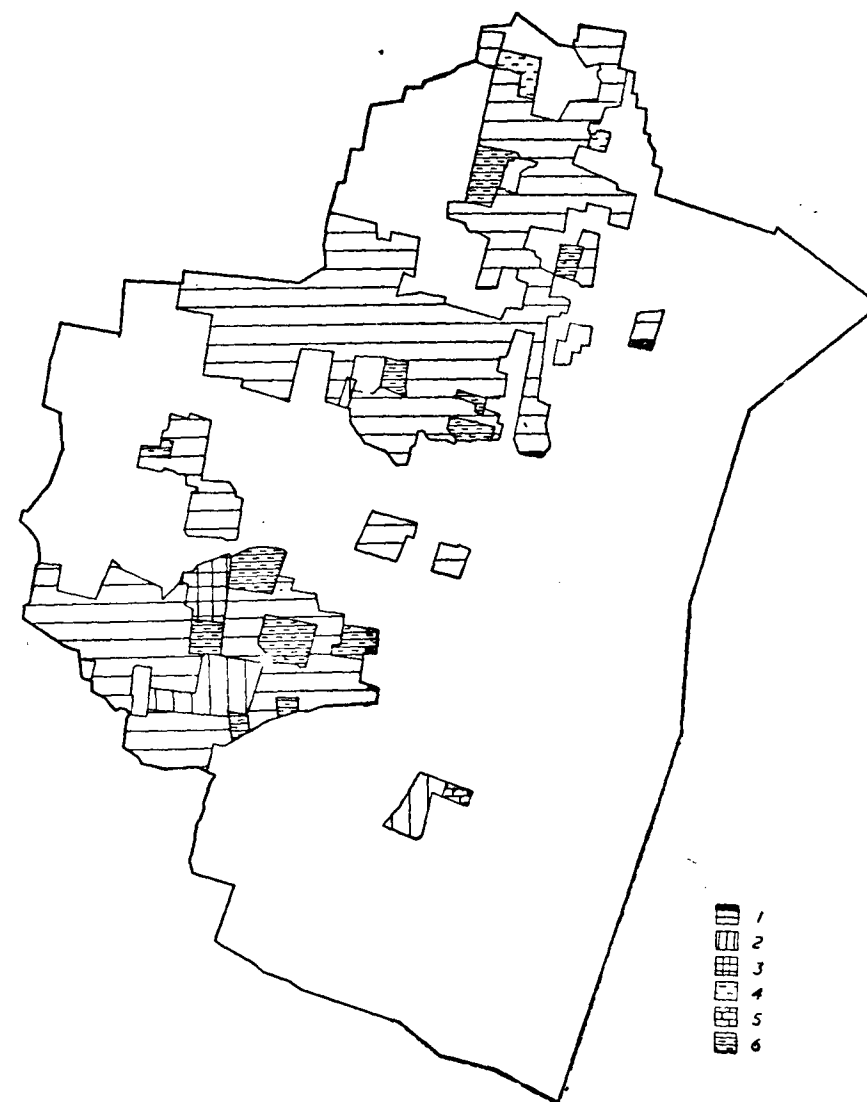


Fig. 4

Second Crop Map :—1—Rice; 2—Sugarcane; 3—Onions; 4—Kavar; 5—Plantain; 6—Third crop Rice.

Almost all the dry crops like groundnut, cholam, samai etc., are sown in August and harvested in November. This is because of the heavy rainfall during these months and the dry crops purely depend upon rainfall. Rice is sown in almost all the months of the year, except November, April and May. The important months from the point of view of sowing are June, September and February. Usually in tribble cropped fields, the first crop is sown in June and harvested in September, the second crop is sown in October and harvested in January and the third crop is sown in February and harvested in May. There are two important agricultural seasons. One starts in August and ends in November and the other starts in February and ends in May.

V. CROP PRACTICES

1. *Rotation* :—In the double cropped and tribble cropped lands definite rotations of crops are practised, whereas in the single cropped lands no such thing exists. In lands where groundnut is grown, cholam could be cultivated and vice-versa. Cholam yields much less than groundnut but is still grown because it is the staple food of the poor. Sometimes groundnut and cholam are grown in the same land during alternate years. But such a rotation is more dependent on the cultivators' immediate needs than on anything else. In the double cropped lands different varieties of rice are sown in the first and second crops. The first crop is generally the KAR variety. The second crop is Manavari, Chikkar, Vellakar, etc. Tripple cropping is not practised in the same land every year. Generally after the first tripple cropping kaver and onions are sown in the land during the next rainy season after which a single crop of rice is sown. In some lands all the three crops are rice but in others the second crop is kaver and onions and this crop depends mainly on rainfall. Where varieties of rice lasting for 4 or 5 months are sown, tripple cropping is not practised and could not be practised. Cane and plantains are generally grown on rice lands. Cane remains in the land for two to three years, or even more in some cases, during which three or four harvests are taken. After this period the land is cleared and rice is sown. This is the same case with plantains also. Plantains take about 14 months for yielding a single crop. They remain in the land for two to three years.

2. *Manuring* :—Green manures, expellers and ammonium sulphate are all used as manures. Green manure is generally had from the Paravamalai or the nearby forests. A cart-load of green manure costs Rs. 12/- in all. Leaves of many varieties of trees are used. One hundred pounds of expeller (or *Punack*) costs about Rs. 40/- and is mainly brought from Vellore. Ammonium sulphate is used only when pests or diseases infect the plants. The villagers do not believe in the ammonium sulphate as a good manure.

3. *Cost of cultivation* :—The cost of cultivation for 8 *pattis* of rice comes to approximately Rs. 354/- and the yield is Rs. 632/-, giving thus a net income of Rs. 278/-. For paddy the land is ploughed ten times and each time five ploughs are used. The rate for a pair of bulls which till the land is Re. 1/- to Rs. 1.50/- per day. Transplantation is done only in the case of the second and third crops. Transplanting is done when the young plants are about 25 days old and is done only by women. Weeding is done after a month or within 40 days. Women are employed for the harvest season and are paid in kind (chiefly paddy). The yields for the various varieties are different. While the income derived from the first crop and the second

crop is almost the same, the income derived from the third crop is extremely poor.

The cost of growing groundnut is only Rs. 100/- per *kani*. This is very low as compared to that of rice. Hence it is grown in parts where rice cannot be grown for other reasons.

VI. ECONOMIC FACTORS

1. *Land tenure* :—Land is leased to a tenant according to two systems, called generally as *Varam* and *Kuttakai*. According to the *Varam* system the total yield of the land is shared in the ratio of 2:3 between the land owner and the cultivator. Here the cultivator bears all the expenses. In *Kuttakai*, the tenant is bound by agreement to pay a certain amount of crop sown for each crop to the land-lord. Generally, it is three *Pattis* of rice for rice lands for each crop. The *Kuttakai* system is favoured by a good cultivator since he gets the full benefit for the additional labour that he puts in. The *Varam* is favoured by land-lords if they could catch hold of a hard working tenant. In the *Varam* the land-lord advances loans to the tenant as and when necessary, as otherwise the tenant will not take good care of the land which will ultimately lead to a low yield. Both the above systems are found in the village.

2. *Land Revenue* :—is Rs. 13.50/- per acre for wet lands and Rs. 2.25/- per acre for dry lands.

3. *Labour* :—The village people supply all the labour necessary for carrying out the agricultural operations and little labour is imported from outside. The people of the village very rarely go outside the village for work. *Adidravidas* (backward classes) supply most of the labour. A woman is paid only Re. 0.50/- per day while a man is paid Re. 1/- and a child Re. 0.25/- only. Boys are employed to look after the cattle. The wages vary from season to season. In the slack season a man gets only Re. 0.50/- per day and even this he is not able to procure daily. During the sowing and harvesting seasons he gets generally Re. 1/- and at times Rs. 1.50/-.

4. *Fragmentation* :—There are 835 fields in the village. The average area of a field is 1.18 acres. The area of the smallest field is one cent while that of the largest field (in the cultivated area) is 11.45 acres. The number of fields in the wet lands is 353 and the average area of a field is 0.82 acres. The number of fields in the dry lands is 308 and the average area of a field is 1.53 acres. These figures point out greater fragmentation in the wet lands. This is obviously due to the greater yield per unit of land in the wet lands. Also there is a greater surety of a steady yield in the wet lands than from the dry lands. Hence the farmer likes to have the wet land even if it is extremely small. There is a large number of fields having an area between 2 to 40 cents and another large number between 1 and 3 acres. The former is due to heavy fragmentation in wet lands and the latter is found mainly in dry lands.

5. *Scattering of holdings* :—The holdings are scattered. In all cases the cultivators live in the settlements nearest to them. The holdings are never much widely distributed i.e., the distance between the fields and the cultivators' habitation is rarely more than 6 furlongs. Usually, it is only one or two furlongs. Many of the average holdings are compact. In the case of scattering, it is often found that the same owner possesses a field in the wet land and the other in the dry land. The larger holdings are usually scattered.

In this case the cultivator employs labour to cultivate lands which are farthest away from his house and he himself does all the work in the land nearest to his house. Scattering causes considerable hardships. The farmer has to waste some of his time in going from one field to another. Perhaps the only remedy is the natural exchange of lands by farmers but in practice it would be a highly complicated affair. Each farmer thinks that his lands are the best and hence he thinks that it will be unwise to exchange them for another.

6. *Livestock* :—The village abounds in animal life. There are bullocks (389), cows (120), buffaloes (65), sheep (189) and goats (72). The cattle are poor in quality. Besides ignorance, this also reflects the poverty of the people. The sheep are kept by a few people as a subsidiary source of occupation. They graze on the hill slopes and tank beds.

VII. POPULATION

The village has a total population of 1290. The total area of the village is 1.54 sq. miles and hence the density per square mile is 838 which is obviously high. The per capita total acreage is 0.76 acres while the per capita acreage for the cultivated area is only 0.61 acres. If we take into consideration the intensity of cropping also then the per capita area will rise to 0.77 acres. This is a low acreage since most of the area is devoted to dry crops whose yields are low. The people are poor and any natural calamity, like the failure of the monsoon brings mass starvation as for example happened in the year 1949. The rate of growth has, however, not been high viz. only 2% between 1901 and 1951.

Cultivating labourers and tenants form the majority of people (252 males, 231 females). There are more women than men engaged in miscellaneous occupations (36 men, 39 women). Among agricultural rent receivers also women outnumber men (11 men, 34 women). The number of agricultural labourers have increased since 1901 even though the increase in population is not great. There is also a great increase in the number of tenants. They have increased from 50 in 1901 to 268 in 1951. Both these point out that the agricultural indebtedness caused by failure of monsoons etc., has increased. This also shows that many of the present tenants and labourers once owned lands which have been first mortgaged and then sold out to pay their debts. This process has not ended but has only made a start. It would, perhaps, not be long before one could see a few rich land owners and a host of tenants and labourers in the village. On enquiry, it was found that a rich man from Vellore has purchased lands in this village amounting to 40 acres. Such wholesale purchases are likely to continue. The agriculturists are so poor that they are forced to eat the very seeds that they have to sow the year after, with the result that the agriculturist has to take loans to buy seeds, manure etc. for cultivating the land. This, as is happening, increases the indebtedness of the cultivator and finally he sells out the land and becomes a cultivating labourer living from hand to mouth.

The chief castes of the village are the Rajas, Mudaliars, Naidus, Vanniers, Chakkliars and Adi-Dravidas. The Rajas and Mudaliars form the agricultural rent receivers. A few of them cultivate the lands also. The Vanniers are cultivators, many of them own land. The Naidus who live in Govindappankottai are also owner-cultivators. The Adi-Dravidas and Chakkliars are mostly cultivating labourers. There is a blacksmith, a barber and a *dhobi* (washerman) in the village.

The months from July to December are the busiest in the year, with a break in October, when there is no sowing or harvest. Of course, some irrigation, weeding etc., provide work for about nine hours a day. November is a busy month and perhaps the happiest one too. The people have work for 12 hours. The labourers get about Rs. 1.50/- as daily wages during this month while the normal rate is only Re. 1/-. During this month all people, old and young, work. Harvesting groundnut is the main job. Each person is given 1/12 of the groundnut he digs out of the earth. Children do not go to school but help in the fields instead. The months of March and April provide little work to the people. Of course, a few fields have to be irrigated for the third crop. During these months they renew the thatching of their poor houses, and do all sorts of extraneous work. Marriages and other ceremonies also take place during these months.

VIII. SETTLEMENTS

There are seven settlements in the village—Mahammadupuram (65 houses), Govindappankotta (63 houses), Rajapalayam (35 houses), Malayadivarapalayam (29 houses), Chakkli Mattam (14 houses), Lala Sheb Kotai (1 house) and Chakkli huts (13). On enquiry it was found that while all the other settlements are old, the Malayadivarapalayam settlement, located in the eastern half of the village is new i.e., only 20 years old. Nearly 30 years before, the eastern half of this village was not utilised for cultivation as is at present. A few people cultivated kaver or varagu in dry patches of land of this area. The poor Adi-Dravidas who cultivated these patches of land built up a settlement of their own. They extended the cultivation to the neighbouring fields which were not theirs. This encroachment was not prevented by the owner of the land since they were already in arrears to pay the tax. Later, groundnut was cultivated and then lands became valuable and the Adi-Dravidas gained a strong footing on their lands. Some of these lands have now been allotted to these Adi-Dravidas.

The settlements of Mahammadupuram and Govindappankottai are located on the western margin of the wet crop lands of the village. To the west of these settlements dry crops are grown. These areas are a few feet higher than the wet lands and the soils here are poorer. The settlements of Rajapalayam, Chakkli huts, Chakkli Mattam and Lala Saheb Kotai are located in the central low-lying rice lands. Their advantage is the proximity to the fields which are now intensively cultivated. Malayadivarapalayam is the only settlement in the dry crop area in the eastern part of the village. Its advantage is the proximity to the dry lands where groundnut is grown.

House types :—There are two types of houses in the village. They are—(1) the brick-walled tiled house (27), and (2) the mud-walled thatched houses (193). The former are the abodes of the rent receivers and some of the owner cultivators while the latter type belong to the tenants and cultivating labourers.

In structure and size the brick-walled houses are of two sub-types. Those owned by rent receivers and big land owners are big, contain a number of store rooms, a back yard, a central yard cattle sheds etc. There is a smaller type of the brick-walled house containing only two rooms and an open verandah, usually a mud-walled thatched shed (for cattle) is attached to it.

There are two types of mud-walled houses—(i) the low huts used by the poor labourers; (ii) the bigger ones with two rooms and a cattle shed

attached to it which are owned mostly by cultivating tenants or small owner cultivators.

The materials used for building houses are mud, bricks, tiles, leaves of coconut palms or palmyra, bamboo and wood. Bamboos and leaves of palmyra and coconut palms are obtained from the neighbouring villages.

Of all the houses in the village, 78 face east, 65 west, 58 south and only 19 north. Most of the streets in all the settlements in the village are in the north-south direction. Hence the majority of the houses face east or west. A small number of houses face south, while only a few face north. Traditionally houses do not face north in South India.

IX. SOCIAL FACTORS

1. *Literacy*:—According to the 1951 census there are only 91 male literates. A small elementary school was started in 1949 and it has only one teacher and about 20 students. Moreover, about 8 students go for higher education to the Middle School at Odugathur, which is about 5 miles away. The literates are only 7.6% of the total population. The elementary school, which is located in the *Cheri* huts of the depressed class people in the north-west of this village, attracts more of poor class people. Due to its location in the *cheri* the higher caste people do not send their children to that school. However, the majority of the people who are tillers of the land are illiterates.

2. *Standards of living*:—The standards of living of the people in this village are very low. Most of the people are engaged in agriculture and the income derived from this is insufficient even to meet the bare necessities of life. There are differences in the standards of living between the various sections of the village. For the sake of convenience, we may group them as follows:

(i) *The agricultural rent receivers*:—The results of enquiries made at the house of a rent receiver are given here:

The rent receiver's family consists of eight members — 2 adult males 2 females, 3 boys and a girl. The family owns 20 acres of land — 9 in wet land area and the rest in the dry land area. The income received from the wet land per year, when 2 crops are harvested, is Rs. 3600/- at the rate of three *pattis* of paddy per crop per acre of land. The income received from the dry land is Rs. 1,100/-. The total income is Rs. 4,700/- i.e. a per capita annual income of Rs. 587.50/-. The family occupies a spacious house, uses bronze (and rarely silver) utensils. They own three pairs of bullocks, a cart and other necessary implements. The wet lands are leased but the cultivators of the dry lands are supervised by the family itself. Domestic servants are not employed.

(ii) *Owner cultivators*:—As an example, the family of an owner cultivator who owns three acres of wet land and four acres of dry land is taken. The family consists of seven members, one adult male, one female, three boys and two girls. The total income from the land is about Rs. 1,450/- i.e., a per capita income of Rs. 207/-. The family lives in a two-roomed, brick-walled, tiled house. They own two pairs of old bullocks and the necessary agricultural implements. Brass and bronze vessels, along with earthen pots, are used.

(iii) *Tenant cultivators*:—A tenant cultivator having a family of 7 members, three adults and four childrens, cultivates three acres of wet land. The income derived from this after giving due share to the owner is about Rs. 150/- per acre per crop i.e. a total of Rs. 900/-. Besides, the family works for wages for others e.g. during November when there is little work in the rice fields and the people go for the harvest of groundnuts. It is rather difficult to calculate the total income derived from this source. But, it is not less than Rs. 150/-. Hence the annual income for the family is about Rs. 1,050/-.

(iv) *The cultivating labourer*:—A family consisting of 6 members one man, a woman, three boys and a girl was studied. One of the boys and the girl do not go for work since they are too young. The average wage during the busy season is Re. 1/- but in the slack season it is only Rs. 50/-. The woman gets only Re. 36/- a day while the boys get Re. 25/- each. Sometimes (e.g. during the busy season) a mid-day meal is also given. The average income per day of the family in the busy season is Rs. 2/- and in the slack season it is only Re. 1/-, the average daily income being Re. 1.50/-. The per capita income per year is Rs. 91/- only. The labourer has very little material possessions. He has a hut and some mud pots and aluminium utensils. His family is almost half naked and half starved during the slack season.

From the above it is clear that the standards of living of the people are extremely low. There are two possibilities of improving the standards of living:—(a) by making a better use the economic resources of the village and (b) by distributing the income of the village as a whole among individuals in such a way that the maximum standard is obtained. While the first possibility is of a constructive nature, the second one is the reverse. The second one is not likely to raise the standard of living in view of the constantly growing population.

3. *Amenities*:—There is no dispensary in the village. Hence medical help is received from the hospital at Marattipalayam which is three miles to the south-west of the village. There is a good metalled road leading to this hospital. The ground to the south-west of Mahammadupuram settlement is used as a playing ground by children. A village assembly hall and a reading room are to be built in the poramboke lands to the south-east of the settlement.

4. *Sanitation*:—The general sanitary condition of the village does not appear to be good. The streets are extremely narrow and untidy and the houses in most cases, are crowded. Many houses have cattle-sheds in front of them which encourage the breeding of mosquitoes. The bad smell coming out of these cattle sheds is very unhealthy. Only a few houses have satisfactory ventilation.

X. THE VILLAGE TRADE AND ADMINISTRATION

The surplus produce of the village is sold out to merchants who come from Vellore. The chief articles sold are groundnut, rice and jaggery. The villagers make their purchases of cloth, pots and other domestic necessities in the neighbouring markets of Karadikudi and Odugattur. Karadikudi is only two miles away and the weekly fair is held on Thursdays. Odugattur is five miles from the village and the weekly fair is held here on Fridays. Cattle, ploughs etc., are purchased from Pullikonda which is about ten miles

away from the village. There are two shops in the village, both deal with articles such as salt, betel leaves and other such petty things of everyday requirements.

There is a Panchayat Board in the village. There is no office for the above organisation which meets in a room of any leading person in the village. But the actual civil administration is carried on by a village *Munsif* (Chief), one *Karnam* (Accountant), and two *talaiyaris* (Headmen). The village *Munsif* and the *Karnam* live in the neighbouring village of Karadikudi.

XI. CONCLUSION

Mahammadapuram village faces the serious problem of a large population which is entirely dependent on the land for its survival. Considering the agricultural resources of the village, the number of people are far too many. The people are at the brink of starvation and always at the mercy of rainfall. Water seems to be a problem child.

The present acreage under rice and groundnut should be reduced and crops like sugarcane and plantains should be encouraged. Tree crops should also be increased. Probably, electrification may be useful in providing more facilities for irrigation. Thus it shall be possible to increase the area under cane and plantains respectively. Tree crops like mango groves could also be grown successfully in the eastern parts of the village where soils are fertile. Tree crops have never been attempted here for the lack of capital; they are likely to be paying in the long run. Mango groves are being successfully grown in the neighbouring villages. Such a change in the crops is bound to increase the yields and is likely to help the village out of the abject poverty in which it is to-day.

NOLAMBUR*

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1. *Location and accessibility*:—The village of Nolambur is located about 8 miles to the west of Madras City on the west trunk road. It is situated on the northern bank of the river Cooum. The village can be reached by mofussil buses which ply between Madras City and Poonamallee

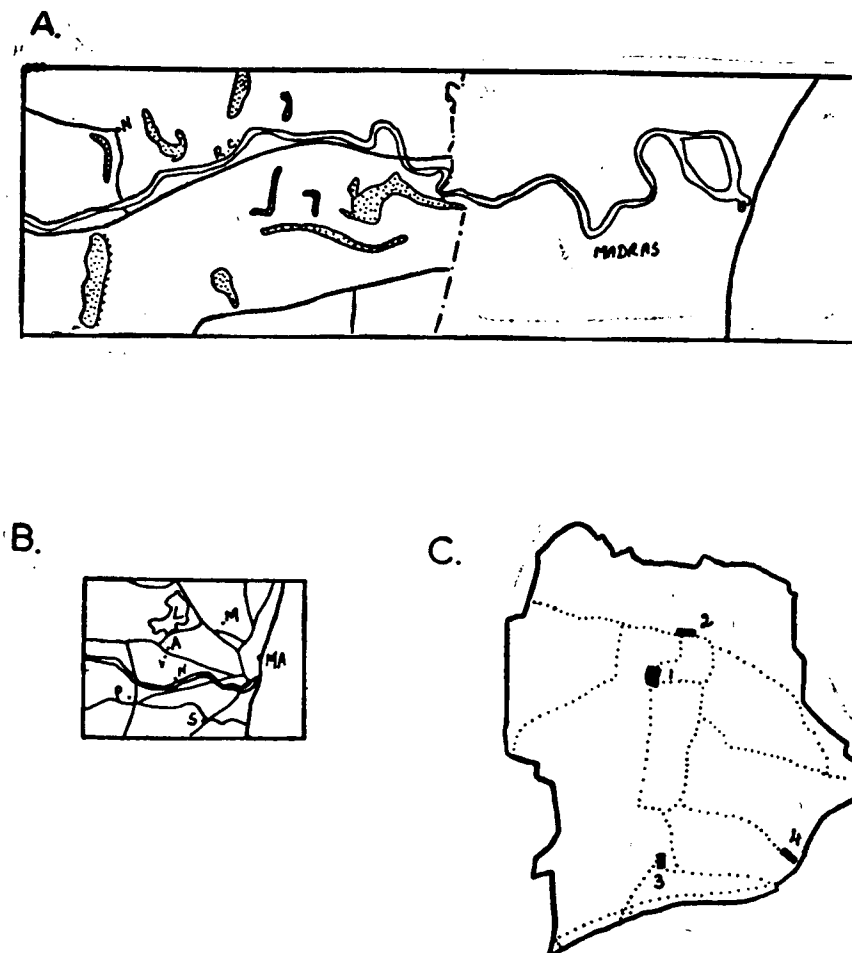


Fig. 1

- A. *Position* (Scale 1" = 1 mile): N—Nolambur, R. C.—River Cooum.
 B. *Location* (Scale 1" = 7.5 miles): N—Nolambur, P—Poonamallee, S—Saidapet, V—Villivakam, A—Ambatur, L—Red Hills Lake, M—Madavaram, Ma—Madras.
 C. *Position of village site and cheris* (Scale 4" = 1 mile): 1—Periyacheri, 2—Agraharam, 3—Kuppacheri, 4—Madhavakoilcheri.

*Adapted from the Village Report submitted for the B.Sc. (Hons.) degree in Geography of the University of Madras.

via Aminjikarai. There is one main caste Hindu settlement with three hamlets or *Adi-Dravida* sites. The origin of the name of the village is lost in antiquity.

The village is situated in the valley of the river Cooum in the coastal plain bordering the Bay of Bengal approximately 35 ft. above the sea level. Naturally it occupies very level ground with only slight undulations. The land slopes gently from south to north.

2. *Climate*:—No data on the climate for this village are available. We may, however, assume that since it lies only 8 miles to the west of Madras it has the same climate as prevails in Madras. The temperature is generally over 85°F throughout the year with a maximum which may go up to 100°F in the month of May. It gets rainfall mainly in the months of October, November and December due to the retreating monsoon. There is a small amount of rainfall in February, March and April which is probably due to convectional showers. Though the amount of precipitation is small it is enough for the commencement of cultivation. The annual rainfall may vary from 40" to 45".

Data for Madras

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Temperature (in °F)...	76	78	81	85	90	90	88	86	85	82	79	77
Rainfall (in inches) ...	1.1	.3	.3	.6	1.8	2	3.8	4.5	4.9	11.2	13.6	5.4

3. *Soils*:—The soils are chiefly red ferruginous loams of three qualities — best, good and ordinary. Red ferruginous sand of good quality occurs in the southern part of the village near the river valley.

4. *Vegetation*:—The major portion of the area has been cleared of its natural vegetation and cultivated. The natural vegetation on the uncultivated land consists of cactus and thorny bushes. These indicate inherently the low fertility of the soil.

5. *Water table*:—In the southern part of the village the water-table occurs at a depth of 25 to 30 ft. As we proceed from here in the other direction the water table rises — in the northern part it occurs at a depth of 10' and in the eastern parts 20' (as indicated by the depth at which water occurs in wells). The total depth of the wells in the southern part varies between 24 to 30 ft. Due to the great depth, wells are sunk concentrically one within the other and sometimes two. For the rest of the village, since the water-table is quite near the surface, such problems do not arise. The waters in the wells are clear and apparently without suspended impurities. They are used both for irrigation and washing purposes.

6. *Area of land*:—The total area of the village is 633.96 acres. The land is classified into various categories — wet land (235.49 acres), dry lands (304.00) and (*Poramboke* 94.47 acres). The *poramboke* lands could be further subdivided into various groups — tankbed (22.04 acres), grazing grounds (14.51 acres), cattle stands (13.09 acres), *Cheri* (the huts of the depressed class people) sites (12.12 acres), village site (7.80 acres), cart tracks (7.61 acres), pond (5.19 acres), channel (3.07 acres), temples (2.63 acres), tank bund (2.61 acres), District Board School (1.79 acres), spring (1.60 acres), threshing ground (0.20 acres) and foot path (0.14 acres). The village has common

grazing grounds and cattle stands, both of which are Government owned. One acre of wet land costs about Rs. 1,500/- while that of dry land costs about Rs. 1,000/-.

7. *Irrigation*:—The main sources of irrigation are tanks and wells. Tank irrigation is the most important and the wells only supplement the water supplied by tanks. There are two main tanks with a number of small ones in the village occupying an area of 22.04 acres. But where two crops are raised in the year only one crop is irrigated by water stored in the tanks while the other crop has to depend on the rainfall.

There are no figures available to show the extent of land irrigated under each source. As the tanks cannot store water sufficient for more than one year they are rendered useless when the rains fail for two or more years consecutively. A number of Government subsidised wells have been sunk recently and with their help the villagers are able to cultivate a part of their land. There are about 12 subsidised wells, in addition there are 6 wells having oil engines for pumping water and 29 previously constructed wells, giving a total of 47 wells used for the purposes of irrigation.

In addition to oil engines, other methods of water lifting are used. The usual water lifts are the *piccotah* and the typical Indian *mhote* or *chara* which consists of a leather bucket handled by a rope over a pulley and drawn by bullocks walking down a slope.

Oil engines although introduced ten years ago are important only for the last 5 years. Oil engines are usually worked five hours in the morning when the engine gets heated up and there is an interval of four hours when it is again worked for another five hours. Thus the oil engines work from 5 a.m. till evening. A 5 H.P. oil engine can irrigate five acres while those between 5-10 H.P. irrigate 15 acres. A bullock *mhote* can irrigate 2 acres of land working four hours per day while a *piccotah* well is capable of irrigating only one acre per day working five to six hours. Usually a bullock *mhote* is preferred to a *piccotah* as the former needs only a single labourer to operate it while the latter requires two labourers at the cost of Rs. 2/- each. Water is sold by one villager to another. The charges are four bags of paddy for one acre of one crop.

8. *Occupation of the land*:—The land is divided into small plots and in the total area of 633.96 acres there are 351 plots. The smaller plot is one cent and the largest is 12.41 acres. Out of 633.96 acres, 393.69 acres are cultivated.

9. *Land Tenure*:—The two forms of tenancy in vogue in the village are — *varam* and *kuttagai*. By the system of *kuttagai* the tenant is bound by a previous agreement, to pay the land-lord a stipulated quantity of grain whatever be the actual yield. All the risks and all the expenses are undertaken by the tenant, the land-lord paying only the *kist* to the Government. The rent paid for one acre of land varies for different cases but the average is 200 measures of paddy per acre. Though the rent is supposed to be fixed, when the yield is poor especially due to unexpected natural forces, the land-lord agrees to a remission.

Varam or share tenancy is the most important form of tenure in the village by which the actual yield is shared between the landlord and the tenant in certain proportions. In this village the yield is divided in the proportion of 1 : 3 (between the land-lord and the tenant). All expenses for ploughing, sowing, transplanting and weeding are met by the tenant. Some

of the land-lords advance money to the tenants for the purposes of seeds and manure etc. which is returned along with the rent.

There is yet another type of tenancy whereby the owner himself employs labourers and cultivates the land under his supervision and pays them daily wages. There are about 20 such cultivating *pattadars* with an area about 150 acres.

10. *Land Revenue*:—The total *kist* collected from the village is Rs. 1,438/-. The rate charged for wet land is Rs. 5/- per acre (2.25/- for dry land). The total revenue from the dry land is Rs. 589/- and from the wet land Rs. 849/-.

11. *Cultivation*:—Out of a total area of 633.96 acres, 393.96 acres are cultivated (wet land—area under first crop 146.37 acres and under second crop 39.26 acres; dry land area under first crop—171.51 acres and under second crop 36.35 acres). The principle crops are cereals—paddy 135.26 ac, ragi 22.67 ac., cholam 2.58 ac, pulses—black gram 5 ac., green gram .47 ac.; oil seeds—gingelly .62 ac.; fruit trees—mango 55.61 ac., citrus 5.56 ac.; other trees—palmyra .24 ac., coconut 2.78 ac., casuarina 76.10 ac.; and other crops—chillies .46 ac., vegetables .96 ac., indigo .50 ac. From these details it is clear that paddy is by far the most important crop in the village. Paddy is either sown broadcast or by transplantation. In the case of *Kar* and *Sornavari* it is transplanted and it is only in the case of *samba* crop that broadcast sowing is resorted to. Whether broadcast sowing or transplantation is adopted depends on the economic condition of the ryot at the time of sowing. If he is well off he usually prefers transplantation.

The seed rate is 32 measures per acre. *Kar*, *Samba* and *Sornavari* are the main varieties of paddy cultivated. *Kar* and *Sornavari* are three month varieties whereas *Samba* is a six month variety. The *Samba* variety is the permanent crop in the village. The *Samba* and *Sornavari* variety give an yield of 100 *marakals* (or 800 measures) per acre. The higher yield in the case of *Samba* and *Sornavari* varieties is due to greater manuring. The land is ploughed four times before the first sowings. The first crop is usually sown in July or August in anticipation of good rains. *Samba* is the variety sown. The seedlings are transplanted after 45 days in August. Weeding is done when the seedlings are a month old. In September when the seedlings are 10 weeks old they are thinned in areas sown broadcast. Harvesting is done in January or February after *Pongal*.

The fields are immediately reploughed and sown again in March. The varieties sown are usually *Sornavari* and *Kar*. If *Sornavari* is sown in March or April. It is said to give a higher yield as it requires a greater quantity of sunshine. If *ragi* is sown as the first crop second crop is usually *samba*. If instead of *Samba*, *Sornavari* is sown the third crop is invariably *Kar*. But usually *Samba* is the first crop and *Kar* the second crop. Most of the ryots select seeds from the previous harvest. Others use improved seeds. The yield is about 10% higher in the case of the latter.

Usually *ragi* is cultivated as a first crop. It is a three month crop sown in June and harvested in August. It gives an yield of 640 measures per acre; .62 acre of land is under gingelly—a three month crop. It is sown in April and harvested in June. Only four people cultivate this crop as it is a popular saying that "a single gingelly crop robs the soil of its fertility for the next seven years." Hence it is not cultivated extensively. If cultivated, the land has to be heavily manured for the next rice crop. The average yield is 320 measures.

Vegetables such as brinjal, lady's finger and pumpkin are cultivated by the *pattadars*. The vegetables are usually planted in April. They require constant tending and they begin to yield by June. Packing of vegetables is done in rotation usually once a week. The plants continue to yield till July after which they are removed and the land is ploughed up for the next crop.

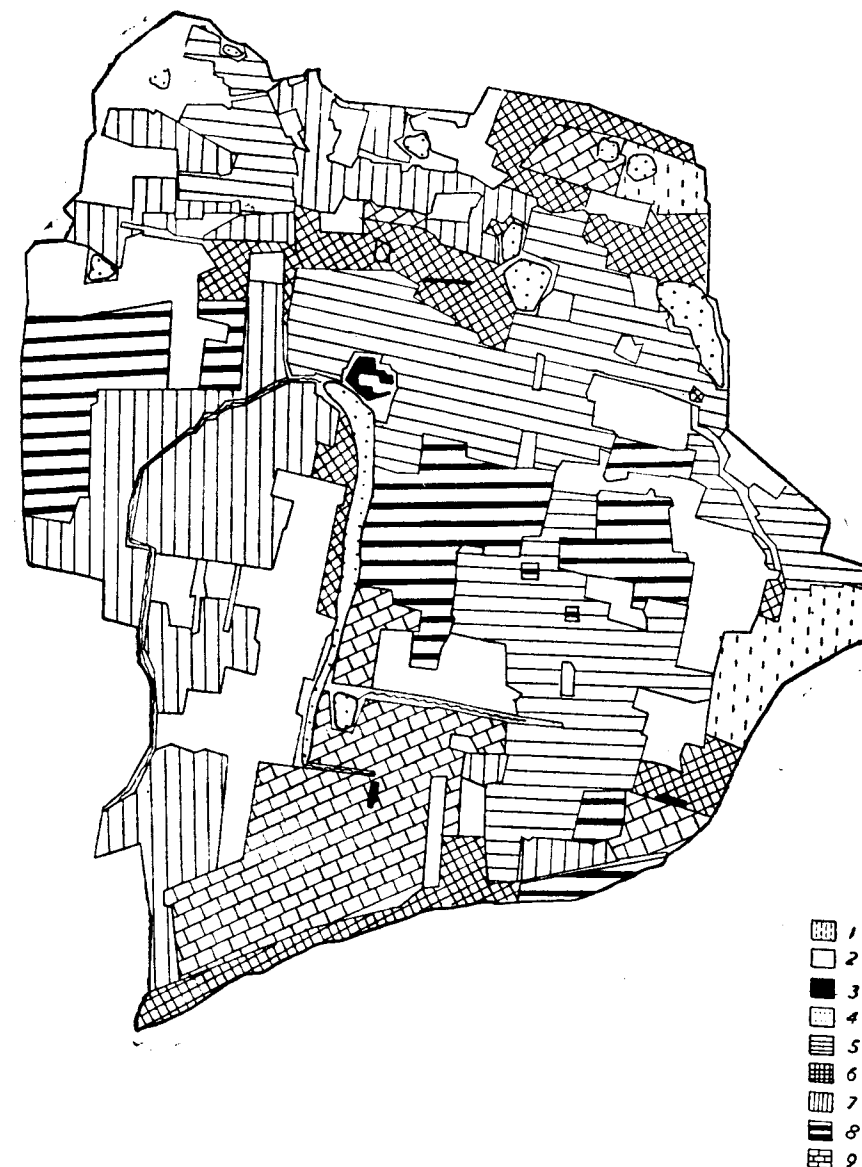


Fig. 2

Land Utilisation: 1—Cultivable waste, 2—Current fallow, 3—Settlements, 4—Water features, 5—Irrigated cultivated land, 6—Unirrigated cultivated land, 7—Waste land, 8—Tree crops, 9—Horticulture.

Casuarina, mangoes, coconuts and citrous fruits form the major cash crops of the village. The casuarina occupies 76.10 acres and is chiefly found on red ferruginous sand of good quality. It is an 8 year crop. It is watered once in a month for the first three years.

The mangoes are mostly, what are called the *Malgova* and the *Neelam* types grown mainly on the sandy soil. They are usually given on contract to merchants in Madras for Rs. 5.80/- per mango tree.

12. *Labour* :—The village supplies its own labour, carts, ploughs and bullocks for all the agricultural operations. During harvest time labour is scarce on account of the great demand for labour in the brick works and hence has to be imported from the neighbouring villages. Some of the *pattadars* have come and settled at Nolambur after they had purchased some land in that village. One of them, a Naidu, has come from Sholingar and has 10 acres of land. Since the local wages are high, being influenced by the high wages offered in the brick kilns, he therefore imports labourers from his native village during harvest time which affect the local labour to a certain extent.

13. *Manuring* :—Different kinds of manures are being used in the village. Only a part of the cattle dung is used as manure and this quantity is of course not enough. The fields get only that much of cattle dung which is left after being used as fuel. Ammonium sulphate and super-phosphates obtained from the Agricultural Demonstrators at Saidapet at the rate of Rs. 35/- per bag in the case of ammonium sulphate and Rs. 25/- per bag in the case of superphosphates (each bag containing 59 measures), is used widely. Twenty measures of manure are used for one acre. Super-phosphate is used before the transplantation as plants decay if it is applied later. The ammonium sulphate induced plant to grow up quickly during the formative period. The villagers hold the view that once a field is manured with salt the yield is of course good but in the next year more of salt has to be applied to give the same yield. They say that chemical manures are useful only to produce immediate results. But in the long run they do not in any way improve the lands. On the other hand they tell on the native properties of the soil.

14. *Pests and insects* :—No appreciable damage due to pests has been reported so far in the village. Grasshoppers and black beetle are the common pests.

15. *Implements* :—The village has 55 ploughs. The old fashioned Indian wooden plough is the most extensive one used. There are five iron ploughs too but these are used only for ploughing those fields where the surface to be ploughed is so hard that the wooden plough becomes ineffective. There is only one tractor.

The total expenses are Rs. 220/- while the yields are worth Rs. 45/- i.e., the net income per acre on the *Kar* crop is Rs. 230/-. The cost of cultivation of ragi is Rs. 100/- per acre and the net profit is Rs. 200/-. In the case of the gingelly crop the cost is Rs. 50/- and the profit is Rs. 200/-. Vegetables give a profit of Rs. 150/-. Let us take any crop grown on the dry land e.g., casuarina. The average yield per acre is 50 tons. Assuming the price of one ton to be Rs. 30/- it can be seen that one gets a profit of Rs. 650/-, Rs. 150/- being the cost of cultivation. Thus we find that one acre of dry land cultivated with any one of the cash crops gives more income than one acre of dry land cultivated with paddy.

16. *Fragmentation of holdings* :—There are about 117 *pattadars* holding the entire area among them. The largest holding is about 127.49 acres while the smallest is about .03 acres. This would clearly illustrate the maldistribution of land between the owners. Further, the holdings are scattered. The villagers realise that scattering of holdings over the whole village is uneconomic since it entails waste of time and extra expenses in going from one field to another. There has been some attempt on the part of the *pattadars* to exchange lands with one another to secure contiguous plots. But this system of *parvarthanai* (consolidation) is only very limited in its extent as most of the villagers feel that their land is the best and that they will be losers by exchanging it with others.

17. *Livestock* :—Livestock in the village includes—bulls and bullocks (450), cows (150), he-and-she-buffaloes (135), goats (100), donkeys (4) and poultry (200). There are no special breeds of cows in the village. The cows yield on an average about one measure of milk per day which is consumed in the village itself.

There are 10 carts in the village. The cost of a pair of bulls and cart is Rs. 900/-. The villagers buy their cattle at the weekly fair held on Fridays at Pallavaram. There are separate grazing grounds for cattle and goats. No cattle diseases have been reported so far. If there are any diseases among the cattle they are taken to the Veterinary Hospital at Saidapet for treatment. The cattle are poor due to lack of adequate fodder. Poultry farming is developed only to a small extent in the village.

18. *Fuel* :—As mentioned before, the cattle dung forms the most important source of fuel in the village. The wood fuel used is got from the casuarina plantations grown in the village itself.

19. *Village site and houses* :—The village site occupies an area of 2.63 acres. The caste Hindus live together in the *Agraharam*, whereas the *Adi-dravidas* live in three separate colonies dispersed among the fields. The settlements are linear in pattern. There are a dozen temporary huts occupied by people who migrate into the village to be employed in the brick kilns. The following table gives the distribution of mud and brick houses and their orientation in the village :—

Orientation

Site	Building material	North	South	East	West	Total
Agraharam	Mud	1	1	x	x	2
	Brick	2	6	x	x	8
Periyacheri	Mud	x	24	22	2	48
	Brick	1	9	5	x	15
Kuppacheri	Mud	x	24	1	11	36
	Brick	x	6	x	3	9
M. Koilcheri	Mud	x	24	16	2	42
	Brick	x	1	4	1	6
		4	95	48	19	166

From the above table it is clear that the orientation of the houses is in the following order of priority—south, east, west and north. The lasting being favoured only by just 4 houses out of a total of 166 houses. Even these four houses are of fairly recent origin, three being of brick and one of

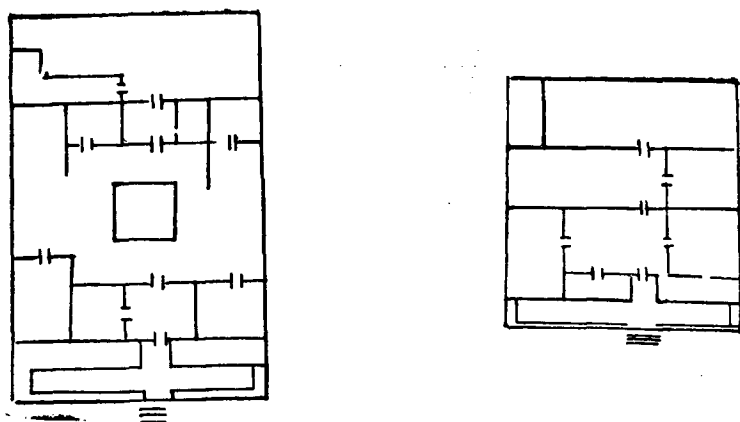
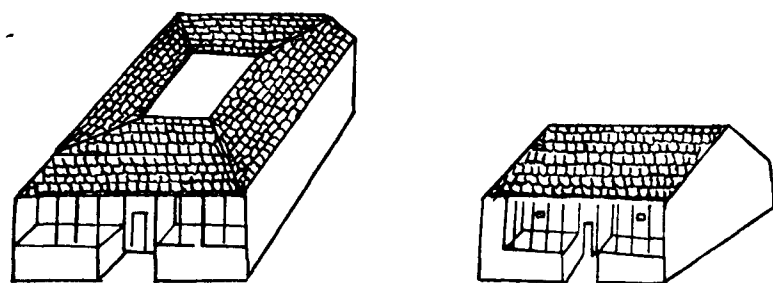


Fig. 3

Houses and Ground Plans.

mud. Traditionally houses in South India do not face north. But of late the old tradition and prejudices are being pushed aside and houses are constructed with the main idea of facing the street. Next less favoured are the houses facing west (only 19 out of 166). One could conjecture that owners do not

like to face west due to the afternoon heat. Of all directions south is the most favoured and this is evidenced by as many as 95 houses out of a total of 166 (being as much as 57%). South is favoured because of its advantageous position with reference to cool breeze. East is favoured for the morning sun.

There are numerous temples in the village. One can count as many as eight temples — some situated within the village site and the others standing isolated among the fields. One Perumal temple and a Vinayak temple (in

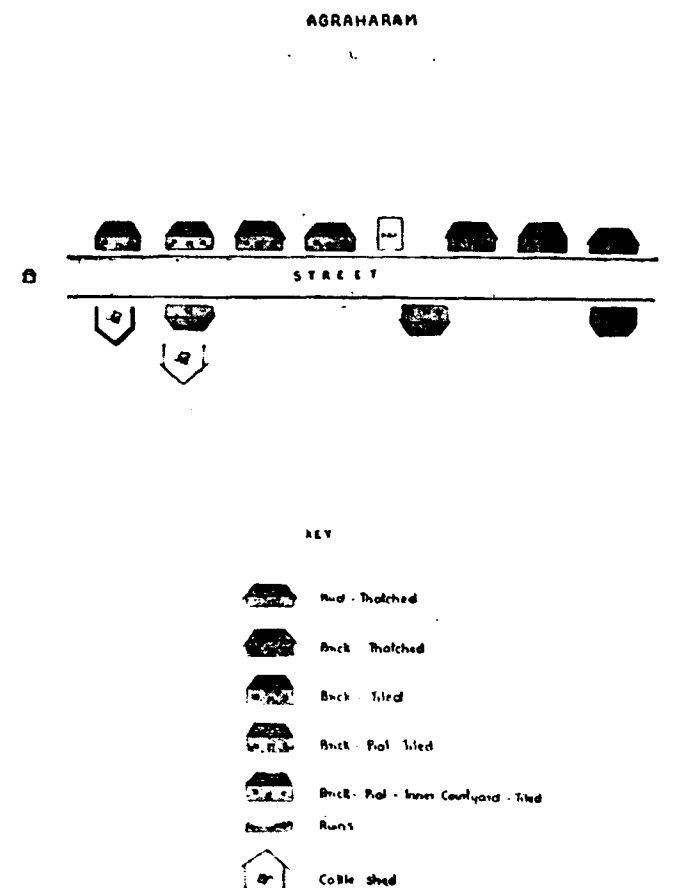


Fig. 4

ruins) are situated in the western and eastern ends respectively of the main village. On the western end of Kuppacheri there is a Perumal temple. In Periacheri there is a single Mariyatha temple just outside the village. The other three temples are found in different parts of the village among the fields and they are dedicated to the dieties of Perumal, Eswaran and Mariyatha.

20. *Population* :—There are about 980 people consisting of 600 males and 380 females. Of this 800 people belong to the scheduled castes. The adult population (based on voting strength above the age of 20 years) is — Madhavakoilcheri (115), Kuppacheri (139) and Periyacheri (106). There is an

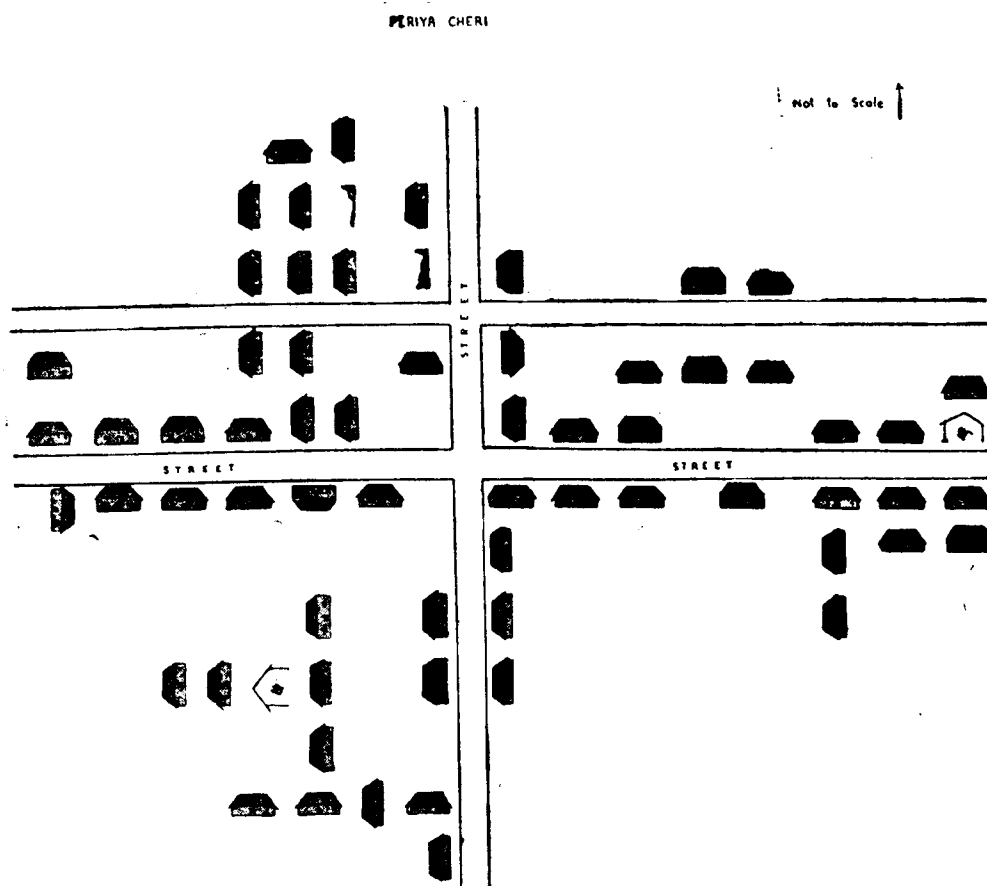


Fig. 5

yearly migration of people into the village who come to work in the brick kilns. They do not settle down permanently. They accumulate their savings for some months and then leave the village and go to the nearby towns where they usually spend away most of their savings. They return again when the

savings are exhausted. Thus some of these families pay an yearly visit to the village. There are about 12 such families. The people in the main

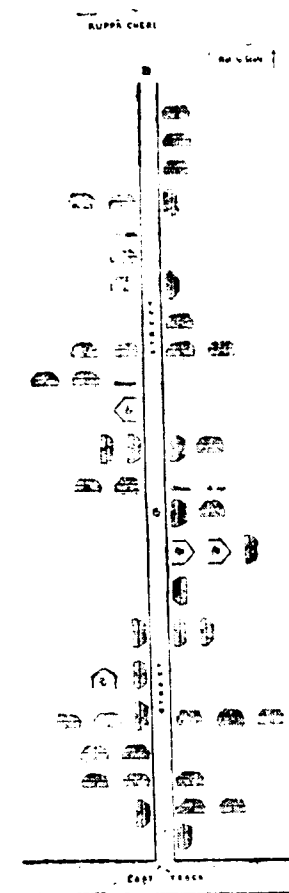


Fig. 6

village are either Naidus or Mudaliars (peculiarly enough there is not a single Brahmin family in the village).

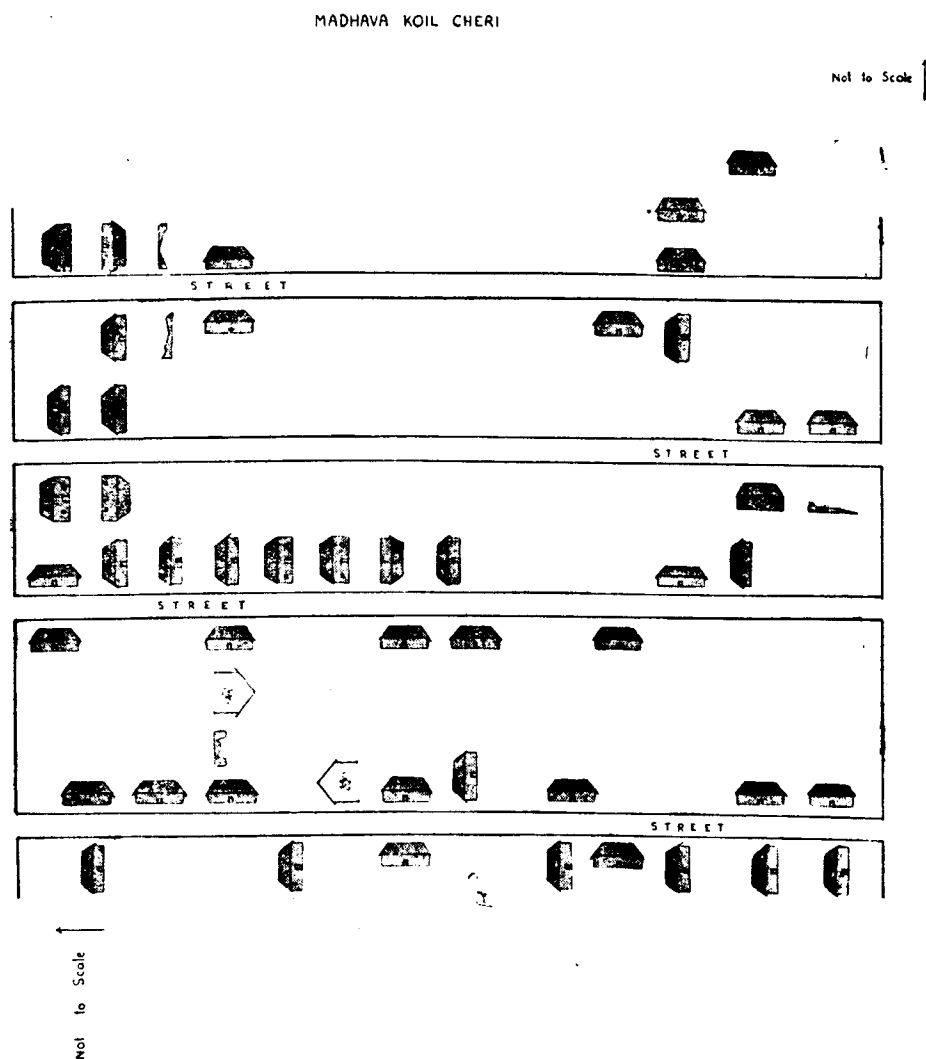


Fig. 7

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21. *Occupation*:—Formerly agriculture formed the most important economic activity of the people but in recent years brick making has become more important. There are 9 brick kilns—all situated in the south and eastern parts of the village the factors of localisation of this industry being the locally available raw material. Sand from the Cooum bed and excellent clay for brick making from the fields, labour and nearness to the city of Madras which forms the chief market—are the major factors. As this industry is more paying than the mango thopes, mango trees are being cut down and mud is quarried. Much of the good land is being brought under the quarrying and brick kilns. On account of the failure of monsoons for the past few years which resulted in poor harvest most of the ryots have become very poor. When the rich people residing in Madras offer a high sum for the land to start a brick kiln some of the ryots are only too willing to sell away a part of their lands. Thus this industry is bringing much ruin to the village.

The capital invested in a brick work is Rs. 50,000/-. The capital comes from Madras city. Labour is available locally and is supplemented from outside villagers. A labourer is paid between Rs. 2/- to Rs. 3/- per day. So there has been a tendency for the labour to be diverted from agriculture to this industry. In due course of time this is likely to lead to a dearth of labour in carrying out the agricultural activities of the village. The cost of country brick (2" thick) is Rs. 20/- per 1000, while stock bricks or table mounds (3" thick) cost Rs. 30/- per 1000.

The village does not have its own artisans and depends on the artisans of the neighbouring village (Maduravayal). They are paid in kind once a year at harvest time. Besides these regular wages they are also given paddy during festival times such as Pongal, Deepavali, etc.

22. *Village Trade*:—The principal articles offered for sale by the ryots are paddy, mangoes, citrus fruits and casuarina. Usually only the surplus of the paddy crop is for sale. Sometimes after harvest when there is a good price the entire crop is sold and the ryot later purchases his wants. All the other commodities grown in the village are consumed within the village itself. Only a small fraction of the vegetables and mangoes grown in the village are consumed locally. The vegetables are taken by the individual farmers to Madras. In the case of mangoes, the trees are given on contract to merchants. Casuarina is also sold by the individual ryots.

All the foodstuffs which the village does not grow in sufficient quantities are purchased from outside. The nearest market is Aminjikarai from where the higher classes get their provisions and other requirements. The lower classes usually get these from the neighbouring village of Maduravayal, where salt, tamarind and such other things are sold.

23. *Education*:—The compulsory education has been introduced. Formerly there was a District Board School in the village but it does not exist now. Boys and girls now attend the school at Maduravayal, where there is provision up to fifth class. Some children continue their studies after passing fifth class and they have to come as far as Madras for the purpose. There is one graduate, one under-graduate and one S.S.L.C. in the village.

24. *Sanitation*:—The village is a healthy one and is not afflicted by epidemic diseases like malaria, hookworm etc. Some fever follows the rains but it is not persistent. No statistics could be obtained about the maternity

and infantile mortality. According to the villagers the infantile mortality is not high. If the villagers want any medical aid they have to come to Madras. There is no maternity centre in the village and the primitive method of calling in the barber woman prevails.

The villagers collect and store the manure, the cattle dung that is left after making dung-cakes, in the backyards of their houses. The streets are kept tolerably clean but they are rather dusty. The villagers generally do not use the same water for drinking and washing purposes but sometimes the *Adi-dravidas* do.

25. *Economic condition*:—The general economic condition of the village may be said to be good. The villagers are fairly well off. There is no problem of unemployment for the village. All the labourers work hard. When they are in need of money they get it from the land-lords. Arrangements are being made to electrify the village and work has already commenced. Before prohibition, the labourers rarely failed to go to the toddy shops in the evenings after finishing their field work. The introduction of prohibition has put an end to this and the women folk of the village say that this has brought much peace and some prosperity to their homes. But some persons, it appears, resort to illegal methods of getting toddy.

26. *Administration*:—Administration is carried on by the *Panchayat* Board, the *Panchayat* Court, the *Karnam* and the *Village Munsiff*. The village is a peaceful one and there have been no complaints of crime especially after the prohibition. None of the villagers are engaged in litigation and disputes are dealt with in the village itself.

THE NINETEENTH ANNUAL REPORT OF THE INDIAN GEOGRAPHICAL SOCIETY FOR THE YEAR 1960.

THE COUNCIL OF THE INDIAN GEOGRAPHICAL SOCIETY has the honour to present the following report for the period January 1, 1960 to December 31, 1960.

The year under review has been no less difficult and trying than the previous years.

MEMBERSHIP

The Strength of the Society is shown below :

	1956	1957	1958	1959	1960
Life Members	... 26	28	29	32	40
Honorary Members	... 7	7	6	6	6
Ordinary Members	... 68	79	96	109	121
Institutional Members	... 242	242	255	213	204

Members and institutions are particularly reminded that they will be helping the Society if they pay their arrears of subscription as early as possible.

THE EXECUTIVE COMMITTEE

The results of election held in January 1960 are given below:—

<i>President</i>	... Dr. George Kuriyan
<i>Vice-Presidents</i>	... Dr. Miss A. R. Irawathy. ... Prof. P. G. Dowie. ... Mr. V. S. Gananathan. ... „ A. Thirumalai Aiyangar. ... Mrs. R. Radha.
<i>Secretary</i>	... Mr. S. D. Misra.
<i>Asst. Secretary</i>	... Miss M. N. Vasantha.
<i>Treasurer</i>	... Mr. K. Srinivasa Raghavan.
<i>Executive Committee</i>	... Mrs. H. Newman. ... Mrs. A. V. Thiru (from the Council)
<i>Members of the Council</i>	... Mr. M. J. Subramaniam. ... „ K. Ramamurthy. ... „ M. P. Rajagopal. ... „ M. P. Thakore. ... Dr. V. L. S. Prakasa Rao. ... Mrs. A. V. Thiru.

FINANCE

The financial statement for the year ending 31st December 1960 is set forth in the Auditor's Report. Receipts for the year under various heads amount to Rs. 2855.63 while expenditure has been Rs. 2677.25, a sum of Rs. 178.38 is now in the Bank.

The Society is particularly grateful to the authorities of the University of Madras for making an annual grant of Rs. 150/-. Further, the Vice-Chancellor has been pleased to allow the effects of the Society to be accommodated in one of the rooms of the Department of Geography at the University Examination Hall; this has given the Society a permanent habitation and the Society takes this opportunity to place on record its deep sense of gratitude to the Vice-Chancellor. The Society also expresses its gratitude to the National Institute of Sciences of India and the Ministry of Scientific Research and Cultural Affairs for having donated a sum of Rs. 500/- each towards the publication expenses.

ACTIVITIES

The Society has completed 35 years of existence and is still finding it very difficult for financial reasons to publish the four numbers of the Journal.

Under the auspices of the Society Prof. P. Legris, Director, Institute Francise', Pondicherry, gave a talk on "The Ecological Cartography of Vegetation Types" at the University Examination Hall, on the 20th December 1960.

The recognition of the value of the Society's earlier contributions in the development and diffusion of Geographic thought is really an inspiration and strength for further work. The Society pledges to work for the advancement of the subject as it did during all these years and looks forward with full optimism, despite its poverty, to another year of useful work.

Department of Geography,
University Examination Hall,
Marina, Madras-5.
31-12-'60.

S. D. MISRA,
Secretary.

THE INDIAN GEOGRAPHICAL SOCIETY, MADRAS.

Statement of Receipts and Payments for the Year Ending 31-12-1960.

RECEIPTS	PAYMENTS
Rs. np.	Rs. np.
To balance on 1-1-1960 :	By salary ... 210.00
With Madras State Co-operative Bank, Ltd. Current a/c Rs. 35.56	" Printing and Stationery ... 2,084.10
" Prudential Deposit a/c Rs. 11.60	" Postage ... 312.40
On hand (postage Rs. 1.60)	" Sundries ... 10.75
" Subscriptions ... 886.22	" Audit fees 1958, 1959 & 1960 ... 60.00
" Life Memberships ... 750.65	" Balance on 31-12-1960 :
" Grants :—	with Madras State Co-operative Bank Ltd., current a/c Rs. 160.58
National Institute of Sciences of India Rs. 500.00	Prudential Deposit a/c Rs. 11.60
Ministry of Scientific Research & Cultural Affairs Rs. 500.00	On hand postage Rs. 6.20 ... 178.38
University of Madras Rs. 150.00	
" Reprints ... 1,150.00	
... 20.00	
Total 2,855.63	Total 2,855.63

Examined and found correct.

Madras,
31-12-1960.

(Sd.) P. GOPALAKRISHNA RAO, B.Sc., F.C.A.,
Chartered Accountant.

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