

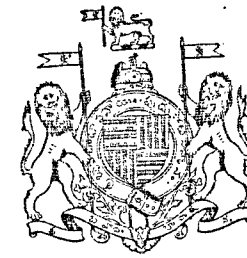
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A Manual of the Pudukkottai state.

Vol. I





A MANUAL  
OF  
THE PUDUKKÓTTAI STATE.

Volume I.  
(Second and Revised Edition).

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*Published under the authority of the Pudukkottai Darbar.*

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EDITED BY  
K. R. VENKATARAMA AYYAR.

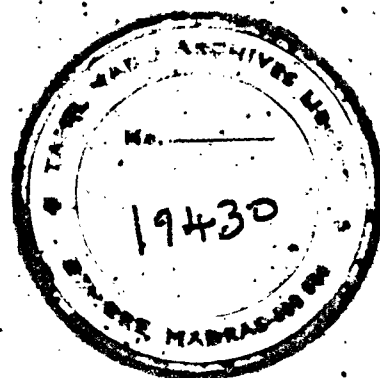
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A  
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OF THE  
PUDUKKÓTTAI STATE.

## PREFACE.

IN June 1934, the Darbar decided that since the first edition of the State Manual issued in 1920 was out of date and also susceptible of considerable improvement, a new and up-to-date edition should be prepared. Owing to various circumstances no progress could be made with the work till it was entrusted to Mr. K. R. Venkatarama Aiyar, B. A., L. T., M. R. A. S., Head-Master, High School Section, His Highness the Raja's College, Pudukkottai, in December 1935. The manuscript draft of the first volume was ready by September 1936, but owing to the time and labour involved in putting it into its final form, and to congestion of work in the State Press, it could not be published till 1938.

The Darbar have exercised close personal supervision over the work throughout. Most of the chapters were originally drafted by the Manual Officer himself, but Chapter II 'Flora and Fauna' was drafted by Mr. K. R. Srinivasa Aiyar, and Chapter IV 'Agriculture' by Mr. T. S. Sundaram Aiyar who was supplied with necessary information by the Officers of the Agricultural Department.

This volume is to a considerable extent based on the corresponding chapters of the first edition, though the phraseology has undergone considerable modifications. Chapters I and II however have been rewritten and amplified. The section of Chapter III relating to 'Cultural Anthropology' has been recast and includes Chapter XVIII of the old edition. Chapter VII on 'Trade and Occupation' contains much entirely new matter. Chapter XII 'Local Self-Government' contains two new sections, 'Urban and Village Panchayats' and 'Rural Development Activities.' Chapters XI (Co-operative Movement), XIX (Devasthanam and Charities), XXI (Finance) and XXII (Museum and Archaeology) are altogether new.

The Chapter on General History and the Gazetteer section have had to be considerably amplified and will form the second volume of this work.

Much care has been bestowed on the selection of illustrations to ensure that they should be reproduced in a manner worthy of the work. The photographs from which they have been reproduced were supplied by Messrs. K. Venkatarengam Raju, Museum Curator, and L. Ganesa Sarma of the Bharat Studio, Pudukkottai, and the blocks have been prepared by the Calcutta Chromo-type Ltd. Dr. Stella Kramrisch of the Universities of London and Calcutta has placed the Darbar under a debt of gratitude for advice and help in regard to them.

It is impossible to mention all those to whom the Darbar's thanks are due for their assistance, but special recognition is due to Mr. K. Venkatarengam Raju, Curator of the State Museum, Mr. N. P. Swaminatha Aiyar, State Archæologist, Mr K. R. Srinivasa Aiyar and Mr. T. S. Sundaram Aiyar, while the Superintendent of the State Press and his staff deserve to be congratulated on their work.

Every effort has been made to make this work accurate and complete. The Darbar will be grateful to any one who brings any errors or omissions to their notice.

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| PAGE. | LINE. | FOR                              | READ                      |
|-------|-------|----------------------------------|---------------------------|
| 15    | 3     | as there is                      | as there is,              |
| 35    | 1     | <i>Erinaidæ</i>                  | <i>Erinacidæ</i>          |
| 48    | 26    | Many of fishes                   | Many of the fishes        |
| 68    | 5     | culture                          | cultural                  |
| 72    | 2     | sown                             | sewn                      |
| 82    | 27    | सादृशी                           | सदृश                      |
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| 266   | 22    | 7,202                            | 7,022                     |
| 277   | 11—12 | History, Chemistry<br>and Botany | History and<br>Chemistry. |
| 324   | 30    | 0 098                            | 0·098                     |
| 350   | 22    | injustice                        | in justice                |
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| 436   | 5     | Panchayats courts                | Panchayat courts          |
| 455   | 10    | Councilors                       | Councillors.              |
| 487   | 9     | Bahadur,                         | Bahadur)                  |

# A MANUAL OF THE PUDUKKÓTTAI STATE

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## CHAPTER I.

### I. PHYSICAL FEATURES.

**Position and boundaries.**—The State of Pudukkóttai lies between the parallels of  $10^{\circ}7'$  and  $11^{\circ}4'$  North Latitude and between the meridians of  $78^{\circ}25'$  and  $79^{\circ}12'$  East Longitude. The area of the State is 1,178 square miles. Its greatest length from East to West is 52 miles, and its greatest breadth from North to South is 41 miles. It is bounded on the North by the Trichinopoly and Tanjore Districts, on the West by the Trichinopoly District, on the South by the Ramnad District and on the East by the Tanjore District.

The surface of the country is characterised by flat plains in the East, and is intersected by streams and low hills in the West and the South. Pirānmalai and the Sevalur Hills may be mentioned as natural boundaries though they run but for a short distance. The boundaries of the State changed with its gradual expansion as the result of conquests; and this fact accounts for the existence of several enclaves of Pudukkóttai territory in the adjoining British territory. The State has no sea-board; the Bay of Bengal is about 12 miles from the easternmost point.

2. *Nárttámalai*, lying west of the road from Trichinopoly to Pudukkóttai;
3. *Áluruttimalai* close to Nárttámalai;
4. The *Sévalúr* hills in Tirumayam Taluk, which are low craggy ridges covered with jungle, of which the *Kánjáttimalai* is an off-shoot;
5. The *Sittannavásal* hill near Annavásal;
6. The *Puram* hills, in the Arimalam vattam of the Tirumayam Taluk—a low ridge;
7. *Kunnattúrmalai*, a flat topped rock in the vattam of the same name in the Kolattúr Taluk;
- and 8. The *Sampatti* hills, in the north-west of the State, in Kílayúr vattam in the Kolattúr Taluk.

On the tops or slopes of the rocks at Virálimalai, Neḍunguḍi, Kuḍumiámalai, Tirugókarnam, Vaiyápurī, Ténimalai, Kumaramalai, Kunnándárkóil, Malayakóil and Malayadippaṭṭi are well-known temples.

## II. GEOLOGY.

Perhaps the most valuable of the published reports that deal with the Geology of the State is Mr. Bruce Foote's *Records of the Geological Survey of the Pudukkóttai State, the northern part of the Madura District and the southern parts of the Tanjore and the Trichinopoly Districts* (*Records of the Geological Survey of India*, Vol. XII, part 3). In compiling the present account most of the information has been derived, and much repeated verbatim, from it.

**Stratigraphy.**—The rocks found in the Pudukkóttai State may be divided as follows:—

1. Soils and subærial formations.
2. Alluvial formations, marine and fluvial.
3. Laterite conglomerates, gravels and sands.
4. Cuddalore Sandstones, grits and conglomerates.
5. Upper Gondwana beds. Hard mottled shales;
6. Gneissic or metamorphic rocks.

**Topography.**—The gneissic rocks occupy the western part of the area and form the highest prominences in it. The line of hills stretching from south of Kolattúr to Annavásal, and the granite gneiss hills to the south of the Vellár at and near Tirumayam belong to this classification. A considerable part of the surface of the gneissic rocks is occupied by debris of the younger overlying rocks, which have been in great part destroyed by the denuding agency of atmospheric forces.

The rocks assigned to the Rájmahál section of the Upper Gondwana system are very slightly exposed, and though their contact with the gneiss is not visible, there is no reason to imagine that their base rests on anything else than the gneiss.

The Cuddalore Sandstones and grits rest, wherever their base is exposed, on the irregular surface of the gneissic rocks, and are themselves overlaid by laterite conglomerates, gravels and sands.

The conglomeratic beds of both groups occur in the western parts of the State. The gravelly and sandy members of the laterite group occupy the eastern part.

The laterite area is divided by the alluvial valleys of the several rivers (the Agñānavimóchaniár, the Vellár, the Pámbár and the Maṇimuktānadi) into various patches.

The river alluvia are of no great extent or importance. Owing to the great extent of wet cultivation carried on along the various rivers and under tanks, the apparent area of the alluvium has, in the course of many centuries, been largely increased by the formation of artificial alluvial spreads, the boundaries between which and the true alluvia it is in very many, if not in most, cases impossible to determine with any accuracy.

**The Gneissic or Metamorphic rocks.**—The prevalent form in this region is quartzo-felspathic micaceous granitoid gneiss or semi-granitoid gneiss, of pinkish or greyish-pink colour. In texture it varies from a massive, coarse, highly granitoid rock to

a schistose gneiss nearly akin to mica schist. A very marked variety is a coarse granular quartz rock, very rudely bedded and showing numerous small indistinct cavities, from which some mineral has been weathered out. Finely banded granite gneiss of dense grain occurs here and there, for example at Tirugókarnam and at Ammachatram.

The Álurutimalai and Nárttámalai hills consist of banded slightly hornblendic granite gneiss of a pale grey colour, weathering to a pale dirty flesh colour, and showing characteristic bare rocky masses. The Annavásal hills are of very similar petrological character, and so also is Kuḍumiámalai. These hills are almost bare of vegetation owing to their very rocky character, but to the east of Nárttámalai is a ridge of highly crystalline quartzoze rock, which crumbles by weathering into a coarse grit, thickly covered by heavy thorny scrub. This band of granular quartzoze gneiss is connected with a more southerly outcrop of similar rock on the south bank of the Vellár.

Unconnected with any of the above beds is a band of the granular rock at Mallampatti, where the only occurrence of magnetic iron in the gneiss is met with. Little of the outcrop is seen, but a good deal of debris of a rich magnetite bed is found scattered about the fields.

Beautifully banded micaceous granite gneiss is to be seen at Virálimalai.

Among the more noteworthy outcrops of granite gneiss in the northern part of the State is a band of grey micaceous variety which forms large tors and bosses at Kiḷḷumalai. Round about Koḷattúr is micaceous granite gneiss distinctly bedded.

Near Koḷattúr on the boundary of the laterite are other fine outcrops of granite gneiss, as for instance near Nángupatti; such outcrops also occur at Perumánádu and Chittúr near the Vellár.

The general strike of the bedding of the gneissic rocks trends to north and south, or north-by-west and south-by-east. But over

the southern part of the area, comprising the valley of the Maṇimuktár, northward to within a couple of miles of the Pambár valley at Tirumayam, the strike varies from east-by-south and west-by-north to north-west-by-west and south-east-by-east; in the central part no well-bedded rocks have been mapped, while in the northern part the strike changes from east-west to east-by-north and west-by-south.

**The Cuddalore series.**—The representatives of the Cuddalore series (established by Mr. H. F. Blanford for certain rocks in South Arcot and Trichinopoly Districts) which occur in our limits consist of coarse conglomerates, sandstones and grits, the latter passing locally into a rock perfectly undistinguishable from the common laterite which so largely covers the surface in this region. Here, as in so many other parts of the Coromandel coast, the slight slope of the country and the very low dip of the rocks have prevented the formation of really valuable natural sections. The extension of wet cultivation greatly militates against the formation of deep channels by the different streams, which give rise to the formation of local alluvial flats, which only add to the obscuration of the younger rocks, whose relations are generally very unsatisfactorily and imperfectly displayed, so that definite information regarding many interesting stratigraphical points is at present not procurable. The total absence, so far, of organic remains renders the correlation of detached exposures of even similar rocks of great and inevitable uncertainty.

Ill-compacted gritty shingle conglomerate occurs resting on the gneiss on the high grounds north-east of Pudukkóttai near Muḷḷúr. Among the more southerly conglomerate beds are those met with in the Sengirai ridge, displayed by an extensive series of rain gullies which expose a considerable surface of the gritty conglomerate, but unfortunately do not cut deeply into it. The bedding is seen to dip east-north-east or east-by-north at angles of from 12° to 15°. The conglomerate varies from mottled brown to a pinkish and whitish, less frequently reddish, colour,

and is tolerably compact with a gritty matrix, including quartz and gneiss shingle from the size of a cocoanut downward, in moderate quantity. The eastern slope of the ridge is overlaid by the massive and continuous bed of laterite conglomerate met with on the Coromandel coast; it covers a considerable space between Arimaḷam and Neḍunguḍi, and is itself lost sight of to the east under lateritic sands and the alluvium of the Veḷḷār.

A second section of the Cuddalore beds forming the Śengirai ridge, situated near Áyanguḍi, has beds unlike the Śengirai ones; they are conglomerates of very coarse texture and rather friable; the matrix, which varies from light-red to brown-red in colour, is semi-lateritic and vermicularly cellular to some extent. The enclosed shingle is mostly large and rounded; it is chiefly quartzose and all apparently of gneissic origin. The lowest bed seen is mottled and more gritty in texture, with fewer enclosed pebbles. The dip is southerly at low angles.

The best section of Cuddalore grits of the softer variety occurs near Perungaḷúr. Here the small stream, which feeds the tank, in descending from the high ground to the north cuts through the upper laterite beds, and exposes beds of typical grits in many gullies, forming miniature cañons of very perfect shape, with nearly vertical sides from 12 to 18 feet deep, and only 2 or 3 feet apart at the bottom. The section here displayed shows the following sequence of beds in descending order—

1. Black laterite conglomerate, on gravel;
2. Red-brown vermicularly porous conglomerate, passing down into;
3. Brown conglomerate with many pebbles of quartz-grit and older laterite; and
4. Grits, pale-mottled, generally showing columnar jointing, with vermicular tubes and scattered galls of fine clay.

**The lateritic group.**—The Cuddalore series is overlaid by the several members of the lateritic series, which vary from hard typical conglomerates through gritty beds to gravels, and finally to reddish sands, with variable quantities of gravelly pisolitic hæmatite concretions. The sandy beds occupy the lower slopes, while the conglomeratic beds occupy the higher grounds to the west, and often overlap widely on to the gneiss.

The various rivers which convey the drainage of the country to the sea divide the lateritic region into a number of minor areas or patches amounting in all to nine, of which the following are the more prominent.

1. *The southward continuation of the Tanjore patch.*—Where the conglomerate is covered with soil, the latter is generally a very hard compact sandy clay of a red or yellow (bath-brick) colour, much marked by sun-cracks, which run in very regular systems and give the soil a tessellated appearance on a large scale. In the presence of water these laterite soils are fertile, but in the high dry downs, upon which they are oftenest seen, they bear little but a very low scrub.

2. *The Pudukkóttai patch.*—Striking spreads of hard typical conglomerate are to be seen in many places near the western boundary, and even at some miles distance from it, for example at Urriúr (near Perungaḷúr) in the extreme north-west corner of the patch, also nearly all along the left side of the Veḷḷār alluvium down to Arantāngi, and to the north and north-west of Álaṅguḍi.

3. *The Śengirai patch.*—This contains an extensive and massive development of conglomerate on the eastern slope of the Śengirai ridge and the plain east of it. This great development of conglomerate is continued under the alluvium of the Pámbár and reappears in the Shahkótai patch, and is especially well seen at Kilánilaikóttai, where the walls of the

extensive old poligar fort are built of massive blocks of laterite quarried close by. The conglomerate is also admirably seen on the bluff east of Neḍunguḍi which may be regarded as the continuation of the Sengirai ridge south-westward.

4. *The Nallūr patch*.—Like the western part of the Tanjore patch this consists of a more gritty and rather less compact form than prevails over the spreads enumerated.

**Alluvium.**—The alluvia of the various small streams traversing our area are very limited, and are generally a whitish mixture of sandy clay, with laterite pellets and small debris of quartz and gneiss.

**Soils.**—The soils depend almost everywhere on the underlying rocks for their character. Red and reddish sandy soils abound everywhere. Black soil is not at all common, and occurs only under a few important irrigation tanks, where it must be regarded as of artificial origin. Where the conglomeratic laterite occurs, two forms of soil prevail, both of them hard clayey sands, the one of a bright red, the other of a pale yellow colour—often approaching in texture to true sandstone. Over the laterite bands, the soil is generally a nearly pure, less frequently somewhat clayey, sand.

Almost all the dry lands in the State are of red ferruginous soil; regar is found in the wet fields of the Tirumayam and Koḷattūr Taluks and at scattered places in the Álanguḍi Taluk. The popular classification is as follows—

1. *Paḍugai*.—(alluvial soil). Alluvial soil of the kind prevalent in the Cauveri delta is rarely found in the State. The State paḍugai lands contain somewhat rich loamy soil, and as a result of constant manuring with green leaves, etc., have acquired a slightly chocolate colour. Such soil is found in villages situated close to forests, the green leaves from which are often used to manure the wet fields in the adjoining villages.

Amongst the villages in which this soil is found are Kavināḍ, and Vallanāḍ, in Álanguḍi Taluk, and Pudunilaivayal, Mélanilaivayal, Neḍunguḍi, Ráyavaram, and Arimaḷam, in Tirumayam Taluk.

2. *Karisal*.—or black loamy soil found in the wet lands of the Tirumayam Taluk. In villages where, in the mixture of clay and sand, clay preponderates, the field yields a poor crop.

3. *Śevval*.—(red ferruginous) found almost throughout the State. This is the loamy soil as distinguished from

4. *Manal*.—(ferruginous sandy soil)

and 5. *Śaralai*.—(ferruginous gravelly soil)

6. *Kalar*.—(black clayey soil of a saline character) found in several villages in Tirumayam Taluk, from which salt was actually manufactured before its manufacture in the State was prohibited.

This classification is by no means a scientific one.

**Economic Geology and Mineralogy.**—Though poor in precious metals, the State produces a few useful minerals.

*Granite and laterite* are used for *building purposes*, in the construction of sluices, kalingulas or surplus weirs, revetments of tank bunds, etc. Granite of so fine a quality as to be suitable for delicate carving is quarried in the State. The laterite quarries yield stones of a very large size. Granite is now quarried under Government licenses at the following places—Tirugókarṇam, Puttámbúr, Tirumayam, Lambalakkuḍi, Konápet, Malayakóil, Péraiyr, Usilamalaippárai, Virálimalai, Vittampatti, Kuḍumiámalai, Pananguḍimalai, Ammiáchatram, Virappatti, Chittámbúr, and Kíranúr. Laterite quarries are to be found near Arimaḷam. The stones quarried in the State are much in demand in surrounding districts on account of their quality and excellence. The rocks in the State yield stone for *road metal*.

Specimens of *red jasper*, and pieces of *rock crystal* both white and violet in colour, have been picked up near the Sittannavásal rock and on a waste piece of land known as *pacchaippottal* in the Kolattúr Taluk. The violet-coloured crystals, which are considered to be *amethysts*, are not large; but the white ones are fairly big.

*Lime* of superior quality is prepared from *Kankar* found at Varáppúr and Karuppuḍaiyánpatti. A rather inferior kind of *Kankar* is obtainable at Káraiýúr, Perumánaḍu, Ammachatram and other places.

*Brick clay* is obtainable from superficial alluvial deposits. Bricks are manufactured in the Government factory from clay obtained from Paṭṭáttikulam, north of Tirugókarnam.

*Potter's clay* is a fine variety collected from the beds covered by the fluvial alluvial deposits of the irrigation tanks. Since the suppression of earth-salt manufacture in 1888, the silt is said to have become rather saline and not so good. Pots made at Maḷaiyúr and a few other places where the soil is not so saline, are strong and are in great demand.

*Bangle-earth* is of the alkaline variety and is found mostly in the Kolattúr Taluk. Bangle-makers in Trichinopoly purchase large quantities of this earth. Fairly good bangle-earth is also found in the beds of Nírpalaṇi, Pérámbúr and Támaraiṇamói tanks, at Kurambavayal near Karambakkudi, and in the waste lands of Rásipuram and Pákkudi.

*Dhobie's earth* is a whitish soil used for bleaching. It is found on the banks of the Veḷḷár and the Nerinjikkudi stream.

*Earth-salt* was manufactured in 175 villages up to 1888 when the manufacture was suppressed in the State.

*Saltpetre* was once collected in and near the capital town,

*Ochre* of different colours is found in and near the Sengirai Forest and near Tiruvarangulam. It is used in making pigments, and crayons, and for water and oil colours, and is largely exported out of the State.

*Iron*.—It has already been mentioned that magnetic iron occurs at Malampatti. As Mr. Bruce Foote remarks, the metallic minerals in the State are represented by iron-ores only and those not of the highest quality. The conglomerate about Sengirai is thick and massive over an area of several square miles, and is remarkably rich in iron. There are traces of a considerable smelting industry having been carried on at no remote period at Áyangudi in the southern part of the State. An inscription dated the 4th year of Vira Pándya (13th century) speaks of a smelting industry at Tiruvarangulam. The statistical account of the State for 1813 mentions several tracts where iron was found; among them are places near Aṇḍakkulam, Perungaḷúr, Thékkádu, Tiruvarangulam, Kíḷánilai, and Sengirai. From Mr. Baillie's report (1841) which states that "the monopoly of digging and smelting iron ore was farmed out for Rs. 1,300 a year," it is clear that iron was smelted in these places up to the middle of the last century.

*Mica* has been collected at Annavásal and Káraiýúr.

### III. METEOROLOGY.

The climate of the State naturally resembles closely that of the surrounding districts of the Presidency. It is one of the drier areas in Southern India.

The earliest recorded meteorological observation (of rainfall only) is that for November, 1880. In about 1890 twelve rain-gauge stations were opened. All, except that at Tiruvarangulam, are still working. In September, 1905 an Observatory was opened at the capital.

Statistics of the average rainfall at the various recording stations in the State, and for the State as a whole, are given below—

| Station.                 | Years recorded. | January to March. | April to May. | June to September. | October to December. | Total.       |
|--------------------------|-----------------|-------------------|---------------|--------------------|----------------------|--------------|
| Pudukkóttai ... {        | 1906-17         | 1.34              | 3.99          | 15.44              | 14.56                | 35.33        |
|                          | <b>1925-35</b>  | <b>2.91</b>       | <b>5.10</b>   | <b>12.46</b>       | <b>18.05</b>         | <b>38.52</b> |
| Alaigudi ... {           | 1906-17         | 1.83              | 3.29          | 16.72              | 14.36                | 36.20        |
|                          | <b>1925-35</b>  | <b>3.76</b>       | <b>4.98</b>   | <b>8.32</b>        | <b>16.85</b>         | <b>33.90</b> |
| Karambakkudi ... {       | 1906-17         | 1.77              | 2.70          | 9.67               | 11.57                | 25.71        |
|                          | <b>1925-35</b>  | <b>3.93</b>       | <b>3.72</b>   | <b>9.80</b>        | <b>20.43</b>         | <b>37.88</b> |
| Tirumayam ... {          | 1906-17         | 1.94              | 4.53          | 19.38              | 12.89                | 38.74        |
|                          | <b>1925-35</b>  | <b>2.42</b>       | <b>5.78</b>   | <b>10.40</b>       | <b>15.01</b>         | <b>33.61</b> |
| Kilánilai ... {          | 1906-17         | 1.30              | 2.76          | 13.92              | 13.21                | 31.19        |
|                          | <b>1925-35</b>  | <b>2.93</b>       | <b>4.60</b>   | <b>11.55</b>       | <b>16.76</b>         | <b>35.84</b> |
| Kolattúr ... {           | 1906-17         | 1.44              | 3.40          | 13.55              | 14.12                | 32.51        |
|                          | <b>1925-35</b>  | <b>2.48</b>       | <b>3.98</b>   | <b>8.65</b>        | <b>15.85</b>         | <b>30.96</b> |
| Virálimalai ... {        | 1906-17         | 2.00              | 4.75          | 11.26              | 14.44                | 32.45        |
|                          | <b>1925-35</b>  | <b>2.11</b>       | <b>3.70</b>   | <b>8.81</b>        | <b>16.37</b>         | <b>31.00</b> |
| Odayálippatti ... {      | 1906-17         | 1.53              | 3.30          | 12.85              | 13.60                | 31.28        |
|                          | <b>1925-35</b>  | <b>1.88</b>       | <b>5.58</b>   | <b>8.72</b>        | <b>15.78</b>         | <b>31.96</b> |
| Annavásal ... {          | 1906-17         | 1.47              | 4.39          | 14.37              | 13.94                | 34.17        |
|                          | <b>1925-35</b>  | <b>2.14</b>       | <b>4.13</b>   | <b>11.39</b>       | <b>17.04</b>         | <b>34.71</b> |
| Ponnamarívati {          | 1906-17         | 1.84              | 3.91          | 15.78              | 13.58                | 35.11        |
|                          | <b>1925-35</b>  | <b>2.22</b>       | <b>6.36</b>   | <b>14.41</b>       | <b>16.89</b>         | <b>39.87</b> |
| Adanakkóttai ... {       | 1906-17         | 1.97              | 2.85          | 13.86              | 14.82                | 33.10        |
|                          | <b>1925-35</b>  | <b>2.52</b>       | <b>5.25</b>   | <b>9.72</b>        | <b>18.10</b>         | <b>35.59</b> |
| Average for the State. { | 1906-17         | 1.63              | 3.62          | 14.25              | 13.73                | 33.23        |
|                          | <b>1925-35</b>  | <b>2.66</b>       | <b>4.83</b>   | <b>10.38</b>       | <b>17.01</b>         | <b>34.89</b> |

\* Faslis 1335 to 1344.

**Season and rainfall.**—The year may be divided into four distinct seasons. The first period January to March is relatively dry and cool. In the second, April to May, though more rain is to be expected, the heat steadily increases. The second half of the year comprises the two monsoons. Practically, the hot season extends from March to October, with occasional intervals

of rain, while the rainy season properly so-called extends over October, November and December, and sometimes into January. Such "cold weather" as there is sets in in December and lasts till March.

The rainfall varies remarkably from year to year. More rain is generally expected from the North-east than from the South-west monsoon; but statistics show that this expectation is by no means always realised. The total annual average for the State is nearly 35 inches. The year 1920-21 (Fasli 1330) records the high average of 60.44 inches, and 1934-35 (Fasli 1344) the very low average of 24.46 inches—Kolattúr has the lowest average.

The average number of wet days in a year for the last five years 1931-35 is 70; so that the average fall per rainy day works out approximately to 0.5 inches. October and November have the highest average number of rainy days.

In March and April humidity is generally low. In May and June the scorching heat is occasionally relieved by thunder showers. In July, August and September—especially in August—there are sometimes heavy falls of rain. September shows a decrease, while in October and November the humidity is usually highest. In December and January rainfall is generally—but by no means always—scanty.

**Temperature.**—The temperature is officially recorded daily only at the Observatory at Pudukkóttai Town. The annual mean for the five years 1931 to 1935 is 84.1° F. The lowest mean is 76.5° F. in December and the highest 90.8° in May. The mercury rose to 109° in the month of May in the years 1931 and 1934 and seldom fell below 60° throughout the period.

"In the cold and dewy months of January and February," to quote the late Mr. Chakrapani Iyengar, the State Meteorological Superintendent, "the dry minimum readings range from a little over 60° F. to 70° F.; and though there is a clear range of

variation of from 30° to 45° between the lowest and the highest reading in the year's course, yet such extreme cases pertain only to the second half of January and the first half of February. For the major portion of the year the mean daily temperature is generally about its mean annual temperature. The range of temperature during the course of a day varies very greatly during the different seasons of the year. The range of daily variations is greatest in April or May and least in November or December."

**Winds.**—The South-west monsoon wind, popularly known as the west wind (மேல் காற்று), blows steadily from the middle of June to August. The northerly breeze of September—October shifts to the east when the North-east monsoon breaks. In January and February the wind blows from the east, and from March to June a southerly wind prevails (தென் பக்க காற்று) till it again shifts round to the west with the setting in of the South-west monsoon.

**Cyclones.**—Thunderstorms usually occur in the Bay about the beginning and end of the monsoons. The following extract from Sir William Hunter's *The Imperial Gazetteer of India* (Volume I) will throw light on that important feature of the meteorology of the Indian Ocean—the cyclones which exercise so great an influence on the rainfall on the East Coast of Southern India.

"A considerable proportion of the wet monsoon (the south west monsoon is described as the 'wet monsoon' in India) rainfall over the greater part of India is due to the ascensional movement accompanying cyclonic storms. On the average eight storms of moderate to considerable intensity pass from the Bay of Bengal into India between June and September." (Only occasionally does the storm area come so far south in the peninsula as to cover the Pudukkóttai State.).....  
 "After the Bay current has withdrawn from Northern India and Upper Burma, and is recurving over the Bay, it is directed

to the peninsula.....cyclonic storms occur at longer intervals, but continue to give large amounts of rain to the areas they pass over. Their path is, usually in the latter part of October and almost invariably in November and December, westward to the Circars and Coromandel coasts. (In October and the first half of November the precipitation occurs chiefly in the north Coromandel and Circars districts, and in the second half of November and December chiefly or solely in the south Coromandel coast).....The rainfall is heaviest in a narrow belt of the Coromandel coast, where it ranges between 20 and 30 inches, and decreases rapidly on proceeding into the interior."

Cyclones passing over Pudukkóttai are sometimes accompanied by very heavy rainfall. One in October 1930 (for example) produced about 11½ inches of rain, one in December 1933 nearly 8½ inches and one in November 1935 about 8 inches in 24 hours.

In November 1893 as much as 27 inches were registered in 24 hours at some places in the State.

**Earthquake.**—A slight tremor was felt for a few minutes on the night of February 8, 1900; but no damage was done.

**Economic Effects of Climate—Liability to Famine.**—Of the various causes that formerly contributed to widespread distress—drought and flood, anarchy, war and misrule—the last three are—at least for the time being—suspended. Though the rainfall of the State does not differ materially from that of the adjacent areas, the risk of famine or scarcity is greater in the State, owing to the absence of rivers or canals affording a steady and continuous supply of water. The cultivation of the soil, which is the occupation of the majority, depends on an adequate total amount of rainfall distributed over all parts of the State, and occurring at suitable intervals. This last is a most important condition. One torrential downpour will fill the largest tanks,

and so far as they are concerned (if they do not breach) the season will be a good one. Hundreds of smaller tanks require two or three fillings at favourable intervals if the crops under them are to come to maturity.

Owing to the improvement and extension of communications by rail and road, famine—in the sense of an actual dearth of the necessities of life—is, it may be hoped, a thing of the past. Nowadays severe drought means—not a lack of supplies of grain and other necessities of life but—a lack of money to buy them. The remedy for this (to which the State freely had recourse in the year 1935) is to open relief works, to enable the unemployed agricultural labourer to earn the money to buy grain. Such a situation also tends to stimulate emigration to Ceylon and elsewhere overseas.

Though the history of remote times sheds but little light on the subject, there is no doubt that in former times famines occurred frequently and disastrously. Heavy and vexatious taxation sometimes led in early times to the abandonment of whole villages, as for example, Madayáni in 1512. Again, the authority of the Central Government was often not effective in distant tracts, which were thus given over to plunder and bloodshed. The inroads of the Mussalmans in the fourteenth century led to the desertion of some villages, such as Rángyam and Ádanúr. The predatory excursions of the Kaḷḷars of Pudukkóttai into the neighbouring territory provoked reprisals which, when the injured party was powerful, were severe. In the 17th and 18th centuries, Pudukkóttai had its full share of troubles arising out of the maelstrom of the Carnatic wars, till the English arms emerged triumphant. Situated between quarrelsome neighbours, and forced into war either in self-protection, or from considerations of prestige, or to fulfil its obligations, Pudukkóttai was engaged in warfare at different times with the rulers of Tanjore, Madura, Mysore and Ramnad and with various rebel poligars.

An inscription in the Perumál temple at Ponnamarávati dated 1453 A.D. (Saka 1375) relates how dancing girls driven from their homes by successive famines in 1436, 1450 and 1451 A.D. came and accepted temple service in the village.

Another inscription at Mélúr dated 1465 A.D. refers to a famine due to drought in consequence of which the inhabitants of the village were forced to raise a sum of money for their subsistence by selling their *Pádikával*\* rights to their neighbours at Rájasiṅgamaṅgalam (Rángyam).

The letters of the Madura Mission furnish harrowing details of the suffering caused by the famines of the seventeenth and eighteenth centuries. The famine of 1655 was the occasion for the persecution of the Christians at Kandelúr accompanied by the depredations of an Abyssinian, Kanakhan † who entering the Tondimán territory slaughtered the men and outraged the women.

Perhaps the severest recorded famine in the State was that of 1708–1709 A.D. which is referred to in the inscription at Irumbánád, which tells of wasted lands and abandoned villages. From the letters of the Madura missionaries we learn that it was of such intensity that “the like the oldest among the living have never witnessed.....and everywhere along the roads and in the fields heaped up corpses or rather bleached bones are left unburied, amidst a people amongst whom funeral ceremonies could never be considered dispensable.”

In 1733 there was a complete failure of rain, and this coupled with the wars of 1735 was responsible for the famine

\* *Pádikával* means literally “the watchmanship of a village.” It was “the right of protecting the people, their property and crops,” exercised by the village assemblies.

† Kanakhan (Khan-i-khanan) was the general of Idalkhan the Adil-Shah of Bijapur. He invaded Mysore and the Carnatic “levied ransom on Tanjore and Madura and raised large contributions and returned to Bijapur full of riches.”

which lasted from 1733 to 1736. The French war of 1754 which for days left "nothing but smoke and flames of fire everywhere" and the engagements with the Rajah of Tanjore in 1756 followed by rapine, plunder and distress accounted for a large migration of the population.

The first two famines recorded in the 19th century occurred in the reign of Raja Raghunatha, and were the result of drought. The Raja took prompt measures, for which he was congratulated by the Suzerain Power, opened feeding houses for the free distribution of food and gruel, and purchased and stored paddy in large quantities for the use of the poor. 1858 was another year of intense misery; there was no rain in the usual season while an unseasonably heavy fall in April caused damage to crops. 1866 and 1868 were years of even greater distress; rains failed entirely, tanks and wells dried up, and both *kálam* and *kódai* crops were failures, and the result was a large-scale migration from the State of ryots, traders and weavers. The State allowed a remission of Rs. 4,338—8—11, which in those days represented a large sum. In 1870 and 1871 the north-east monsoon failed and the wet crops never came to maturity. In the succeeding hot months drinking water became scarce. Rains were untimely in 1873 and totally failed in 1875. This series of bad years culminated in the far more serious calamities of 1876-1877. Owing to continuous drought, wet and dry crops alike failed. In December of the latter year, on the other hand, the rainfall was excessive and breached a number of tanks. Subscriptions were collected, and aid was sought from the English Charity Funds through the Madras General Committee. Famine works were started, and *conjeethotties* (gruel kitchens) were opened at the principal stations. There was again drought in 1879-80, and between 1889 and 1895 there was a period marked by intermittent scarcity, brought on as usual by the failure of the north-east monsoon. In 1890 and 1893 prices 'touched famine point.' In 1895, drinking water was again insufficient: Kolattúr suffered in particular, and relief

I]

works were ordered 'on an extensive scale.' In 1898 again, relief works were found necessary; and the 'trimming' of the Agniâr, the excavation of a drinking water *úrani* at Nàrttāmalai, and extensive repairs to the Kolattúr tank afforded help to the unemployed.

The first four years of the present century were years of continued prosperity, unhappily terminated however by the drought of 1904-5, due once more to the failure of the north-east monsoon. In many places no attempt was ever made to sow paddy, and where it was sown, the seedlings died even before transplantation. The poor people of Tirumayam were able to get some work in the Chetti villages; the people of Alanguḍi carried on some cultivation under wells, but as usual Kolattúr "fared the worst of all, even good drinking-water having failed in most places." In 1907-8 public relief works were opened, since conditions were so bad as almost to deserve the name of famine, and in 1909-10 again "the eastern-most firkas of Kolattúr and Alanguḍi and the south-east corner of Tirumayam suffered, and irrigation works were started to give relief."

The great war of 1914-19 was responsible for generally high prices, especially for imported articles such as piece-goods, kerosene and glass.

In the years 1916 and 1918 the North-east monsoon failed. The years 1924 to 1930 were one continuous period of drought. The Darbar first tried to ease the situation by granting loans to ryots to enable them to sink wells and buy cattle and seed. The collection of kist was postponed. In 1927, the Regent granted a remission of land revenue to the extent of a lakh of rupees (the first instance of remission being granted after the introduction of the new settlement rates), and the collection of kist amounting to another lakh was postponed. In 1928 the remission granted amounted to more than 2 lakhs. Repayment

by ryots of Government loans was suspended and interest on such loans remitted. In 1929, the collection of arrears of land revenue was ordered to be made in six months instead of four, and that of the current year's kist was spread over eight months.

The drought experienced in 1934—35 (Fasli 1344) was one of the major calamities with which the State has been visited. "The rainfall", to quote the Administration Report, "was so insufficient during the cultivation season that crops were not raised at all, or, if raised, failed in most parts of the State." In addition to the concessions granted on previous occasions, a remission of 50 per cent of the assessment was sanctioned on wet lands that either had been left uncultivated owing to the shortage of water, or if cultivated, had failed to yield a four anna crop. The total remission granted during the fasli was Rs. 2,62,518. Recovery of instalments of agricultural loans due during the fasli was suspended. The land revenue was collected in six instalments instead of four. Distraint of cattle for the recovery of land revenue was prohibited. The drought caused unemployment on a large scale among agricultural labourers. To relieve this the Darbar opened numerous relief works which mostly took the form of repairs to the bunds of irrigation tanks. The Darbar also took measures on a large scale to provide drinking water in villages where necessary.\* Labourers on the relief works were required to turn out three-fourths of the task that they would have turned out in ordinary times, and were paid daily wages at 3 annas for a man and one and a half annas for a woman or child. If, however, the outturn was equal to the 'ordinary' task, they were paid at four annas and two annas respectively. By the end of June 1937, a sum of Rs. 3,63,672 had been spent on relief works.

\* There are now 746 Government drinking water wells in the State.

The following statement shows the number of relief works completed or in progress at that time—

| Particulars of works. |                                                            |     |     | Numbers. |
|-----------------------|------------------------------------------------------------|-----|-----|----------|
| 1.                    | New wells                                                  | ... | ... | 331      |
| 2.                    | Repairs to old wells                                       | ... | ... | 110      |
| 3.                    | Tanks—minor                                                | ... | ... | 257      |
| 4.                    | Tanks—major                                                | ... | ... | 21       |
| 5.                    | Uravies                                                    | ... | ... | 19       |
| 6.                    | Roads                                                      | ... | ... | 10       |
| 7.                    | Bore wells (a) New wells bored                             | ... | ... | 4        |
|                       | (b) Bores sunk in old wells and repairs to old bore wells. |     |     | 21       |

**Floods.**—Cyclones from the Bay of Bengal sometimes cause serious inundations. The earliest flood in the State of which we have any record is that of 1709, which contributed to the great famine of that year. Nearly all the tanks burst, and the standing crops were destroyed. Exactly a century later, in 1809, there was a similar flood resulting in similar devastation. In 1827 a 'terrific' hurricane occurred, and in December 1877 a number of tanks breached. In the middle of December 1884 there was a record fall of 7 inches in a single day. Several bridges were irretrievably damaged—the Peruṅgaḷūr Bridge, the biggest in the State, was entirely washed away, the Kuṇḍār Bridge was undermined, and the Pāmbār Bridge, further south was swept away. No less than 239 State tanks were seriously breached, and the cost of repairing the damage done was estimated at Rs. 36,163 for bridges, and Rs. 33,360 for tanks. The 14th and 15th of December 1888 were cyclonic, and in October 1890, an unprecedented downpour of 7·61 inches breached tanks and sent a flood across the country. On November 22, 1893, there was torrential rain varying from 12 to 27 inches in different places, and a flood of unprecedented dimensions ensued, breaching nearly all the tanks and roads, damaging the crops and rendering the movement of traffic impossible.

The heavy rains of 1919 were very injurious to the crops then in ear. In November 1920 and January 1921, occurred some of the heaviest rainfall within living memory. The bridge across the Periyàr on the Karambakkudi road, and the causeways across the Vellàr on the Kaḍayakkudi and Tirumayam roads, were washed away. The very heavy fall of 23·3 inches in October 1930 breached a number of tanks with results disastrous to agriculture.

**Resume.**—It is evident that to ensure a good harvest in the State, there should be occasional rain in August and September, and frequent and plentiful falls in October and November. But unfortunately the rainfall on the South Madras coast at this season occurs almost entirely in connection with storms in the Bay, and is therefore extremely irregular in its distribution and often untimely. A series of bad years, due to either excessive or deficient rain, leaves the ryot destitute of grain or money. There is grain for the buying, but since he cannot earn wages the labourer cannot buy it. He has no subsidiary industry to fall back upon; too often he lacks the initiative and perseverance of the Salem and Coimbatore ryots or of the Udaiyars in the State itself, who even in a bad season will manage to raise a few crops under wells. The Darbar's present policy is to encourage the ryot by the offer of loans on easy terms to sink wells for irrigation, to sink numerous wells to supply drinking water, and to improve the irrigation tanks and *irranies*. The State is exceptionally well supplied with roads which facilitate marketing. The resources of the Darbar however are not unlimited. The ryots must learn to help themselves, and individually or in co-operation to start subsidiary occupations, and undertake protective works such as the digging of irrigation wells which will render them less dependent than they now are on the caprices of the seasons. It is the earnest hope of the Darbar that the scheme of rural improvement which they are now initiating will gradually educate the ryots to help themselves and each other.

## CHAPTER II.

### I. FLORA.\*

**Ecology.**—The vegetation of the State is not markedly distinct from that of the adjoining British districts. The ecological factors or conditions that operate and affect the nature and distribution of the vegetation, are chiefly temperature and moisture, the latter being the most active agent as regards distribution of plants. The low average rainfall, not well distributed throughout the year, the intense heat, the conformation of the country, and its geographical position (very near the equator in the tropical zone), and other atmospheric and edaphic conditions determine to a great extent the facies of the vegetation.

The rainfall is scanty and precarious; the average rainfall for the past ten years being 35·9". Even this average is not uniformly reached. For instance, the average for the five years ending with Fasli 1339 was 30·4"; whereas the average for the five years ending with Fasli 1344 was 41·4". The range of variation in rainfall is from about 20" to about 41". The two monsoons, the South-West and the North-East, prevail during the second half of the year; the State is usually benefited more by the latter than by the former of these.

\* **Flora.**—The names of the plants described are according to the "Flora of the Madras Presidency—Gamble." The classification and, to a certain extent, the descriptions given in that work have been followed.

The Appendix giving a list of the common and economic plants is drawn up on the same lines as that to be found in the "Manual of the Tanjore District" with slight modification of the tabular heads.

The general floristic description to some extent follows the "Imperial Gazetteer of India,—Hunter: Vol. IX, Madras Presidency, and Vol. I Indian Empire—Descriptive—J. D. Hooker."

Coupled with the low rainfall, the State experiences intense heat during the greater part of the year. In conformation the surface may be described as mainly flat or slightly undulating, dotted here and there with low hilly ranges or isolated hills. The highest and longest ranges of hills lie close to the boundary of the State. The State is situated in the tropics, lying between  $10^{\circ}7'$  and  $11^{\circ}4'$  North Latitude, at a distance of twelve miles from the coast at the nearest point. The capital town is 317.53 feet above sea level. The maximum day temperature in the shade during the summer months is sometimes as much as  $109^{\circ}$  F.; the temperature during the cool or rainy months does not fall below  $64^{\circ}$  F. The average annual temperature is about  $90^{\circ}$  F.,—6 or 7 degrees above that of the adjoining districts of Trichinopoly and Madura. The dry winds that prevail during the hotter months, when humidity is as low as about 30 per cent, increase the dessicating effect on the vegetation; the highest humidity in the cool and rainy months is 65 per cent.

The Edaphic factor, i.e., the nature of the soil, combines with the other factors to determine the facies of the vegetation of the various localities. For instance, the hard clayey soils of the red or yellow variety in the conglomeratic laterite beds are covered mostly with a particular type of plant association, of which the predominant species are *Dodonaea viscosa*, and the dwarf mimosa (*Albizzia amara*). Here the surface of the soil is covered with thin layers of grit and sand collected by wind action. Where there is no such superficial layer on a hard laterite bed, the vegetation occurs only in the cracks or fissures. In the State the soil is mainly of the ferruginous type; the red variety predominating in the drier localities. Black cotton soil is very rare, and met with only in the wet fields. Alluvium of the true type is scarce, except for a type of soil not strictly alluvial in the black loam of wet lands, in the beds of the irrigation tanks, and in the neighbourhood of streams. Here thrive the more mesophytic types of vegetation. On the hard

laterite beds, and on the sandy porous soils with a low retentive capacity, an almost xerophytic vegetation obtains. The characteristic xerophytic plants, with reduction or modification of foliage to suit the environment, that are met with are *Parkinsonia aculeata*, *Opuntia dillenii* now much reduced by the cochineal insect, *Caralluma umbellata*, *Aloe vulgaris*, *Caralluma adscendens*, *Cereus hexagonus* (an exotic found in hedges), *Euphorbia antiquorum*, *Euphorbia tirucalli*, etc. The sandy tracts are the places where the Casuarina thrives in the State; for its acicular foliage is adapted to resist excessive dessication. Saline soils are also to be met with in parts of the State, especially in some tracts in the Tirumayam Taluk.

*Vegetation.*—In general the floristic features of the State may be said to range from the mesophytic to the xerophytic types. As Sir W. Hunter remarks in the Imperial Gazetteer of India, the hot season in India has much the same effect on the vegetation as winter has in a temperate climate. Herbaceous plants wither and disappear, trees and shrubs shed their leaves, and in many cases the young foliage remains in the bud till quickened by the rain. When the rain does come the effect is almost magical. In less than 24 hours the scorched brown plain is carpeted with green, and the bare trees are quickly mantled with the young leaves. At the same time animal life is stirred into activity. Sportive insects hover over newly opened flowers; swarms of frogs render nights hideous by their incessant croaking and every ditch, pool and tank teems with fish. During the hot season the vegetation is burnt up, many trees are leafless and the aspect of the country is dreary in the extreme. The silence of the sparse jungle is only broken by the discordant noise of the *cicala*, the *tuk-tuk* of the barbet (*Xantholaema indica*), the screech of the kite, or the melancholy whistle of the drongo-shrike.

The scrub jungles contain mostly perennial shrubs reaching not more than 10 feet or so in height, forming a tangled growth that is sometimes impenetrable. Thorny plants are common. The ramification is generally very dense and the shrubs tend to

assume a compact or rounded form. On the level and low lying portions of the jungles there is a thick growth of *Memecylon edule*, which is hardly penetrable, and overhead are standards of *Mimusops hexandra*, *Pterospermum suberosum*, *Albizzia amara*, *Atalantia monophylla*, *Ixora parviflora*, and at higher levels there are *Wrightia tinctoria*, *Azadirachta indica*, *Bassia latifolia*, *Pongamia glabra*, *Zizyphus jujuba*, *Z. leucopyrus*, and *Carissa carandas*. Among the commoner shrubs may also be mentioned *Dichrostachys cinerea*, *Gmelina asiatica*, and in places *Erythroxylon monogynum*.

In the open tracts the undergrowth consists largely of prickly-pear, and the standards of *Acacia latronum*, *A. planifrons*, and *Albizzia amara*. Herbaceous flora also prevails in the wooded and moist regions.

In the open deforested, cultivated or semicultivated plains and the neighbourhood of tanks and streams, a varied mesophytic vegetation of herbs, and grasses thrives where the soil can retain some water. These areas are luxuriant in the rainy and cool months, but more or less bare during summer. Most of the plants are annuals; a few are perennials. The herbaceous flora is largely made up of plants belonging to the families, *Capparidaceae*, *Malvaceae*, *Tiliaceae*, *Zygophyllaceae*, *Leguminosae*, *Lythraceae*, *Onagraceae*, *Euphorbiaceae*, *Rubiaceae*, *Aizoaceae*, *Amarantaceae*, *Nyctagineae*, *Compositae*, *Cucurbitaceae*, *Verbenaceae*, *Labiatae*, *Convolvulaceae*, *Acanthaceae*, *Scrophulariaceae*, *Violaceae*, *Boraginaceae*, *Pedaliaceae*, *Commelinaceae*, *Gramineae*, and *Cyperaceae*. The representative genera of the above families are *Gyandropsis* and *Cleome*; *Sida* and *Abutilon*; *Corchorus*; *Tribulus*; *Tephrosia* and *Crotalaria*; *Ammania*; *Ludwigia*; *Euphorbia*, *Acalypha*, and *Phyllanthus*; *Oldenlandia*; *Trianthema* and *Mollugo*; *Amarantus*, *Achyranthes* and *Gomphrena*; *Boerhaavia*; *Tridax*, *Eclipta*, *Vicoa*, *Blumea*, and *Vernonia*; *Citrullus*, *Cephalandra*, and *Cucumis*; *Lippia*, and *Stachytarpheta*; *Leucas*, and *Anisomeles*; *Ipomaea*, *Evolvulus*; *Ruellia*, *Rungia*, and *Justicia*; *Striga*, *Stemodia*, *Dopatrium*, and *Limnophyla*;

*Ionidium*; *Trichodesma*, and *Heliotropium*; *Pedaliium* and *Sesamum*; *Commelina* and *Cyanotis*; *Panicum*, and *Eleusine*; *Cyperus* and *Fimbristylis*; in the order of the families above mentioned.

The plantations of *Casuarina* have improved the aspect of the country by clothing the sandy tracts with luxuriant forests; but they also have a beneficial effect on climate and vegetation in the neighbourhood. The most important sand-binding plants are *Ipomaea pes-caprae*, *Launea pinnatifida*, *Tridax procumbens*, *Pupalia atropurpurea*, and *Canavalia obtusifolia*. The Screw Pine (*Pandanus*) is abundant on the banks of rivers.

The forests are of the deciduous type usual in tropical regions where the dry season is protracted. The trees shed their leaves and remain wholly or partly bare for a longer or shorter period during the dry weather. The leaves that remain during that season sometimes develop a reddish tint. The herbs on the floor of the forest are generally tall and thin-leaved. The whole vegetation is comparatively thin-leaved.

[The area occupied by the forests and jungles forms roughly about one-eighth of the area of the State; the number of such tracts is more than sixty, but none of them is very extensive. The State seems to have been once wholly covered with forests as the names of various places such as Kánádu, Mángádu, and Vadagádu indicate. At present there are about 100 square miles of forest area, of which 63½ square miles are 'Reserves.' Four reserve forests with an area of 32 square miles are special game-preserves. The names of the reserved forests are:—

1. The Town forest—(comprising Periavalai kattu to the east, and Chinnavalai kattu to the north—14 square miles).
2. Sengirai forest—about 17 square miles.
3. Pulvayal, Vayalógam and Parambukádu forest.
4. Nárttámalai forest.

5. Tiruvarangulam forest.

6. Várappúr and Sákkilánkóttai forest which are small areas.

The Town, Nárttámalai, Tiruvarangulam and Pulvayal forests are special game preserves for the use of His Highness the Raja. Forest lands or scrub jungles are also to be found near Piránmalai, Ammankuruchi, Maravámadurai, Lambalakkudi, Kannanúr, Kónápet, Irumbánádu, Vennávalkudi, Chóthupálai, Ádanakkóttai, Killukóttai and Perambúr.

The forests contain a considerable variety of trees and shrubs typical of the dry deciduous forests of Southern India. Among the commonest trees and shrubs the following may be mentioned: *Dalbergia latifolia*, *Albizzia amara*, *A. lebbek*, species of *Acacia*, (*A. leucophloea*, *A. catechu*, *A. planifrons* and *A. latronum*) *Canthium parviflorum*, *Memecylon edule*, *Hiptage madablota*, *Zizyphus jujuba*, and *Z. oenopia*, *Pterospermum suberifolium* and *P. heyneanum*, *Terminalia belerica* and *T. catappa*, *Cassia nodosa*, and other species of *Cassia*, *Sapindus emarginatus*, *Mimusops hexandra*, and *M. elengi*, *Chloroxylon swietenia*, *Strychnos nux vomica*, *S. potatorum*, *Anacardium occidentale*, *Gyrocarpus jacquini*, *Bassia latifolia*, *Gmelina asiatica*, *Crataeva religiosa*, *Pongamia glabra*, *Randia dumetorum*, *Dichrostachys cinerea*, *Tamarindus indica*, and *Erythroxylon monogynum*.

Among the Palms that grow in the plains, jungles, and waste lands may be mentioned *Borassus flabellifer* (Palmyra) which occupy the open tracts in large numbers. *Phoenix sylvestris* (Date palm) also is widely distributed. The important cultivated palm is *Cocos nucifera* (Coco-nut). Most of these palms are tapped and yield an annual revenue to the State.

Many plants found in the State are of economic importance, and though few trees in the forests are of any value as timber, some—such as *Casuarina*, *Albizzia amara*, *Tamarindus*, etc.,—are of value as fuel. The timber trees are never large and seldom sound. Partial exceptions are perhaps, *Pterospermum*

in the Nárttámalai and Sengirai forests. Bamboo does not thrive in the State though it occurs in some places. Among the herbs and shrubs many find a place in the indigenous pharmacopœa. Plants mentioned as officinal in the British pharmacopœa and found in the State are *Aristolochia* sp., *Citrus* sp., *Aegle marmelos*, *Acacia arabica*, *Cassia fistula*, *Tamarindus indica*, *Pterocarpus santalinus*, and *P. marsupium*, *Hemidesmus indicus*, *Datura fastuosa*, *Strychnos nux vomica*, *Citrullus colocynthus*, *Ricinus communis*, *Capsicum minimum*, and *Alœ vera*. The Nárttámalai forests are especially noted for such plants of medicinal value.

Plants yielding dyestuffs, fibres, and tanning materials are also found in the State. Many plants and grasses are of value as fodder for cattle and many are used as manures. The plants of fodder value are *Cynodon dactylon*, *Eragrostis diarrhena*, *Chloris barbata*, *Aristida setacea*, *Ischaemum rugosum*, *Vetiveria indica*, *Eleusine indica*, *E. coracana*, *Paspalum scrobiculatum*, *Pennisetum cenchroides* (*Cenchrus echinoides*) *Panicum maximum*, *P. repens*, *Andropogon shorgum*, *A. pumilus*, *Oryza sativa*, *Setaria italica*, *Digitaria sanguinalis*, etc., among grasses, and *Pithecolobium dulce*, *Sesbania grandiflora*, *Erythrina indica*, *Albizzia amara*, etc., among others.

Many plants serve as green manure; some of them are *Cassia auriculata*, *Dodonaea*, *Tephrosia*; *Calotropis*, *Morinda*, *Azadirachta*, *Memecylon*, *Cissus*, *Thespesia* and *Chloroxylon*.

Some wild plants yield edible fruits such as *Zizyphus*, *Mimusops*, etc. But the State is famous for two types of good fruit, graft mangoes, and jack-fruit. *Artocarpus integrifolia*, the jack, is abundant in some parts of the State such as Malayúr, Álangudi and Karambakkudi and yields very large fruit with edible flakes.

A list of plants with their vernacular names, short descriptions and particulars of their uses is appended.\*

\* Vide Appendix.

The Cryptogamic flora of the State has yet to be studied. Among the macroscopic cryptogams that are commonly to be found are the water ferns—*Marsilia* (order *Hydropteridinae*) which have four leaflets, and long stolons, commonly found in ditches and shallow pools containing fresh water. Ferns of the genera *Adiantum*, *Aspidium* and *Asplenium* are met with as pot plants in gardens. Among the large fungi are the Agarics (*Agaricaceae*) and the bracket-fungi (*Polyporaceae*)—the former to be met with on rotting humus or vegetation and the latter on trunks of trees. The floating scum on the fresh waters of the State comprises among other algae, *Spirogyra*, and *Oedogonium*, belonging to the *Chlorophyceae* or green algae, *Oscillaria*, and *Nostoc* belonging to the *Cyanophyceae* or blue-green algae. *Chara*, another fresh-water shrub-like branching alga, is found submerged in the clear water of many tanks. It is interesting to note that the permanently greyish-yellow coloured water that is found in many tanks does not usually contain any submerged vegetation; the algae, if any, are floating forms, forming a scum on the surface. It is also reported by the tank watchmen and Inspectors that the introduction of these submerged weeds, especially *Chara*, into water which has become yellow owing to suspended clay during freshes, makes it clear in a short time.

## II. FAUNA.\*

The fauna of the State has not yet been completely studied, and no attempt is made here to give a complete account of it; only the animals commonly met with or collected and exhibited in the State Museum, are described.

\* **Fauna.**—The running matter follows the "Imperial Gazetteer of India—Hunter Vol. IX, Madras Presidency and Vol. I Indian Empire Descriptive—by W. T. Blanford."

The general arrangement of the Phyla and orders follows the same book and also the "Fauna of British India."

The classification of Birds is according to the modern trinomial nomenclature of Stuart Baker.

The classification of Insects has been brought up to date and Fletcher's Hand Book has been followed.

Since the State is situated in the lower half of the Peninsula, its fauna is naturally "Oriental" in type, and resembles that of the other plains districts of South India where conditions are similar.

**Mammals.**—The one peculiar type of mammal that characterises the peninsula is the Slender Loris, a primate which is found also in the State. Among other genera characteristic of Southern India, the State does not possess the elephant, the wild dog, the muntjac, or the nilgai. On the other hand it shares in common with the other parts of the peninsula some animals which are characteristic—the long-tailed monkey, the civet, the palm-civet, and the antelope.

[ **PRIMATES.**—Primates other than man and the anthropoid apes, are the monkeys, belonging to the sub-order *Cercopithecoidea*; and the lemurs belonging to the *Lemuroidea*. Of the former the State possesses one genus, the long-tailed Grey Monkey (*Macacus*) which abounds in the villages and forests. The other kind of long-tailed monkey commonly called the Langur or Hanuman is also not uncommon (*Semnopithecus*). Both are very active little primates living in large flocks, and are chiefly arboreal though descending to the ground often for food.

The Lemuroids are represented by the Loris (*L. gracilis*), or Slender Lemur. This animal is peculiar to S. India, as is another genus to the countries east of the Bay of Bengal, while the majority of the world's lemurs are confined to the island of Madagascar. This is a little primate chiefly arboreal, nocturnal and very slow in movement, feeding on leaves and fruits of trees, insects, birds-eggs and small birds. ]

**CARNIVORA.**—The first family of this order of mammals is the *Felidae*, or cats. The larger cats, such as tigers, leopards and lions are not found in the State. This family is however represented by other species, the largest being the Jungle Cat (*Felis chaus*); the other wild cat, the Rusty Spotted Wild Cat (*F. rubiginosa*), also appears to be not uncommon.

A stray leopard has been killed near Tiruvarangulam, and its skeleton is exhibited in the State Museum. Leopards or cheetahs are not however to be found in the forests of the State. The commonest member of the family is the Domestic Cat (*F. domestica*) of our towns and villages.

The *Viverridae*, another family of the carnivora, comprises two groups or sub-orders the *Viverrinae* and the *Herpestinae* including the Civets and Mongooses. The *viverrinae* are represented by the Lesser Civet (*Viverricula malaccensis*). The other Civet called the Spotted Tiger Civet (*Prinodon pardicolor*) is often domesticated. These are somewhat arboreal animals, living partly on other small animals and partly on fruits and roots. They yield the drug known as 'Civet.' Another genus of this group, the Palm Civet or Toddy-Cat (*Paradoxurus niger*) is also found in the woods and owing to its nocturnal habits is rarely seen or reported. It has a long tail, is grey and black or brown in colour, and lives on small animals, birds, lizards and insects, and also on fruits and vegetables.

The *Herpestinae* include one genus, which is found here; the common Mongoose (*Herpestes mungo*) renowned as the deadly enemy of snakes.

The family *Hyaenidae*, includes the striped Hyæna, (*Hyaena striata*), said to have been seen in the State Forests at times, but now certainly very rare if not extinct here.

The family *Canidae*, or dogs and their allies, are not represented by the bigger canines such as the wolf. The wild representatives of the *Canidae*, are the Indian jackal (*Canis aureus*), the common scavenger of the towns and villages near forests or jungles, feeding on carrion and offal of all kinds, but also occasionally killing small animals such as poultry. The other representative of the group is the Indian Fox (*Vulpes bengalensis*) a small greyish animal with a black tip to its tail, common in the forests of the State. The common pariah-dogs are mongrels and are different breeds of *Canis familiaris*.

INSECTIVORA.—Amongst Insectivora the sub-order *Erinacidae* includes the one well-known genus, the South Indian hedgehog, (*Erinaceus micropus*). These animals are of the size of a big rat with white or yellow spines all over the body and when disturbed roll into spiny balls. The other suborder *Soricidae* includes the shrew or musk-rat, common in houses, and in the open near jungles. They are useful as insectivores. Two species of the genus *Corcidura*, the brown Musk-Shrew (*C. murina*), and the Grey Musk-Shrew (*C. Caerulea*) are common.

CHIROPTERA.—This order includes the bats of which there are many genera small and large to be found in the State. The specimens collected and exhibited in the State Museum are representative of all the four families of this order. The family *Pteropodidae*, the fruit-eaters or flying-foxes, includes the largest of the bats, all of them arboreal. Two genera, the Flying-fox, or Fruit-Eater Bat, (*Pteropus medius*) and the Short-nosed Fruit-Bat (*Cynopterus marginatus*) are common. The family *Rhinolophidae*, is represented by the Schneider's Leaf-nosed Bat, (*Hipposiderus speoris*); the family *Nycteridae*, by the Indian Vampire Bat (*Megaderma lyra*); the *Vespertilionidae*, by the Hairy-winged Bat (*Harpyiocephalus harpyia*); and the family *Emballonuridae*, by two genera, the Black-bearded Sheath-tailed Bat and the Long-tailed Bat, (*Taphozous melanopogon*, and *Rhinopoma microphyllum*).

RODENTIA.—The animals belonging to this order are the squirrels, hares, rabbits, porcupines and rats. Almost all of these are common; they fall under four families. The *Sciuridae* include the common squirrels (*Sciurus palmarum*), the Palm Squirrel with longitudinal stripes on its back, the Large Indian Squirrel (*Sciurus indicus*) and the Large Brown Flying Squirrel (*Pteromys oral*) which dwells in trees, living in holes during the day and coming out for food at night.

The family *Muridae*, includes the rats and mice. Among the rats (Genus *Mus*) the most common variety is the *Mus rattus*, or common Indian house-rat. The other cosmopolitan rat

of world-wide distribution is the Brown Rat (*Mus decumanus*), which is not indigenous to India but has its native home in Chinese Mongolia. The other species of rat which inhabits open places and fields is the Soft-Furred Field-Rat (*Mus mettada*). The common House Mouse is *Mus musculus*. Other genera of rats are the Indian Gerbil or Antelope-rat, (*Gerbillus indicus*) and the Indian Mole-Rat, (*Nesocia bengalensis*) a more robust rat, common in rice-fields, gardens and cultivated land. Another species of *Nesocia* is *N. bandicota* the common Bandicoot, a very large rat common in or near houses. The Bush Rat (*Golunda ellioti*) also belongs here. This lives in jungles, making its nest in bushes; its body is covered with stiff hair.

The family *Hystricidae* includes the porcupines. The common Indian porcupine (*Hystrix leucura*) is now found but rarely in the State forests.

The last family *Leporidae* is composed of the hares and rabbits, and is represented here by the common South Indian Hare or Black-naped Hare (*Lepus nigricollis*).

UNGULATA.—The Indian wild or indigenous genera of this order of mammalia are very few in this State. The sub-order *Proboscidea* includes the Elephant (*Elephas maximus* or *indicus*) which does not occur wild. The other sub-order *Ungulata vera* is also not well represented. The *Perissodactyla* or odd-toed ungulates are likewise represented by the domesticated Horses, and Asses (*Equis spp.* of the family *Equidae*) that are in no way indigenous, though common in large numbers under domestication.

The even-toed *Artiodactyla* include cattle, sheep, goats, antelope (*Bovidae*), deer (*Cervidae*) and boar (*Suidae*). There are no local breeds of cattle or buffaloes and no truly wild cattle or buffaloes in the State. The same is true of sheep and goats.

The common sheep and goats of the State are called in Tamil *Velládu*, *Semmariyádu* and *Kurumbádu*, the last being a breed reared by the *Kurumbá* tribes of the State.

Among the antelopes, the buck or true Indian antelope (*Antelope cervicapra*), and the spotted deer (*Cervus axis*), which belongs to another family *Cervidae*, are found in the forests of the State.

The *Suidae* comprise the boars, of which the wild boar *Sus cristatus* is to be found in the forests. The domesticated pig, *Sus indicus*, is bred in large numbers by the *Koravars*.

EDENTATA.—The last order of the mammals including the Pangolins is represented locally by the Indian Pangolin (*Manis pentadactyla*) or Scaly Ant-eater which is covered with large imbricate horny scales, and resembles a reptile rather than a mammal. It lives chiefly on ants, which it takes in by its long sticky filamentous tongue.

**Aves or Birds.**—The avi-fauna of the State resembles that of the Southern part of Madras Presidency in which it lies; a large number of the genera represented consist of species that are commonly found in the Oriental region. The most striking families are the gallinaceous birds, pigeons, parrots, cuckoos, woodpeckers and barbets, bee-eaters, sun-birds, mynas, king-crows, crows, kites and falcons; all common in S. India.

A representative collection of the birds found in the State, is exhibited in the State Museum.

Members of almost all the orders of birds are found in the State at some season or other of the year, the largest being the Perchers, the Fowls, and the Ducks and Geese.

PASSERES OR PERCHERS.—There are about 20 families under this order, of which about 13 are well represented. The most common is the family *Corvidae*, including the crows, the magpies, and ravens. The most familiar member of this family is the Indian House-Crow (*Corvus splendens splendens*), the common scavenger of the country and abundant in every village and town. Another crow is the Black Jungle-Crow (*Corvus coronoides levaillanti* or *C. macrorhyncus*) which keeps chiefly to forests and wild tracts. Another genus is the Indian Tree-Pie

(*Dendrocitta rufa* or *D. vagabunda*) with a sooty colour, a short black bill and stiff hairs at the base of the bill.

The *Turdoididae* include the laughing-thrushes and babblers (Seven sisters). Of these the S. Indian Jungle-Babbler (*Turdoides tericolor malabaricus*) and the White-headed Babbler (*Turdoides griseus griseus*), Jerdon's Chloropsis (*Chloropsis jerdoni*), the White-browed Bulbul (*Pycnonotus luteolus*), the Southern Red-whiskered Bulbul (*Otocompsa emeria fuscicaudata*) and the common Iora (*Aegithina tiphia tiphia*), are common.

The family *Laniidae*, or Shrikes or Minivets, is represented by the South-Indian Rufous-backed Shrike (*Lanius schach caniceps*), and the Indian Grey Shrike (*Lanius excubitor lah-tora*), the Small Minivet (*Pericrocotus peregrinus peregrinus*), the Cuckoo-Shrike (*Campophaga sykesii*) and the Common Wood-shrike (*Tephrodornis pondicerianus*).

The Indian Oriole (*Oriolus oriolus kundoo*) is the only common representative found here of the family *Oriolidae*.

Among the *Sturnidae* or Mynas may be mentioned the Grey-headed Myna (*Sturnia malabarica malabarica*), the rose-coloured Starling (*Pastor roseus*), the common Myna (*Acrido-theres tristis tristis*), and the Black-headed Myna (*Temenuchus pagodarum*).

The King-crows (Drongs-Shrikes) or *Dicruridae* characterised by their long forked tails and black plumage are represented by the genus *Dicrurus* (*D. annectens annectens* and *D. macrocerus macrocerus*).

The Paradise Fly-catchers (*Terpsephone paradisi paradisi*) of which the immature and females are black and chestnut, while the mature males are white and long-tailed, belong to the family *Muscicapidae*.

The *Turdidae* comprise the Bush-chats, Robins, Thrushes and Blackbirds, of which the South Indian Pied Bush-chat (*Saxicola caprata atrata*), the Indian Magpie-Robin (*Copsychus saularis saularis*), the well-known songster Shama (*Kittocincla*

*macroura macroura*), and the migratory ground-thrushes, namely the Orange-headed Ground Thrush (*Geocichla citrina citrina*), and the White-throated Ground Thrush (*G. c. cyanotis*) are found here.

The *Ploceidae* comprise the Weaver-birds and Munias. Of these the Indian Striated Weaver-bird (*Ploceus manyar flaviceps*) which builds curious flask-shaped grass nests, with a long tubular entrance, hanging from trees or bushes, is the more common.

The Finch family or *Fringillidae*, the Indian genera of which are confined to one sub-order including the Sparrows, etc., is represented by the common House-Sparrow (*Passer domesticus indicus*) and the Yellow-throated Sparrow (*Gymnoris xanthosterna xanthosterna*).

Of the Swallows, *Hirundinidae*, the most common are the Eastern Swallow (*Hirundo rustica gutturalis*) and the Nilgiri House-Swallow (*H. r. javanica*).

The Pipits and Wagtails combine to form the family *Motacillidae*, of which the more common birds seen in the State are the Grey-headed Wagtail (*Motacilla flava thunbergi*), the Large pied Wagtail (*Motacilla alba maderaspatensis*), and Richard's Pipit (*Anthus richardi richardi*).

The Larks, *Alaudidae*, are represented by one common genus, the Ashy-crowned Finch-Lark (*Pyrrhulauda grisea grisea*).

Of the sunbirds, *Nectariniidae*, there are three common genera, the Purple Sunbird (*Cyrtostomus asiaticus asiaticus*), the Purple-rumped Sunbird (*Cyrtostomus zeylonicus*) and Tickell's Flower-pecker (*Dicaeum erythrorhyncum*).

The family *Pittidae* includes the handsome Pittas living on the ground in woods and forests. One common species is the Indian Pitta (*Pitta brachyura*).

PIC.—This order comprises two families the *Picidae* or Wood-peckers, most commonly represented by the Golden-backed Wood-peckers (*Brachypternus aurantius aurantius* and *B. a.*

*puncticollis*) and the *Indicatoridae* or Barbets, a typical example of which common in the State is the Indian Crimson-breasted Barbet (*Xantholæma hæmocephala indica*).

ANISODACTYLI.—This order includes five sub-orders the Rollers (*Coraciæ*), Bee-eaters (*Meropes*), King-fishers (*Halcyones*), Hornbills (*Bucerotes*) and Hoopoes (*Upupæ*), all of which except the *Bucerotes* are common.

Of the *Coraciæ*, the family *Coraciidae* has one representative in the Southern Indian Roller (*Coracias benghalensis indica*), also commonly called the Blue Jay, conspicuous by its blue plumage and common about gardens, where it hawks insects and sometimes lizards and mice. This is not allied to the true Jays.

Of the *Meropes*, the family *Meropidae* includes the Slender-billed Blue-tailed Bee-eater (*Merops superciliosus javanicus*).

Among the *Halcyones*, the family *Alcedinidae* includes such very common forms as the common Indian King-fisher (*Alcedo atthis benghalensis*), and the White-breasted King-fishers (*Halcyon smyrnensis smyrnensis* and *H. s. fusca*).

*Upupæ* include the family *Upupidae* of which the Indian Hoopoe (*Upupa epops orientalis*), is an example.

MACROCHIRES.—This order includes the Swifts (sub-order *Micropodes*) Nightjars (s. o. *Caprimulgi*) and Frogmouths (s. o. *Podargi*). Of these the Common Indian Nightjar (*Caprimulgus asiaticus*) belonging to the family *Caprimulgidae* and the Palm Swift (*Tachornis batassiensis batassiensis*) of the sub-order *Micropodes* are common.

COCYGES.—The Cuckoos and Koels belong to the family *Cuculidae* of this order. The members of this family are parasites, laying their eggs in the nests of other birds. Commonly found here are the Common Hawk-Cuckoo (*Hierococcyx varius*), which resembles the birds of prey even more than other cuckoos do, the Indian Plaintive Cuckoo (*Cacomantis merulinus passerinus*), belonging to the *Cuculidae*, the Indian Koel (*Eudynamis scolopaceus scolopaceus*), a frugivorous cuckoo

the male of which is glossy black and the female brown and spotted, the Small Green Malkoha (*Rhopodytes viridirostris*) and the Southern Crow-Pheasant (*Centropus sinensis parrotii*), belonging to the *Phænicophainæ*.

PSITTACI.—This includes the Parrots, the Paroquets and Loriquets. In the family *Psittacidae* are included the two kinds observed in the state viz., the Large Indian Parakeet (*Psittacula eupatria nipalensis*) and the Indian Loriquet (*Coryllis vernalis*).

STRIGES.—This order includes the owls, of which four genera are common; the Indian Mottled Wood-Owl, (*Strix ocellata*), the Great Indian Horned-Owl (*Bubo bubo benghalensis*), a very large type of owl called also the Eagle-Owl and smaller owls such as the South Indian Scops Owl (*Otus scops rufipennis*), and the Southern Spotted Owlet (*Carine noctua fryi*).

ACCIPITRES.—The local birds of prey fall under two families the *Gypidae* and the *Falconidae*. The Osprey belonging to the third family *Pandionidae* seems to be very rare. To the *Gypidae* belongs the Black or Pondicherry Vulture (*Torgos calvus*); and to the *Falconidae* belong the other Kites, Harriers, Hawks, Eagles and Falcons. Of these the most familiar local species are the Brahminy Kite (*Haliastur indus indus*) and the Common Pariah Kite (*Milvus migrans govinda*), two very common birds to be seen daily; the Indian crested Serpent-Eagle (*Sphenorhynchus cheela cheela*) and the winter-visiting Harriers, of which four are common, Montagu's Harrier (*Circus pygargus*), the Pied-Harrier (*C. melanoleucus*), the Marsh-Harrier (*C. aeruginosus aeruginosus*) and the Pale Harrier (*C. macrourus*), and two other genera the Shikra (*Astur badius badius*), and the Hobby (*Falco subbuteo subbuteo*) another winter straggler to South India.

COLUMBAE.—This order comprises the Doves and Pigeons which fall into the family *Columbidae*. The local and common representatives are the Blue Rock-Pigeon (*Columba livia*)

*intermedia*) breeding on rocks or buildings, a very common bird, the Spotted Dove (*Streptopelia chinensis suretensis*), and the Indian Ring-Dove (*Streptopelia decaocto decaocto*).

PTEROCELTES.—Sand-grouse are seldom or never seen here.

GALLINAE.—These include birds such as Fowls, Pheasant, and Partridge. The Fowl and the Partridge are game birds. The commonest species in the jungles and forests of the state is the Grey Jungle-Fowl (*Gallus sonneratii*). Another fowl which is also found in some parts of the State is the Common Pea-Fowl (*Pavo cristatus*); the beautiful plumage and green neck of the Cock are well-known. The common domestic fowl is said to be derived from *Gallus ferrugineus* and *G. bankiva*. The common partridge, the Southern Grey Partridge (*Francolinus pondicerianus pondicerianus*) is also abundant.

GRALLAE.—The Rails, Finfeet, Cranes, Bustards and Water-Hens, come under this order. In the sub-order *Fulcariae* is placed the family *Rallidae* in which the local White-breasted Water-Hen (*Amaurornis phoenicura phoenicura*), and the Chinese White-breasted Water-Hen (*A. p. chinensis*) are included. The Indian Moor-hen (*Gallinula chloropus parvifrons*) and the Common Coot (*Fulica atra atra*) are also to be found.

LIMICOLAE.—One family of this order including Plovers, Snipe, Stints and Sand-pipers—the *Charadriidae*—has a large number of local representatives among which may be mentioned the Indian Red-wattled Lap-wing (*Lobivanellus indicus indicus*), the Eastern Golden Plover (*Pluvialis dominicus fulvus*), Jerdon's Little Ringed-Plover (*Charadrius dubius jerdoni*), the Sand-pipers comprising the Green Sand-piper (*Tringa ochropus*) the Marsh Sand-piper (*T. stagnatilis*) and the Greenshank (*Tringa nebularia*). Temminck's Stint (*Eriolia temminckii*), the Pintail Snipe (*Gallinago sternura*) and the Fan-tail Snipe (*Gallinago gallinago gallinago*) are also to be found. The Golden Plover and the Snipe are good game-birds.

GAVIAE.—This order embraces the Gulls and Terns, of which the former are absent here. Both groups belong to the family *Laridae*. The two local Terns, are the Indian Whiskered-Tern (*Chlidonias leucopareia indica*) and the Black-bellied Tern (*Sterna melanogaster*). These are the common inland Terns inhabiting lakes and marshes.

STEGANOPODES.—The Pelicans, Cormorants and their kin fall under this order, and of the five families two are represented the *Pelicanidae* are represented by the Spotted-billed Pelican (*Pelicanus philippensis*) and the *Phalacrocoracidae* by the Little Cormorant (*Phalacrocorax javanicus*) and the Indian Darter or Snake-bird (*Anhinga melanogaster*).

HERODIONES.—The Herons and Cattle Egrets belong to our area. Birds of the first sub-order *Palataleae* including the Ibis and Spoonbills, are rare here. The sub-order *Ciconiae* include the Stork and the Common White Stork (*Ciconia alba*) and the Open-bill (*Anastomus oscitans*) which are common types. Of the sub-order *Ardeae* the Common Grey Heron (*Ardea cinerea cinerea*), the Cattle Egret (*Bubulcus ibis coromandus*), the Little Egret (*Egretta Garzetta Garzetta*), and the Indian Little Green Heron (*Butorides striatus javanicus*), belonging to the family *Ardeidae*, are to be found.

ANSERES.—This order includes the Ducks, Geese and their kin. Of the family *Anatidae* the Swans are absent, but among the Teals, the Cotton Teal (*Nettopus coromandelianus*), the Lesser and Common Whistling-Teals (*Nettion crecca crecca*), and (*Dendrocygna Javanica*) and the Blue-Wing Teal (*Querquedula querquedula*) also called Garganey are to be found. Among the ducks, the Indian Spot-bill Duck (*Anas poecilorhynca poecilorhynca*) called also the Grey Duck, is the most common. The tufted Pochard (*Nyroca fuligula*) is also to be met with. Among the migratory ducks are found the Pin-tail (*Dafila acuta*) and the Shoveller (*Spatula clypeata*). The local domestic geese are a mixed race, and are said to be hybrids between *Anser ferreus* and the Chinese *A. cygnus*.

**PYGOPODES.**—The Indian Little Grebe (*Podiceps ruficollis albipennis*) is found within the State and belongs to this order.]

**Reptilia.**—Of the four orders of Reptiles (excluding the *Rhyncocephalia*) of this group of cold-blooded vertebrates, the *Crocodylia*, including the Crocodiles, Gaviales, and Alligators, are absent, there being no large rivers in the State. The *Chelonina*, *Lacertilia* and *Ophidia* are however well represented.

**CHELONIA.**—This includes the Turtles and Tortoises. The Land-Tortoise (*Testudo elegans*), having a prettily marked shell with radiating yellow streaks on a black back-ground is quite common. Another genus, which is small and globose in shape and more or less of an uniform brown colour, is the terrapin (*Emyda vittata*) which inhabits the fresh-water tanks, ponds and sometimes wells, and is edible; its presence is supposed to purify the water. The most common of the fresh-water Tortoises (*Nicoria trijuga*), has a brown shell with a yellow stripe on each side of the plastron.

**LACERTILIA.**—This order comprises the Lizards. Of these the most remarkable is the Monitor (*Varanus bengalensis*) a large lizard, terrestrial and inhabiting holes in dry places. It sometimes attains a length of four feet and is abundant in the State. Its skin is used for making drums. Another familiar member of this order is the House-Lizard, or House-gecko (*Hemidactylus gleadowii*) which has sucltorial and adhesive digits, by means of which it climbs up even smooth walls, and a warty skin. Many other species of *Hemidactylus* and related genera are common; among the more notable are the Tree-Lizard (*H. giganteus*) and other House-geckoes. Another very common lizard is the Garden-Lizard or "Blood-Sucker" (*Calotes versicolor*). Its body is covered with scales, with a row of median backward pointing spinous scales along the back, and crest, a long tapering tail and clawed digits. Males of this lizard assume bright colours during the breeding season, red, black, and yellow predominating. Probably it is the blood-red colour of the neck and throat that suggests the popular name.

The interesting genus *Chamaeleon* (*Chamaeleon calcaratus*) is also very common. This animal is famous for its ability to change its colour. Though some of the *Calotes* also have this faculty the *Chamaeleon* stands distinct from *Calotes* and other reptiles in many respects, viz., the slow and deliberate movements of the limbs, mobility and independent action of the eyes, the projectility of the tongue, and the prehensile use of the tail. A very common lizard to be met with in our gardens and elsewhere is *Mabuia carinata* with obtuse flat snout, and an olive-brown skin with light lateral bands on the upper side, reaching a length of about 12 or 14 inches. Another smaller animal resembling *Mabuia* but having a red tail when young is *Lygosoma punctatum*, sometimes reaching 4 or 5 inches in length. This is supposed to be poisonous. The other ground lizard is *Cabrita leschenaultii* with tail nearly twice as long as the body, brownish or golden skin and tail and often reddish hind limbs.

**OPHIDIA.**—Snakes compose this order, and they form more than half the number of genera of Reptiles. Many genera of snakes are known in the State, both poisonous and non-poisonous. Among the *Typhlopidae* the blind snake, occasionally to be met with in decaying wood, is *Typhlops braminus*, about 7 inches long and 1/5 to 1/8 of an inch in diameter. The *Boidae* include the Pythons, and similar large non-poisonous snakes. Not very large specimens of the Rock snake, called in the vernacular Vennāndei (வெண்ணாந்தை), usually about 3 or 4 feet in length but occasionally longer, are to be met with in the State. Another snake *Gongylophis conicus*, called in the vernacular Pōdeiyan (பொடையன்), is said to be found by the snake-charmers. This is a viviparous snake, and has a skin marked like that of a leper, and is therefore supposed to give leprosy by licking. It is commonly called the Red Sand-Snake. Another non-poisonous snake of this order and common here is the Black Sand-Snake (*Eryx johnii*) called in the vernacular Irutalai viriyan (இருதலை விரியன்). It has a very blunt tail rounded at the end. A reddish-brown band darker than the rest of the body covers the tip.

It is the blunt tail that is responsible for the popular belief that it has two heads which change places every six months.

The *Uropeltidae* or rough-tailed earth-snakes are peculiar to South India and Ceylon. It is not known whether any genera of these snakes are to be found here.

The *Colubridae* include by far the largest number of snakes, poisonous and non-poisonous. The commoner ones are as follows: the common Wolf-Snake (*Lycodon aulicus*) which often mimics the Krait, a flat-nosed brown snake called in the vernacular Kattu viriyan (கட்டு விரியன்) when banded and Vazhala (வழலை) when not. This is not poisonous as it is believed to be. Another non-poisonous species allied to this is *Simotes arnensis*, a pale-brown orange-coloured snake with well-defined black bands also called in Tamil Kattu viriyan. Another snake called the variegated Kūlai Snake (Kūlai pāmbu) is also common (*Oligodon subgriseus*). The common Indian Rat-Snake (*Zamenis mucosus*) called Sārai in Tamil, is one of the largest snakes often measuring 6 or 7 feet. This is non-poisonous; it is erroneously believed to mate with the Cobra as the male and to be venomous. Another snake which is erroneously supposed to be poisonous is called in Tamil Komberi mukkan (*Dendrophis pictus*). This common snake is arboreal, as the vernacular name (Kombu = branch) signifies. The species of *Tropidionotus* are many and common and are non-venomous. The common Pond-Snake or Checkered Keel-back, also called the Water Snake, is a fresh-water snake very common in the tanks and pools. This is called in the vernacular Nirkorattai, or Thannippambu (*T. piscator*). A very common snake is the Chamæleon Snake (*T. stolatus*) called in Tamil Olei pambu which is found in gardens and houses. This snake is of a greenish or brownish olive colour with black spots or reticulated cross-bars, intersected by two yellow longitudinal bands which are most marked posteriorly. The Green Ground-Snake is a more common water-snake, and is also called Thannirpambu (*T. plumbicolor*). This is of a dull-green colour, uniform or with traces of markings above, and is

about 2½ feet in length and 3½ inches thick. Another aquatic snake is the Water-Snake (*Helicops schistosus*) of an olive-brown colour, uniform or with dark lateral streaks. The so-called arboreal, but generally terrestrial, Brown Tree-Snake (*Dipsas trigonata*) has a close resemblance in shape and colour to *Echis carinata*, for which it is often mistaken. The Green Tree-Snake (*Dryophis mycterizans*) called in Tamil Pacchai pambu, with a long pointed snout, and a green body like a whip-cord, and supposed to be poisonous and given to darting at the eyes of passers-by, is mainly arboreal as its protective green colour would suggest. It is also found amongst green grass and bushes. The venomous snakes belong to the genera *Bungarus*, *Naia* and *Vipera*. The Banded Krait (*Bungarus fasciatus*) (4 to 6 feet in length) is a very dangerous terrestrial snake with a brown snout, of a bright-yellow colour with black rings as broad as the interspaces between them or broader, and a black band beginning between the eyes and widening behind on the head and the nape. The common Krait (*B. caeruleus*) is also common; it is about 3 feet in length. It is of a dark brown or bluish colour above with narrow transverse white streaks, and is very poisonous. These are called in the vernacular Kandankaru Vazhalai and Karuvazhalai. Another very poisonous snake is the Binocellate Cobra (*Naia tripudians*) called in Tamil Nāgam or Nalla pambu, sometimes reaching about 6 feet in length. Many supposed varieties or "castes" of this venomous snake are distinguished locally, viz., brahmin, raja, pariah, etc. The more venomous and larger species (*N. bungarus*) reaching a length of more than 10 feet is fortunately not so common. It feeds on other snakes. Both these cobras can be recognised by their hoods. The Russel's Viper or Chain Viper (*Vipera russellii*) is one of the most deadly snakes. It is of sluggish habits, and frequently does not move out of the way on the approach of man. It is of a pale-brown colour above, with three longitudinal series of black light-edged rings, sometimes replaced by faint dark spots. This snake is not uncommon. It is called in the vernacular Viriyan or by many

Kannádi viriyan. Another and commoner poisonous snake is the Carpet-Viper or Little Indian Viper (*Echis carinata*) called Udu suruttai in Tamil. This makes a prolonged almost hissing sound by rubbing the folds of the sides of the body against one another. This snake has a cruciform or (|) shaped whitish dark-edged marking on its head.

**Amphibia.**—(Batrachia). This phylum consists chiefly of the Frogs and Toads. A large number of frogs belong to the *Ranidae*. The common Green Frog prevalent everywhere is *Rana hexadactyla*. A much larger frog which is occasionally to be found is *R. tigrina*. This is commonly called the Bull-frog. Other species of *Rana* are also to be found, especially *R. breviceps* and *R. limnocharis*. The Chupam-frog (*Rhacophorus maculatus*) which is of a brown colour and about 2 or 3 inches in length, is found on the walls of out-houses and gardens, and occasionally on trees or rocks. It can adhere to walls by the adhesive webs and digits of its toes. The small frogs which appear in great numbers after rain, with a smooth reddish-greyish olive skin and a large marking on the back are *Microhyla ornata* (*Diplopelma ornata*).

The toads are represented by the common genus *Bufo*, the chief and common species being *B. melanostictus*.

**Pisces.**—(Fishes). The Pisces found in the State are none of them very large; they are mainly fresh-water fishes of the tanks, pools and streams. Many of fishes are caught and eaten. The principal edible varieties are called *Kandai*, *Koravai* and the *Virál*, in the vernacular. Most of these fresh-water fishes have yet to be identified. One very common fish is *Ophiocephalus punctatus*. The common fresh-water fishes of the plains of South India are the *Siluroids*, and the *Cyprinoids*. Most of the genera belonging to these groups may be found here.

Pisces form the last phylum of the vertebrate fauna. Here follow some of the chief groups of the Invertebrate fauna, but the groups are not arranged in the order.

**Arachnida.**—This class includes the Spiders and Scorpions. Many varieties of spiders are to be found. The large and formidable looking spiders, some of which belong to the genus *Mygale*, prey on insects of various kinds. Numerous spiders which live out of doors and make their webs, sometimes very strong snares, belong to the group *Epeiridae*.

The Wolf Spiders (*Lycosidae*) which attain a considerable size and carry their ova about with them in a small bag attached to the abdomen, and the Crab-spiders which frequent flowers and often exhibit protective colours and feign death when alarmed, are also very common. The House-spider which makes its web inside houses is a species of *Tegenaria*. A genus, probably *Agelena*, makes its webs in grass, and in corners of walls, with a funnel-like tube which forms its den in the centre. The beautiful scarlet silky-or velvety-coated insect, often wrongly supposed to be a cochineal-insect, is a small spider (*Trombidium*) and is very common on grass after rain.

The scorpions, which are poisonous arachnids, carrying their poison sac at the tips of their 'tails,' are very common everywhere. The little red scorpion, which frequents houses is a species of *Scorpio*. The very large black scorpion which is also common here is *Buthus afer*. It sometimes attains a length of 6 inches and its sting may even prove fatal.

**Myriopoda.**—The millipedes and centipedes belong to this class. The millipedes belong to the *Chilognatha* and are harmless. The common large, hard-crusted, glistening black or brown creatures of this class, which coil themselves up when touched, belong to the genus *Julus* of this section. The smaller millipedes also common, with yellow or red markings on head and body, which live under flower-pots or stones, and crawl about in gardens and backyards, belong to the *Geophilides*.

The formidable *Scolopendridæ* or Centipedes, the bite of which is very venomous, are common. One species of *Scolopendra* attains a length of 9 or 10 inches, and smaller ones frequent dwellings.

**Mollusca.**—The mollusca include the slugs, snails and mussels. The mollusca of the state have not yet been collected and identified. The snails include land, fresh-water and amphibian forms. The commonest genus is *Helix*. The Bivalves are also very common in fresh water, especially the fresh-water mussels (*Unio* sp.).

**Annelida.**—This class includes the earth-worms. The most common genus is *Megascolex*.

**Crustacea.**—(Class *Decapoda*). This includes the crabs, etc. Crabs are usually to be found inhabiting holes near water.

**Insecta.**—(*Insects*). The distribution and variety of the Insect fauna closely follow the floristic features of any region. No other group of animals enters into such intimate and complex relations with plants as insects do.

About nine orders are included under this group each being fairly represented.

**ORTHOPTERA.**—This includes the tiny grasshoppers, the locusts and mantids and that common house-hold pest the cockroach. The family *Acrididae* includes the painted grasshopper (*Poecilocerus pictus*) which is only found on the Calotropis gigantea (madar) and produces two broods in the year. The big grasshopper (*Hieroglyphus banian*) is found everywhere on such crops as Paddy, Sugarcane and Maize, feeding on the foliage and cutting the earheads. The common Grasshopper (*Tryxalis turrita*) is found throughout the state, and is scarcely a pest although it often occurs in large numbers. The small brown and green grasshoppers commonly met with are other species of *Tryxalis* and *Crotonotus*. The family, *Grillidae* includes the Mole-Cricket (*Gryllotalpa Africana*) found in damp corners, predaceous on smaller animals and doing damage by burrowing tunnels into the ground in search of food. The *Blattidae* comprise insects such as the cockroaches (*Periplaneta Australasiae*) and (*P. Americana*), found in towns, which have been introduced into India by shipping. They are well-known house-hold pests, though they do little damage in the field.

Another genus of cockroaches, the *Stylopyga* has been introduced. The praying-mantis, a strange looking insect so called on account of the peculiar attitude that it assumes, with its front legs raised and folded, is commonly met with among the green foliage which it resembles. This is included in the family *Mantidae* which are noted for their aggressive coloration. Another mantid is the common Stick-insect, which resembles the straw or a twig on which it usually rests. The Leaf-insect belonging to the family *Phasmidae* is also found in large numbers.

**DERMOPTERA.**—The Earwigs form this group of insects. The ordinary Earwig (*Nala Lividipes*) is rarely a pest; on the contrary it is often beneficial, since it is largely carnivorous and has been recorded as an important predator on the larvae of fruit-flies and house-flies.

**NEUROPTERA.**—This class includes the common dragon-flies and ant-lions the former being diurnal while the latter are nocturnal. The Ant-lions are characterised by their beautifully dotted wings and by their clubshaped antennae. They are beneficial in that they feed on ants as their name signifies. The dragon flies feed on smaller insects. Both groups are very common and represented by a number of genera.

**THYSANOPTERA.**—This class comprises the "Silverfishes" which damage books, papers, etc., and the Thrips which damage crops. The ordinary "silverfish" met with is *Lepisma* sp. The Chilic-thrips and Onion-thrips (*Scirto-thrips dorsalis*) (*Helio-thrips indicus*) suck the juice from leaves and shoots and make the tender leaves curl and fade. The latter are found often in company with plant-lice.

**ANOPLURA.**—This class includes the human head-louse and the cattle-louse. The *Pediculidae* include *Pediculus capitis* and *P. humanus*, the former being the common head-louse. The cattle louse (*Haematopimus tuberculatus*) lives on the ears of buffaloes feeding on their blood.

**RHYNCOTA.**—These comprise all bugs from the tiniest plant-lice and bed-bugs to the biggest water ones; most of them are found here. The *Pentatomidae* are easily recognised by the presence of the triangular scutellum and their peculiar odour. The common members of the family are:—*Coptosoma cribraria*, found on all Leguminous plants and on Compositae; *Dolichoris indicus*, the green-bug found on Cereals and Sunflower; *Bagrada picta*, the painted-bug found on cruciferous plants; and *Nezera viridula* the green-bug found on Cereals. The other bugs of this group found here are *Aspongopus janus*, *Cyclopelta siccifolia*, and *Phezodorus rubrofasciatus*. The *Corridae* include the bugs found on Pulses and Cereals. *Clavigralla gibbosa* and *C. horrens* are found on Red gram. The Paddy bug is *Leptocoris varicornis*. The *Lygaeidae* embrace the tiny bugs found on Calotropis, Cholan, Cotton, Red gram, and Chillies. *Lygaeus panduras* is the bug found on the above plants. *Oxycarenus latus* is found on Cotton, Bendai (Lady's-finger) and Gogu (Hibiscus cannabinus). *Aphanus sordidus* is found feeding on harvested seeds of Gingelly, Ground-nut and Cumbu. *Pyrrochoridae* include the Red Cotton Bug (*Dysdercus cingulatus*) feeding on malvaceous plants. *Tingididae*:—*Urentius echinus* is found on and damages Brinjals (*Solanum melongena*).

**Reduvidae.**—The bug *Conorhinus rubrofasciatus*, the nymphs of which are found in dusty corners of houses and are predaceous on small house hold insects, is very important in that it is the carrier of the disease "Kala-azar".

**Clinocoridae.**—*Clinocoris hemipterus* feeds on the blood of man, birds and bats.

**Capsidae.**—*Disphinctus politus* the betel-vine bug, and *Calocoris angustatus* the Cholan-ear-head Bug are included in this group.

**Fulgoridae.**—*Eurybractys tomentosa* found on Malvaceous plants, and *Pyrilla perpusilla* found on Sugarcane belong to this family.

**Jassidae.**—This class includes the Mango-hopper (*Idiocerus niveosparus*) which does serious damage to the mango flowers by sucking their juice so that they fall. Bugs belonging to the families *Psyllidae*, *Aphididae* (including the plant-lice) *Aleurodidae* (the coloured bugs) and *Coccidae* (to which class belong the scale insects and lac) are found in no small numbers in the state. The cochineal insect (*Dactylopius tomentosus*) has been introduced and has destroyed quantities of Prickly-pear (*Opuntia dillenii*).

**LEPIDOPTERA.**—This class includes the Butterflies and Moths. The moths comprise the following families:—

**Artiadae.**—The white-winged moth *Estigmene luctinea*, is common. Its caterpillar is the hairy black caterpillar which feeds on Cumbu, Ragi and various low-growing plants. *Amsacta albistriga* is also a white-winged moth, with black dots and a red abdomen, the caterpillars of which, known as the red-hairy caterpillars, feed on Cumbu, Ground-nut and pulses and are considered as a serious pest on Ground-nut. *Pericallia Ricini* is the common Castor-Moth, and *Utethesia pulchella* the Sunn-hemp-pod borer, found on Sunn-hemp and Heliotropium; it has white black-dotted wings is easily attracted to light and is common. **Noctuidae:** include the Loopers. *Chlorinea obscura* is the Pulse-Moth, *Polytella gloriosae* is the Lily-moth and *Prodenia litura* the polyphagous moth feeding on Tomato, Castor, etc. *Ublemma olivacea* the pest of Brinjal, and *Achaea melicerta*, the Castor semi-looper found on Castor, Pomegranate and Euphorbia, occur in large numbers.

**Lymantriadae.**—*Orygia postia* is the polyphagous pest found on Castor and Erythrina. *Euproctis fraterna* and *E. scintillans* found on Hibiscus, Red-gram, etc., also occur here.

**Sphingidae.**—These include the Sphinx, the caterpillars of which are easily recognised by their size and by the short appendage at the tail end. The moths are fairly large, with large coloured wings and antennae and a long coiled proboscis.

*Herse convolvuli* is the Sweet-potato Sphinx. *Acherontia Styx* (Death's head Moth) is one of the large moths with a skull-mark on the prothorax. *Deilephila nerii*, the Oleander Hawk-Moth, has a very large caterpillar. It has green wings with white lines.

*Limacodidae*.—This class includes the castor-slug *Parasa lepida* which is polyphagous. The larval spines are poisonous. The moth is small with anterior wings coloured green. The large and beautifully coloured Atlas-Moths (*Attacus atlas*) are found in large numbers in the forests of the State. They belong to the family *Saturnidae*.

Butterflies: *Papilionidae*: *Papilio demoleus* and *P. Aristolochiae* are the common Lemon and Aristolochia butterflies.

*Pieridae*.—*Catapsilia Pyranthe*, the Lemon-Coloured Daincha Butterfly, belongs to this group.

*Lycaenidae*.—*Virachola Isocrates*, the Pomegranate butterfly, is a member of this family.

*Hesperiadae*.—The Cocoanut-Skipper *Gangara Thyrsis*, *Parnara Mathias*, the Paddy-Skipper, and *Udaspus folus*, the Turneric-Skipper are found here.

The butterflies *Danaeïs chryssipus* and *Hypolimnys missipus* are very common and also interesting. The male of the former mimics the female of the latter.

DIPTERA.—The common Cattle-fly *Hippobosca maculata* found on cattle, *Oestrus ovis* on sheep, the Toddy-fly (*Pycnosoma flaviceps*) the House-fly (*Musca nebulosa*), the Gall-fly, the Fruit-fly (*Dacucus cucurbitae*), the Culid mosquito (*Culex sp.*), the Rat-and-Dog-flea all belong to this family and are found here.

HYMENOPTERA.—This class includes the stinging ants (*Myrmicites*) one of which *Atta minuta* is common. The other species belonging to the genera *Ocodoma*, *Eciton*, and *Myrmica* are all very common. Of the *Formicides* or true ants there are about twenty species belonging to the genus *Formica*, of which the red is *F. rufra*, while the formid ant (*Solenosolenopsis*

*germinata*) is the big black ant of our houses. *Apis indica*, the common Honey-Bee and other *Apis spp* belong to this group and also the Mason-Wasp and the Carpenter-Bee. The Mason-Wasp (*Pelopeaeus coromandelicus*) at the beginning of summer becomes busy in houses, building up cells of clay, in which it places its eggs and caterpillars paralysed by its sting, as food for the young wasps. The Carpenter-Bee (*Xylocopa sp.*) is very destructive to timber, into which it bores a tunnel in which it deposits its eggs. Other species of wasps are also common.

COLEOPTERA.—The most characteristic beetles found in the State range from the common dung-rolling scarabid beetles to the large cerambycid stag-beetles. The family *Scarabaeidae* includes the common Dung-roller (*Heliocopris bucephalus*) The *Dynastidae* include the Cocoanut Rhinoceros-beetle (*Oryctes rhinoceros*), a large beetle which damages the cocoanut-palm. The *Rutelidae* include the common beetle *Anomala varians* which attacks bushes and is found throughout the year. The *Cicindelidae* or Tiger-beetles, the *Carabidae*, or Ground-beetles, and the *Buprestidae* or Jewel-beetles are very common. The *Coccinellidae* include the Ladybird beetles, which are very tiny with black markings, feed on aphids, and are therefore beneficial. The common Ladybird is *Coccinella septempunctata*. The *Dermestidae* have one important genus *Epilachna*, species of which are found on crops such as Brinjal. The most splendid beetles are the *Buprestidae* with their golden and green or red wings, which are sometimes used for ornamenting dresses and embroidery. The *Elateridae* and *Meloidae* (Cantharid beetles) are also represented by some fine species.

## CHAPTER III.

### THE PEOPLE.

#### SECTION I.—STATISTICAL.

**Census Statistics.**—The area of the State is 1,179 square miles or 24 per cent of that of an average Madras District. It contains 435 towns and villages. The capital and eight other places are regarded as Towns: Ponnamaravati, Varpet, Ramachandrapuram and Arimalam; each have a population of over 5,000. Tirumayam, Alangudi and Kiranur are headquarters of taluks, and Pillamangalam—Alagapuri with the contiguous British Sevalpatti forms a single urban unit. The number of occupied houses in the State according to the census of 1931 was 81,565 including 5,423 in the capital town. The population of the State was 400,694 in 1931, and that of the capital 28,776. The population of the State according to the last three censuses was as follows:—

|      |     |         |
|------|-----|---------|
| 1911 | ... | 411,886 |
| 1921 | ... | 426,813 |
| 1931 | ... | 400,694 |

The total population showed a decrease of 26,119 or 6.1 per cent in the last census. The census officer attributed this decrease to "migration, brought about by agricultural conditions." He wrote, "The first year (fasli 1331) began with untimely rains and rising prices; the yield of dry crops was fair, but wet crops failed over large areas. Fasli 1332 was good, and fasli 1333 was fair. But the next five years (1334-1338) were perhaps the worst the State has seen, since the great famine of 1887. The rainfall was scanty, untimely and unevenly distributed, and both dry and wet crops suffered impartially. Prices were not very high, but the people had not the means to buy grain even at the price at which it was offered.

To add to the cup of misery, cholera raged in the State throughout this period, with a recorded death-roll of 4,000 people during the five years. The ryot therefore had recourse to his time-honoured remedy of emigration; but this time it was on a scale, not dreamt of in the days of yore. In the five years 1925 to 1929, 53,000 people left the State, 34,500 (65 per cent.) for the first time. The tide of emigration ebbed in the two succeeding years, which were more or less favourable for cultivation, but there can be no doubt that a good number of people who emigrated between the years 1925 and 1929 were still on the estates, when the census of 1931 was taken."

| Year. | Number of labourers. | This conclusion of the census officer is borne out by the figures entered in the margin kindly furnished by the Ceylon Labour Commissioner at Trichinopoly, of the number of labourers drawn from Pudukkottai State. |
|-------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1925  | ... 8,597            |                                                                                                                                                                                                                      |
| 1926  | ... 5,918            |                                                                                                                                                                                                                      |
| 1927  | ... 14,955           |                                                                                                                                                                                                                      |
| 1928  | ... 17,503           |                                                                                                                                                                                                                      |
| 1929  | ... 6,046            |                                                                                                                                                                                                                      |
| 1930  | ... 4,261            |                                                                                                                                                                                                                      |

There were 69 houses per square mile in the Pudukkottai State in 1931 against 130 in the Tanjore District, 91 in the Trichinopoly District, 82 in the Madura District and 78 in the Ramnad District.

**Density of Population.**—The density of population per square mile is 340 for the State as a whole, but it varies from 498 per square mile in Ponnamaravati firka to 213 in Nirpalani firka. It is no wonder that such districts as Malabar with its high rainfall and the Godavari, Kistna, and Cauvery deltas should have a very high density; but there are a few districts, arid by nature, which have a density slightly higher than Pudukkottai, namely Ramnad (382), Guntur (354), Salem (345), and Coimbatore (345). In the State, next after Ponnamaravati firka come Tirumayam (444), and Karambakkudi (434). The firkas of Kudumiamalai, Viralimalai, and Pudukkottai (excluding the municipal area) have a density ranging from 250 to 300, and Kiranur, Kunnandarkoil, Varappur and Nirpalani come last with a density of 200 to 300. Taking

the figures for the Taluks as a whole, Tirumayam stands first with 407 per square mile, Alangudi next with 393, and Kolattur last with 247. The high density in Tirumayam taluk is due to the large demand for labour in the Chettinad, while the small density in the Kolattur taluk is due to the poor soil, absence of industry and indifferent cultivation. The density of population in Pudukkottai town is 5,755 per square mile.

The population of the State is mostly rural and Mr. Pennington's observation on the census results of 1871 may be recalled, namely, that "there is a greater proportion of small villages or a smaller proportion of towns in Pudukkottai than in any district in the Madras Presidency with the exception of Vizagapatam and Chingleput.....It would appear however that the villages are closer together than in many parts of the Madras Presidency; for there are 56.2 houses to a square mile against 45 in the Madras Presidency."

In 1931, there were 435 villages including nine places treated as towns, among which the population was distributed as follows:-

- 2 towns with over 10,000 inhabitants;
- 3 towns with a population of between 5,000 and 10,000;
- 123 villages and towns with a population of between 1,000 and 5,000;
- 132 villages, with a population of between 500 and 1,000;
- 159 villages, with a population of between 50 and 500;
- and 16 villages, with a population of below 50.

Two-fifths of the villages in the State contain less than 500 persons, while nearly two-thirds of the population are living in villages with over 1,000 people.

The percentage of the urban population in the State has risen from 6.1 in 1921 to 17.3 in 1931. Six of the nine so called towns are situated in the Chettinad and contain 88 per cent of the urban population outside Pudukkottai town. The rise in their population is due to the acute agricultural distress of 1925-29 which resulted in a large number of people settling in the Chettinad where they were able

**Migration.**—It appears from the census report of 1931, that during the preceding decade 922 persons per 10,000 of the total population had immigrated into the State;—805 from the contiguous districts, 85 from other Madras districts and States and 32 from beyond the limits of the Madras Province.

One striking feature about these statistics is the comparatively small proportion of the people born in the State who were found in it on the census night. The following figures will illustrate the point:—

| Number of persons per 10,000<br>of the population born<br>within the area. |     |       |
|----------------------------------------------------------------------------|-----|-------|
| Madras Presidency                                                          | ... | 9,939 |
| Tanjore                                                                    | ... | 9,657 |
| Trichinopoly...                                                            | ... | 9,376 |
| Madura                                                                     | ... | 9,625 |
| Ramnad                                                                     | ... | 9,675 |
| Pudukkottai...                                                             | ... | 9,078 |

"This apparent anomaly," as the Census Superintendent points out, "is not real." Under normal conditions, the proportion of foreign born in any region increases as the area of the region diminishes.....As the area of investigation grows smaller, internal movements between smaller areas merged in a larger unit figure as separate migrations, and swell the figures of foreigners. Pudukkottai State is a small strip of independent territory with an area less than 7 per cent and population less than 5 per cent of the combined area and population respectively of the four adjoining British districts—Tanjore, Trichinopoly, Madura and Ramnad. The British neighbours are the kith and kin of the State subjects and are living more or less under similar economic conditions. The (general) loss in population during the last decade has affected alike both classes of people enumerated in the State, the Pudukkottai born losing 6.6 per cent and those born in the four adjoining British districts

"Statistics by taluks show that a large percentage of the British-born people in the Pudukkottai State were enumerated in the State taluk adjoining each British district."

| Taluk.        | District of birth |              |         |              |
|---------------|-------------------|--------------|---------|--------------|
|               | Trichinopoly.     | Tanjore.     | Madura. | Ramnad.      |
| Alangudi ...  | 1,896             | <b>8,130</b> | 567     | 776          |
| Tirumayam ... | 2,284             | 2,909        | 1,868   | <b>5,769</b> |
| Kolattur ...  | <b>5,867</b>      | 1,555        | 432     | 244          |
| Total ...     | 10,047            | 12,594       | 2,867   | 6,789        |

Figures of persons found in Pudukkottai State but born in the other Madras districts and States and in areas outside Madras Presidency are as follows:—

|                                                               |       |                                  |
|---------------------------------------------------------------|-------|----------------------------------|
| Tinnevely ...                                                 | 1,082 | Madras Presidency                |
| Malabar, Travancore and Cochin ...                            | 823   |                                  |
| Salem and Coimbatore ...                                      | 813   |                                  |
| Madras, Chingleput, Chittoor, North Arcot and South Arcot ... | 589   |                                  |
| Other districts and States ...                                | 65    |                                  |
| Ceylon ...                                                    | 905   | Outside Madras Presidency 1,272. |
| Straits Settlements, Federated Malay States and Burma ...     | 186   |                                  |
| Mysore State ...                                              | 88    |                                  |
| French and Portuguese Possessions ...                         | 47    |                                  |
| Other Provinces and States in India ...                       | 34    |                                  |
| Africa ...                                                    | 8     |                                  |
| Europe ...                                                    | 4     |                                  |

The figures denoting the number of emigrants to other places within the Madras Presidency as enumerated in 1931, are as follows:—

|                                       |       |                            |
|---------------------------------------|-------|----------------------------|
| Tanjore ...                           | 1,900 | Adjoining Madras districts |
| Trichinopoly ...                      | 2,594 |                            |
| Ramnad ...                            | 2,062 |                            |
| Madura ...                            | 231   |                            |
| Other Madras districts and States ... | 773   | Total 6,787.               |

The decrease in the population as disclosed by the census figures of 1931 gives no cause for any alarm. The numbers enumerated at a particular census depend upon the nature of the seasons just preceding it. The failure of crops for a number of years in the decade 1921 to 1930 stimulated emigration to Ceylon, Burma and the Federated Malay States. More than 75,000 persons left the State for Ceylon alone during this decade; and it is safe to assume that at least one half of this number were still in that colony in 1931. If this number had been added to our recorded population in 1931, the total would have exceeded that recorded in 1921.

**Sex.**—There were 191,134 males in 1931, against 205,033 males in 1921 and 209,560 females against 221,780 in the previous census. The number of females to 1,000 males was thus 1,082 in 1921, and 1,006 in 1931.

When the first census was taken in the State in the Tamil year *Vijaya* (1826-27), the population consisted of 107,909 males and 103,833 females. There were then only 962 women for every 1,000 men. The census of 1871 showed for the first time an excess of women over men; and this excess has continued since. It is reported that the proportion of women to men rose everywhere after the famine of 1877 since famine mortality falls more heavily on men than on women, "the latter sex apparently being constitutionally more able to resist the hardships which economic stringency brings." According to the late Mr. J. T. Marten, Census Commissioner in India for 1921, "the statistics of birth indicate that in the regions in which the Mongolian and Dravidian race element is strongest, (these include Southern India), there is a higher proportion of females born than in those areas in which the Aryan or Semitic strain prevails.....Such indications as these enquiries afforded were in favour of a large female element in families belonging to the lower strata of the population." However, the Census Superintendent of the State observes, "the available material for the State appertaining to these matters is neither

wide in range nor large in volume to justify an attempt at an independent local investigation of the problem."

**Civil condition.**—Of the total population in 1931, 187,892 were unmarried, 104,579 married and 48,345, of whom 8,371 were males, and 39,974 were females, were widowed. No one was enumerated as either married or widowed between the ages of 0 and 5. Between 5 and 10, there were only 38 married and none widowed; between 10 and 15, 989 married and only 14 widowed; and between 15 and 20, 8,740 married and 939 widowed. The figures are a significant indication that persons marry at a much later age in the State than in the surrounding districts. The number of child-widows and widowers in the State is almost negligible when compared with either the Madras Presidency or India as a whole. In the State men marry earliest among the Christians, ~~Hindus~~ come next, but Mussalmans marry comparatively later. The percentage of unmarried women at the age of 24 was greater among Hindus (21·2) than among Christians (16·6) and Mussalmans (13·7).

**Languages.**—The following table shows the different languages spoken in Pudukkottai in 1931, and the number of persons speaking each:—

|                  |     |          |                                                    |
|------------------|-----|----------|----------------------------------------------------|
| Total population | ... | 400,694. |                                                    |
| Tamil            | ... | 387,740  | —The vernacular of the State.                      |
| Guzarati         | ... | 1        |                                                    |
| Hindi            | ... | 187      |                                                    |
| Hindustani       | ... | 1,993    |                                                    |
| Kanarese         | ... | 5,118    |                                                    |
| Konkani          | ... | 1        |                                                    |
| Malayalam        | ... | 522      | Other Indian vernaculars<br>21,904.                |
| Marathi          | ... | 660      |                                                    |
| Saurashtri       | ... | 1,172    |                                                    |
| Telugu           | ... | 12,250   |                                                    |
| Arabic           | ... | 23       | Vernaculars of non-Indian<br>Asiatic countries 25. |
| Malay            | ... | 1        |                                                    |
| Singhalese       | ... | 1        |                                                    |
| Danish           | ... | 2        | European languages 25.                             |
| English          | ... | 22       |                                                    |
| Spanish          | ... | 1        |                                                    |

Practically all Christians speak Tamil; only 42 out of 17,960 speak other languages, (25 of them European languages and 17 the Indian vernaculars). Of 15,194 Mussalmans, 13,157 speak Tamil, and 2,009 Hindustani. The other languages spoken by them are Arabic (23), Malayalam (3) and Kanarese (2).

Tamil, the State language, is the mother tongue of 94·5 per cent of the total population. Telugu is spoken by a little over 3 per cent of the people consisting of Komattis, Chettis, Nayadus, Rajus, and a few others. The Telugu spoken in the State is more or less a patois including a number of Tamil words with Telugu suffixes. The Kanarese spoken here (1·2 per cent) is mostly the peculiar dialect of the Kurumbars; it is old Kanarese with a large admixture of Tamil and Telugu words. Hindustani is spoken by 2,180 persons, of whom 2,009 are Mussalmans. Saurashtri, a dialect of Guzarati, is the language of the silk weavers settled mostly in Tiruvappur. More than 70 per cent of the Marathi-speaking people in the State live in Pudukkottai town. The number of persons whose mother tongue was Malayalam rose from 9 in 1891, to 522 in 1931. Such persons are found chiefly in Pudukkottai Town and in Chettinad. Arabic has been returned by 23 Ravuttars but it is very doubtful whether what they speak is correct Arabic.

**Religion.**—Out of a population of 400,694 in 1931, 367,540 or 91·7 per cent were Hindus, 15,194 or 3·8 per cent Mussalmans, and 17,960 or 4·5 per cent Christians. The number of Mussalmans shows an increase of 1·23 per cent over the figures for 1921, while the figures for Hindus and Christians show a fall of 6·56 and 2·76 per cent respectively. The agricultural distress during the previous decade seems to have hit the Hindus most and the Christians to an appreciable extent, while Mussalmans being traders were not much affected.

Of the 17,960 Christians, 17,450 or 97 per cent were Roman Catholics, 351 were Lutherans, 136 belonged to the Anglican communion and 23 to the other denominations.

The Mussalmans are Sunnis belonging to the Hanafi School. The following quotation from the census report may be of interest:—"Within the last ten years, a Singhalese woman and a Chinese girl have been admitted into Hindu families in the State, and have been returned in the Schedule as Hindus. Christians and Mussalmans do not appear to have made any appreciable addition to their numbers by conversion during the decade."

**Literacy.**—In 1931, 45,238 persons (or one person in every nine) were literate, against 42,929 in 1921. Literacy was much higher among males (216) than among females (19). 3,393 males (or 178 in ten thousand) were literate also in English against 148 females (7 per ten thousand).

In spite of the general fall in population during the decade 1921 to 1931, the number of literate persons has risen under all heads.

|                        | 1931.          |                      | 1921.          |                      |
|------------------------|----------------|----------------------|----------------|----------------------|
|                        | Actual number. | Number per thousand. | Actual number. | Number per thousand. |
| Literate :—            |                |                      |                |                      |
| Males ... ..           | 41,326         | 216                  | 40,126         | 196                  |
| Females ... ..         | 3,912          | 19                   | 2,803          | 13                   |
| Literate in English :— |                |                      |                |                      |
| Males ... ..           | 3,393          | 18                   | 3,125          | 15                   |
| Females ... ..         | 148            | 0·7                  | 105            | 0·5                  |

More than half the population of Pudukkottai town is

literate in English as well as in a vernacular language. Female literacy is also high in the capital town where one-eighth of the women are literate.

|                                                      | Number per 10,000. |                      |           |                      |
|------------------------------------------------------|--------------------|----------------------|-----------|----------------------|
|                                                      | Males.             |                      | Females.  |                      |
|                                                      | Literate.          | Literate in English. | Literate. | Literate in English. |
| Pudukkóttai Town ...                                 | 5,042              | 1,326                | 1,243     | 82                   |
| Alangudi Taluk (excluding Pudukkóttai Municipality). | 1,872              | 59                   | 68        | 1                    |
| Tirumayam Taluk ...                                  | 2,438              | 127                  | 156       | 3                    |
| Kolattur Taluk ...                                   | 1,344              | 55                   | 82        | 1                    |
| Pudukkóttai State ...                                | 2,162              | 178                  | 187       | 7                    |

Next to the capital town comes Tirumayam taluk with about a fourth of the male population literate; Alangudi (excluding the capital town) shows a higher figure of male literacy than Kolattur, but female literacy is lower.

The numbers of literates among the Hindus, the Mussalmans, and the Christians are shown below :—

| Religion.      | Total.   |         |          | Literate. |        |          | Literate in English. |        |          |
|----------------|----------|---------|----------|-----------|--------|----------|----------------------|--------|----------|
|                | Persons. | Males.  | Females. | Persons.  | Males. | Females. | Persons.             | Males. | Females. |
| All religions. | 400,694  | 191,134 | 209,560  | 45,238    | 41,326 | 3,912    | 3,541                | 3,393  | 148      |
| Hindus ...     | 367,540  | 175,281 | 192,259  | 39,561    | 35,964 | 3,597    | 3,203                | 3,112  | 96       |
| Mussalmans.    | 15,194   | 7,159   | 8,035    | 3,255     | 3,116  | 139      | 77                   | 77     | ...      |
| Christians ... | 17,960   | 8,694   | 9,266    | 2,422     | 2,246  | 176      | 256                  | 201    | 52       |

For purposes of comparison, these figures may be expressed as follows :—

|                          | Number per 10,000 of the population. |                      |           |                      |
|--------------------------|--------------------------------------|----------------------|-----------|----------------------|
|                          | Males.                               |                      | Females.  |                      |
|                          | Literate.                            | Literate in English. | Literate. | Literate in English. |
| All Religions ... ..     | 2,162                                | 178                  | 187       | 7                    |
| Hindus ... ..            | 2,052                                | 178                  | 187       | 7                    |
| (Brahmins ... ..)        | 7,600                                | 3,687                | 3,329     | 103                  |
| Depressed classes ... .. | 769                                  | 4                    | 10        | ...                  |
| Others ... ..            | 2,073                                | 65                   | 104       | 2                    |
| Mussalmans ... ..        | 4,353                                | 108                  | 173       | ...                  |
| Christians ... ..        | 2,583                                | 235                  | 190       | 56                   |
| (Roman Catholics ... ..) | 2,490                                | 108                  | 102       | 10                   |
| Protestant sects ... ..  | 5,455                                | 3,091                | 3,702     | 1,830                |

Mussalmans have the largest proportion of male literates, Christians come next, and Hindus last. The high percentage of literacy in English among Christian women is marked. Among Protestants about 55 per cent of males and 37 per cent of women are literate, while among Roman Catholics the percentages are only 25 and 1 respectively.

The progress of literacy since 1891 in Pudukkottai and the surrounding districts is exhibited below\* :—

i. Literacy per 10,000 of population.

|                          | Males. |       |       |       |       | Females. |      |      |      |      |
|--------------------------|--------|-------|-------|-------|-------|----------|------|------|------|------|
|                          | 1931   | 1192  | 1911  | 1901  | 1891  | 1931     | 1921 | 1911 | 1901 | 1891 |
| Pudukkóttai ... ..       | 2,820  | 2,555 | 2,260 | 2,125 | 2,053 | 232      | 155  | 80   | 55   | 40   |
| Tanjore ... ..           | 3,347  | 3,203 | 2,911 | 2,738 | 2,644 | 364      | 290  | 195  | 112  | 66   |
| Trichinopoly ... ..      | 2,470  | 2,216 | 1,991 | 1,698 | 1,827 | 320      | 239  | 149  | 93   | 71   |
| Madura ... ..            | 2,691  | 2,320 | 2,257 | 1,763 | 1,870 | 243      | 175  | 114  | 77   | 55   |
| Ramnad ... ..            | 3,093  | 2,812 | 2,310 | 2,305 | 2,481 | 207      | 173  | 104  | 59   | 40   |
| Madras Presidency ... .. | 2,107  | 1,986 | 1,333 | 1,601 | 1,646 | 319      | 262  | 171  | 120  | 92   |

ii. Literacy in English per ten thousand of population.

|                          | Males. |      |      |      | Females. |      |      |      |
|--------------------------|--------|------|------|------|----------|------|------|------|
|                          | 1931   | 1921 | 1911 | 1901 | 1931     | 1921 | 1911 | 1901 |
| Pudukkóttai ... ..       | 178    | 152  | 87   | 82   | 7        | 5    | 1    | 1    |
| Tanjore ... ..           | 355    | 293  | 193  | 160  | 20       | 14   | 7    | 5    |
| Trichinopoly ... ..      | 288    | 194  | 142  | 101  | 32       | 16   | 10   | 5    |
| Madura ... ..            | 219    | 153  | 106  | 70   | 27       | 16   | 9    | 6    |
| Ramnad ... ..            | 167    | 111  | 66   | 42   | 12       | 6    | 4    | 2    |
| Madras Presidency ... .. | 223    | 170  | 121  | 90   | 30       | 20   | 13   | 11   |

SECTION II.—ANTHROPOLOGY (CULTURAL).

The Tamils of old classified the habitable parts of the land into five natural regions (*tinai*—*தீர்*)—the hilly country, the woodland, the sea shore and the plough-land. The people of the hilly country (*kurinji tinai*) were hunters. The *Valaiyans* (from the Tamil word *valai*, a net used to catch game) and the *Kuravars* are the modern representatives of the hillmen of old. The people of the *Mullai* tract (woodlands) led a pastoral life; and to this tribe belong the *Idaiyars* or shepherds (*idai*=middle) who first lived in the tracts which lay between the hills and the plains watered by the rivers. In the drier and sandier tracts (*pálai*), developed a race of adventurous tribes such as the *Maravar* (the man of valour) and the *Kallar* (the man of strength) who turned to soldiering or brigandage. People of the sea-shore (*neydal*) were either fishermen and sailors or merchants. The merchants of the coast districts settled later in the interior and among them are the Chettiyars, who are now the backbone of the banking and commercial communities. The farmers (*ulavar*) inhabiting the river-valley (*ulu nilam*) are represented in the State by the *Vellalars* (the rulers of the flood) who first learnt to convey the water of the river through canals to the fields, and the *Kárálars* (the rulers of the clouds) who stored the rain water in tanks and *úrancies* or drew it from wells and springs for irrigation.

Along with the representatives of these ancient Tamil tribes, we find in the State the representatives of the Aryan culture of the north. In South India the thought, life and culture of the ancient Tamil and of the Northern Aryan met and fused, and the culture history of the South is the history of the interaction of the two.

**Customs and manners.**—The customs and manners of the people of the State do not differ much from those of the surrounding districts.

**Villages and Houses.**—With the single exception of Tirumayam, the towns and villages are unwallled and the houses are generally built in streets, the Brahmin, Sudra, Mussalman and Panchama quarters being separate. The wants of the village people are few, and these are locally supplied by the village artisans, barbers, etc. The great majority of the people live in thatched houses of which many are single-roomed buildings built of mud without windows and with a single door for both man and beast. The wealthy live in tiled or terraced buildings. Nattukkottai Chettyars have built numerous large, ornate and very substantial homes.

The number of occupied houses in the State was 81,565 in 1931, against 58,449 in 1881. But in 1931 only 341 villages out of a total number of 435 were examined by the census officers in order to classify houses as terraced, tiled, and thatched houses. Out of a total of 73,708 houses thus examined, 60,166 were thatched, 10,373 tiled and 3,169 terraced.

The houses of the poorer classes contain very few articles of furniture. There are generally mats which supply the place of chairs and beds, some earthen vessels to hold water and for cooking, a few oil lamps of potstone and a flat round stone for grinding curry powder, etc. More than fifty years ago, brass vessels were very rare even in the houses of the middle class. For religious ceremonies in which the use of used mud vessels is prohibited, brass vessels had to be borrowed from the few that had them. Every family had a *hembu* (a small brass pot)

and a drinking-cup of brass. Spoons were sometimes of iron, but often cocoanut-shells with wooden handles were used as spoons or ladles. Pots and lamps of potstone, mud pots and dishes were other articles in use. China and enamelled vessels were rare. Now, cheap brass vessels, china, and aluminium vessels are very commonly used in villages.

Plantain leaves, which could not be obtained in large quantities in the State, are rarely used to eat off except on ceremonial occasions. Metal plates (தாமிரம் or வட்டி) were in extensive use but are very rarely to be met with now. Dried leaves of the banyan (*Ficus bengalensis*) and purasu (*Butea frondosa*) are now largely used as plates.

Those not authorised could not in those days use umbrellas. Leather slippers and wooden sandals were in use, but even these were rare.

Accounts, documents, letters and books were written on palm-leaf (cadjan) with an iron stylus (எழுத்தாணி). This practice has not entirely disappeared. Accounts, for example, are still sometimes written in this way even by wealthy Chetty money-lenders. About a hundred years ago, rough brown paper manufactured at Mannargudi, came into fairly extensive use. Later, white Góá paper called பால்காகிதம், which was considered at the time a luxury, came into use.\* Schoolboys wrote with sticks of ochre on black wooden tablets measuring about 15 inches by 8 inches, instead of slates. Either porcupine quill or a bamboo stick sharpened at the tip was used to write on paper.

**Dress.**—The ordinary dress of an adult male consists of two thin cloths. The long waist-cloth or *Veshti* is tied on formal occasions by passing it round the waist and between the legs and tucking the ends in. This method of tying it is called *Kaccham*. Generally it is simply tied round the waist and not passed between the legs. The upper cloth is *angavastram* which is worn in the fashion of a Roman toga, or thrown over the

shoulders folded. Children up to about five years of age generally wear no clothes and little boys go about with only a strip of cloth just sufficient for decency, while very young girls wear a metal fig-leaf attached to and hanging down from a string tied round the waist. The cloth worn by the women is known as the *pudavai* or *selai*. It is from 12 to 18 cubits in length and is wound round the waist with one end hanging down in folds while the other end is drawn up over the breast and passing over the shoulder is drawn across the back and tucked in at the waist.\* The *kusavan* assumes different shapes and positions with the women of different castes and sub-castes, and in a few sub-castes it is absent altogether. Girls and young women wear a shorter piece of cloth (*sittā dai*) which they tie however like that of their elders. Petticoats are now very commonly worn by girls and young women in the richer families. A tight-fitting bodice (*ravikkai*) is now coming into vogue among all classes except the poorest classes. Red is considered to be the auspicious colour for women's clothes but widows only wear white.

**Ornaments.**—The essential ornament of every married woman, whose husband is alive is her *tāli* or *pottu*† which is

\* The method of wearing the *Sari* (*pudavai* or *Selai*) may be described thus in the words of Miss Billington (quoted by Mr. William Crooke in his book "Things Indian")—

"A woman makes a few pleats at one end in her hand,—the cloth is then wound several times round the body from waist to knee, and at last brought over the right shoulder and down to the left side, so as to fall in front in ample folds." Women of some castes however bring it over the left shoulder.

† The *tali* or *pottu* being the symbol of wedded life, is the most important of a Tamil woman's jewels. Some castes wear *talis*, while others, *pottus*. The *pottu* is a small disc of gold while the *tali* is a gold ornament often in the shape of M but assuming different descriptions for different castes. "The Vallamban and Nattukkottai Chetti women suspend a small globular pendent, called *tumbu*, from their *talis*, or marriage badges, suspended from the neck, and the Maravan women wear two *talis*, one large and the other small. The Nattukkottai Chetti women, even when poor, usually have costly *talis*; some of them are ornamented with valuable gold pendants and are said often to be worth thousands of rupees." (Mr. Hemingway: *The Trichinopoly District Gazetteer*.) Small gold beads are worn on the side of the *tali* or *pottu*.

attached to a string or gold chain and is hung round the neck. There are special ornaments for the nose, ears, head, neck, arms, wrists, fingers, the waist, ankles and toes. Many of these take the form of rings such as bracelets, anklets, armlets, toe-rings (பீன்), nose-rings (நிலாக்கு) and ear-rings. "The ear becomes finally the most bejewelled part of a woman's person."\* The women of many non-Brahmin castes dilate the lobes of their ears. An *olai*† of gold or gold set with precious stones is inserted in the lobe; some castes have in the place of the *olai*, a small cylinder of gold known as *picchikkūdu*. The ear is also bored and small studs called *koppu* are inserted. Coral, pearl or gold beads are often worn as bracelets. The following extract from M. Sonnerat's *Voyage to the East Indies and China* written more than 150 years ago applies to the present day. "The rings spring on the leg and, when the women walk, they make a noise with which they are much pleased. They colour the palm of the hand and the sole of the feet with red made from the infusion of the leaves of Mindi‡ and draw a black circle round the eyes to indicate their vivacity. Some castes rub the face and body with saffron. Neck-laces of gold and silver hang on, and down, their stomach. Their ears are pierced in several places and fitted with jewels, and their love for these ornaments is so great that they even wear them in their noses." With the advance of education women's apparel is becoming at once simpler and more refined and ornaments are becoming rarer but more elegant.

Gold is supposed to be dishonoured by being worn on the feet except by members of a royal family. Flowers, especially those that have been presented as an offering to some deity, are worn in the hair. It is also common for women to plait their

hair into a long braid to the end of which they attach silk tassels while scented flowers are sown on to the plaits.

**Food.**—Except for a few higher castes such as Brahmins and some sub-castes among non-Brahmins such as Vellalars, meat is a common article of food. Mutton, fowl, fish, hares and birds are the common varieties of animal food; pork is less common, while rats, crabs, squirrels, etc., are eaten by the lowest classes, some of whom eat beef also. In the poorer houses, the morning meal is taken between 7 and 8 a. m. and consists of cold rice (rice soaked in water and kept over night) with butter-milk, and some pickle, chutney, or sauce, or *conjee* (gruel) of ragi, cumbu, or cholam. At midday or in the case of the working classes during supper at 8 or 9 p. m., comes a course of cooked rice, vegetable sauce, or greens and pulse with soup or *rasam* (pepper water); the meal ending with a dish of rice and curd or butter-milk. Along with rice, dholl, ghee, vegetable oils, butter-milk and spices enter largely into the food of the middle and upper classes. Black-gram is an essential ingredient of all cakes. Pepper, mustard, coriander, turmeric and asafoetida are the principal spices. Vegetables, peas, roots and greens of different varieties are much in evidence in the cuisine. The fruits most commonly used are mangoes, citrons and limes. Salt, tamarind and chillies are largely used for seasoning.

Drinking and smoking, though not universal, are common enough with many castes. Chewing betel or tobacco is more common.

**Games and Amusements.**—The village drama (often known in Tamil as நாடகம் in its refined, and தெருஞ்சூத்திர in its unrefined form) is the most important amusement. The plot is generally taken from the *Rámáyana* or *Mahábháratá* or other classics; the life of Ráma, the wanderings and sufferings of the Pándavás and their consort, the patient Droupadi, the martyr Harischandra or Nalá or the devotee Márkanḍeyá who escaped Death, and the tragic fate of Kóvalan or Nallathangál are the principal themes of perennial interest. The *cel* is in a temporary shed

in some open or central space; the audience squat in the open air, chewing chatting or occasionally snoring under the soporific effect of the songs sung by the actors or roar with laughter at the antics of the buffoons. The performance lasts from 10 p. m. till about day-break and is continued next night from where it broke off previously. Plays sometimes last for several nights.

A less expensive amusement is for young men or young women to form a ring and dance.

There is the manly game known as *manjivirattu* or *jallikattu*. The day on which this will be held is previously advertised by tom-tom in all the adjacent villages. At about eight o'clock in the morning a number of bulls to the horns or round the necks of which the owners have tied pieces of cloth, are let loose to the sound of tom-tom and the shouts of the people. Those taking part in the sport endeavour to catch and stop the bulls in their wild career and remove the cloths. Those who succeed are the heroes of the day and are entitled to the money that is tied within the cloth. This sort of bull-baiting is held in different Kalla villages in succession and lasts for about two months, beginning on the day succeeding the *Pongal* festival in January. Bull-baiting in the Tamilnad has been a pastime for ages past, and there is a vivid description of it in the *Kalittogai* (a collection of poems belonging to the sixth century A. D.). The following is a specimen of the songs describing the sport which is poetically called 'embracing the bull.'

"The bulls knew that the herdsmen had jumped into the stall with the desire to embrace them and pricked them with their horns....."

"O, young maid, see this (feat of strength), here. He, the son of the buffalo-herd, will not return without quelling its strength; he has sprung on the rough back of the fighting bull and embraced it like a garland. Maid, here (another), the son of the cowherd, will not ~~be~~ <sup>be</sup> ~~und~~ <sup>und</sup> ~~for~~ <sup>for</sup> ~~to~~ <sup>to</sup> ~~be~~ <sup>be</sup> ~~is~~ <sup>is</sup> dancing on the (back

of the) speckled bull looking like a man punting a canoe in the stream. In the sporting field to which many people have come, the herdsman has embraced the black bull which came like the wind and has crushed out its strength, thus appearing like the Lord (Siva) when he broke with his feet the neck of Yama who rides on a buffalo and deprived him of life. To look at the fight strikes my mind with terror.

"O, young maid, see this feat of strength. Here he, the son of the shepherd, is lying on the side of the strong white bull like the black spot on the moon. Behold the strength of the herdsman who is wearing the garland of Kaya flowers; he has caught hold of the ears of the red bull that rushed on him with limitless speed, and quelled its strength, thus appearing like Máyon when he caught the horse with a beautiful mane sent by his enemies, tore open its mouth and beat it with his fist. To behold it strikes my mind with terror." \*

Mr. Francis makes the following observation about this game in the Madura Gazetteer:—"To do this (to capture the cloths tied to the horns) requires fleetness of foot and considerable pluck and those who are successful are the heroes of the hour. Cuts and bruises are the reward of those who are less skilful, and now and again some of the excited cattle charge into the onlookers and send a few of them flying. The sport has in consequence been prohibited on more than one occasion; but, seeing that no one need run any risks unless he chooses, existing official opinion inclines to the view that it is a pity to discourage a manly amusement which is not really more dangerous than foot-ball, steeple-chasing or fox-hunting."

Cock-fights and quail-fights are favourite out-door sports. Pigeon-flying matches are also held. Two or more breeders let loose in the air their pigeons, and the one whose flock remain on the wings longest and succeed in decoying a good number of the birds of the rival flock is the winner.

Men and boys play cards, marbles, hopscotch, games such as *tacchipara* (a form of dice played with cowries) and *pulikattan* (a game like chess), fly kites and go in for one or two more violent games such as *kittippandu*, *pillayárpandu*, both something like rounders, *bali* (a game in which one player has to catch the others while holding his breath) and *uppu-kódu* (a complicated game consisting in hopping over a diagram marked on the ground). In playing *uppu-kódu* several straight lines are marked on the ground a few yards apart. One party runs over the lines while the other party opposes their advance. *Bali* is also known as *gudu gudu*. The players divide themselves into two teams; the players of each team in turn run one after another across the line and try to touch as many of the opposing team as they can, holding their breath all the time. *Pulikkattan* (known also as *padinettámpulli*) is a game of the type of the chess played with pebbles as 'pieces' called 'dogs' or 'goats' on one side and 'tigers' on the other. The former have to try to check the latter without getting taken or 'killed.'

*Silambam* a sort of single stick play, is both an exercise and an "art of offence and defence." Leap-frog and tip-cat (*Kittippullu*, a game played with sticks) are also popular.

Women play few games. They often amuse themselves with group dances, such as *acháponga* or *kummi*. A common performance is the *kóláttam*. The performers hold a stick in each hand and move in various figures, each constantly striking her sticks against those held by others in rhythm. Girls play a number of games with tamarind seeds or cowries. Hide-and-seek is another favourite game, and equally popular is a form of hopscotch known as *pándi*. The game of *ottayó rettayó* is also common; one player takes a handful of cowries or seeds and closing her hand asks the other whether the number of seeds is odd or even. If she guesses correctly, she gets all the seeds.

good omen to hear a bell ring, a cannon go off, an ass bray or a Brahmani kite cry, or when starting out from home to see a married woman whose husband is alive, a corpse, flowers, water, milk, a toddy pot, night soil, or a washerman. It is also a good omen to see a jackal or fox passing from right to left; but it is a bad sign to see the sembottu bird (the Indian cuckoo, "copper smith bird") cross one's path from right to left. Indeed the proverb says 'go not a step forward if you see a *sembottu* bird going from right to left, but a crown awaits him who sees a fox do this.' It is also a bad omen to hear sneezing, or directly after leaving the house to see a single Brahman, a widow, a shikari, a snake, oil or a cat. It also bodes ill to the inmates if an owl or a vulture, a Brahmani kite, or a *Sembottu* bird perches on the roof of a house, or if a bee-hive, ant-hill, a snake or a tortoise is found inside it or if the walls crack. ....Some omens foretell specific occurrences. Thus if the clay-building wasp (*kulavi*) nests in a house; it foretells the birth of a child, and the call of a crow indicates the arrival of a guest." To this list many others may be added. The chirping of a lizard in particular directions is a sign of luck and in others a sign of ill-luck. Dreams are also believed to forebode good or ill luck.

Devils are supposed to possess men, and still more often women; and their evil influence is warded off by sorcerers who make incantations and tie talismans to the bodies of the persons afflicted. The influences of the evil eye and black magic are likewise warded off by incantations. Certain herbs are believed to have talismanic properties and are hung round the neck or tied to the waist-string. A child is generally given a nick-name so that the real name may not be pronounced and used by magicians to injure the child. Various motives influence the choice of names. The name of an ancestor believed to be re-incarnate in the child (usually the grand-father or grand-mother) is given to the child. Names are commonly given with a religious motive, and children are named after Gods. Goddesses

for the children, but also to afford frequent occasions for pronouncing their names and thus securing merit. Occasionally the names of the God or Goddess of the place where a person resides, are given; thus children born at Tirunayam are called Satyamurti or Venuvanésvari, those born at Tirugokarnam bear the names of Gokarnésa and Brahadambál or Periyánáyaki and many men at Vaittur bear the name of Tálavanam. Children born as a supposed result of vows performed receive appropriate names; thus a child born after a pilgrimage to Rameswaram is called Rámanáthan or Parvatavarddhini, after one to Benares, Viswanáthan or Visálákshi, and after a visit to a snake shrine such as Péraiur, Náganáthan or Nágammal. Occasionally pet names are given for the following reasons:—no woman may call her father-in-law, or mother-in-law, and since their names are given to their grand-children, as has been explained already, the women, to avoid pronouncing them use instead pet names, such as Raja (king), Tangam (gold), Chellam (pet) and Kulandai (child). There is a belief that a child born after several children born before it have died will be saved from evil influences by being given opprobrious names such as Kuppaswami (lord of refuse). Indian Christians generally bear Tamil abstract names, with Christian names prefixed thereto, such as John Asirvadam (blessing), Joseph Sargunam (virtue) and Samuel Gnanavolivu (the light of wisdom).

It is commonly believed that a man's pains, sorrows, diseases, etc., can be transferred from the sufferer to an animal or a thing. Thus a person, who is ill, is often beaten with sprigs of the neem or margosa tree (*Azadirachta indica*) to which his trouble is supposed to be transferred. Occasionally, a whole community is supposed to be relieved of all its troubles at a blow. Such a riddance is supposed to occur on the day after the Sankarānti, when the *pidai* (evil influence) of the preceding year, called Kanuppidai, is shaken off and people make a fresh start in life. The various ~~ways~~ gifts to Brahmins are examples of transfer of trouble to another person, with the donee is supposed

to receive the troubles of the donor along with the gifts, and is often required to perform some expiatory ceremonies to get rid of them.

The offering of a part of a worshipper's own body is a common rite. We may, for example, refer to the presentation of *ex-voto* offerings, such as silver or gold eyes, feet, ears, or other organs and also to the offerings to Gods of miniature cradles with or without images of children in them and of bangles, by women who have borne children, or been cured of sickness through the supposed intervention, of the Gods.

Various methods are resorted to in order to look into the future.

Astrologers are often consulted, some of whom rely on special treatises on *Nádi-sástram*, *Árúda-sástram*, etc., (books dealing with the art of prediction). Future is often taken to be revealed by casting lots before a deity.

*Sámiyádis* (lit. God-dancers) are attached to the temples of the village godlings, and, under inspiration, they reply to questions put to them. The temple priest with his *odukku* or drum shaped like an hour-glass causes the God or devil to take possession of himself or some one else sitting in front of him, and the person possessed then becomes an oracle. In "telling fortunes," Korava women here take the place of Gipsies in Europe.

**Reaction to the impact of modern conditions.**—Extreme instances of departure from past customs are afforded by late marriages and widow remarriages. The Sarda Act in British India declared marriages of girls under 14 illegal. Marriages performed in contravention of this Act are punishable, but are not invalid. This Act has not been brought into force in the State, and people from British India escape the penalty under the Act by celebrating the marriage of girls under 14 within the Pudukkóttai State. There is a clear tendency in the State even among castes that stood for the sanctity of early or pre-puberty marriages to a

much later age. Widow remarriage, though it is not now visited with the amount of persecution that it incurred in the past, has not become common among communities which have not hitherto practised it. There is however, a tendency for some castes which hitherto practised it, to deprecate it in imitation of the others. Owing to economic circumstances, marriage ceremonies tend to become less elaborate; and it is now a common thing for even the highest castes to finish in one day the ceremonies that were ordinarily spread over four or five days formerly. The expansion of female education has tended to delay the consummation of child-marriages, and not infrequently postpone the marriage itself till the studies are over.

The joint-family system is weakening, in consequence of the improvement of communications and of western ideas rendering the outlook of our university young men more individualistic. But the real attack on this age-long institution comes from the new economic forces that are operating in the land to-day.

Changes in diet and dress are coming about; but they cannot be called radical. In matters such as hair dressing and shaving, there is a rapid break-away from the old standards. Top-knots (*Kudumi*) and beards are becoming rarer. Women are fast discarding the old ponderous jewellery. They are no longer, "animated savings banks." Perfumes and similar toilet luxuries are coming into greater use.

Social bans are losing in rigidity. Excommunication as a penalty for foreign travel has become a thing of the past. Less importance is now attached to unapproachability and even untouchability. Conditions of public service, and civic life, help to undermine this system. The railway and the motor-bus may complete its destruction. The ameliorative activities of the Darbar, and, for example, the throwing open of all educational institutions to the depressed classes, have helped to develop self-respect in the *Adi-Dravidas* and remove the 'superiority

Even in the purely social aspects of life, a great change is coming about. The urban life has changed considerably. The old indigenous games have given place to cricket and foot-ball; the old village plays to dramas with a modern setting and stage appurtenances and to cinemas and "talkies." The old cottage industries have disappeared before the cheap mill-made goods; creating a grave problem indeed—the problem of rural unemployment amongst a people mainly agricultural and depending for harvests on a precarious rainfall. Hoarding of money and putting it to unproductive uses are slowly disappearing before the spread of the co-operative movement.

### SECTION III.—RELIGION.

**i. Hinduism.**—Various gods are worshipped in the State. Each village has its own special guardian deity. Woods, ravines and hills are supposed to have one or more indwelling spirits. Invocation alone is not considered sufficient to appease such deities; they have to be propitiated by the sacrifice of some animal—the cock, the goat or the buffalo. Grain or cooked food mixed with blood are offered on their altars. The ritual is partly religious and partly magical and is accompanied with the beating of tom-toms, drinking and dancing.

The worship of the serpent (Naga) and of plants and trees such as tulasi or basil (*Ocimum sanctum*), the bael or Vilva (*Aegle marmelos*), and the asvatta or peepul (*Ficus religiosa*), is perhaps a relic of old totem-cults. The serpent has now come to be identified with Murugan or Karttikeya (*Subrahmanya* of the Aryans) and is also venerated as the ornament of Siva and the couch of Vishnu (*Anantasayanam*). The tulasi is an emblem of Vishnu, the bael, of Siva, and the asvatta, of all the three gods of the Hindu trinity (Brahma, Vishnu and Siva). The *Aganânirū* (the earliest anthology of ancient Tamil poems collected in the IVth or Vth century A. D.) mentions a number of gods who are now now identified with Hindu deities proper.

Offering oblations to *Pitris* (the spirits of the ancestors), or otherwise showing them honour is universal with all classes. The memory of women who died as *Sumangalis* (i.e., predeceased their husbands) is honoured in many homes. "The spirits of those who have died violent deaths are often worshipped, under the name of *Pattavans*, by the family of the deceased, generally with the idea of preventing them from doing harm." \* Heroes and martyrs are also worshipped as *Pattavans* and temples are built in their honour. Similar honours are paid to women who performed *Sati*, and places where this rite was performed are called *Mālaiyidu* (*mālai*=garland), because garlands are offered to the souls of *Satis*.

The *dvijas* (the twice-born castes) now seldom perform *yāgams* (sacrifices); but the domestic fire-rites, still linger in their homes. The *aupāsana* fire (fire which is worthy of *upāsana* or worship), which strictly speaking should be kept burning perpetually and fed with daily oblations of cleaned rice and with cooked rice on new-moon and full moon days is now kindled temporarily on such occasions as the *Srāddha* when oblations are made to the *pitris* or whenever any *grihya* or domestic rites are performed.

The most important daily rite of the Brahmans is the worship of the *Sandhyā*, which consists chiefly in purifying the body, in offering handfuls of water as oblations to the Sun (conceived as the symbol of divine effulgence) and in the repetition of the *Gayatri* mantra. The other daily rites such as the *panchayagna* consisting of offerings to the gods (*dévayagna*), giving *pindās* (rice balls) to the *pitris* (*pitruyagna*), feeding birds and animals (*bhūtayagna*), feeding men (*manushyayagna*), and studying the Vedas (*brahmayagna*), are not now regularly performed except in a few orthodox homes.

honour. There are innumerable temples in the State, in which the Supreme Being is worshipped under one of the names and forms of Vishnu (the sustainer of the Universe), Siva (the giver of wisdom, the great healer of ills and the destroyer of desire), Devi (the mother of the Universe), Sūrya (the Sun), Ganesa, Ganapati or Pillaiyar (the remover of all obstacles), and Subrahmanya (the lord of knowledge). The Tamil name for a temple *koil* also means a palace, (*ko* or *kon*=king, *il*=house; cf. Malayalam. *Koilagam*=palace, *illam*=Nambudri house). "As the king gaily decked in silk and gold, rode in elaborately decorated wooden cars on various occasions, so the idol was bathed, dressed, bedecked, and bejewelled, placed on a gorgeous car full of splendid carvings and dragged through the four principal streets round the temple." \*

Such ceremonies are still performed in the temples. Worship in the home is offered to the *Sālagrāmam* (fossil ammonite) representing Vishnu, and the *lingam* symbolising Siva. "Smartas," as Thurston remarks, "use in their domestic worship five stones, viz.—(1) *Sālagrāmam* representing Vishnu (2) *Bānalinga*, a white stone\* representing the essence of Siva, (3) a red stone (jasper), representing Ganesha, (4) a bit of metallic ore representing Parvati and (5) a piece of pebble or crystal, to represent the Sun. The worship of these five is known as *Panchāyatana puja*.† To the cultivated Hindu the different Gods whom he worships under different symbols are all manifestations of the One God.—

एकं साद्विप्री बहुधा वदन्ति ।

—Rig Veda, i-164-46.

(*Ēkam satviprā bahudhā vadanti*)—there is only one Being whom the wise call by many names.

The more intellectual among the Hindus are often devoted to the study of the *darśanas* (the systems of Philosophy), the most important of which is the *Vēdānta*. The *Vēdānta* has three *prastānas*, (authoritative works)—the *Upanishads* of the Vēdas, the *Sūtras* (aphorisms) of Bhādarāyana, and the *Gīta*, the discourse between Sri Krishna and Arjuna. The *prastānas* are taught in the Sanskrit Pātaśālas, and scholars proficient in them are rewarded with gifts of money by the Darbar during the Dasara festival. The three principal schools of the *Vēdānta* that claim Sri Sankara, Sri Rāmānuja and Sri Madhva as their *Ācharyas*, have a large following in the State.

For many centuries the "heretical" sect of Jains, (known in Tamil as *Samanas*) flourished in the State. The asceticism of the Jains was even more rigorous than that of the Brahmana, and monks of their order retired to natural caves where they devoted themselves to systematic mental training, and fasting, and finally eschewing food and drink, sometimes starved themselves to death (*sallekhana*). The natural cavern on the Sittannavasal hill was one such hermitage. There are now no Jains in the State. The frescoes in the rock cut temples at Sittannavasal, the remains of a structural temple at Settipatti and images of Tīrtankarās or Jainās at various places (Settipatti, Virakkudi, Annavasal, etc.) sometimes cut on rocks (Tēninalai and near Ammachattram) are all that now remain to bear witness to their once flourishing culture. There are several Jain images in the State Museum.

The outward expression of Bhakti or devotion to a personal God was very much developed between the IX and XIII centuries. Singing and dancing (Bhajana) form the essential features of devotional religion together with the reading or reciting of the deeds of the Gods and their incarnations,—Rama; Krishna, Sivā and Murugan. The *Rāmāyanā*, the *Mahābhāratā*, the *Bhāgavatā* and the *Purānās* both in their Sanskrit original and in their vernacular versions, the lyrical and devotional outpourings of the great poets, Appar, Sundarar,

Sambandar and Mānikkavāchagar, known as *Tevāram* and *Tiruvāchagam*, and of the Vaishṇavā saints like Nammālvār, Tirumaṅgaiālvār, Āṇḍāl and others known as the *Tiruvāimoli prabandams*, and the hymns to Subrahmanya by Arunagiri, known as the *Tirupugal*, have entered largely into the religious life of the Hindu population.

The Hindu sects do not attempt to proselytise, nor is there any great organisation in the State to conserve the religious faith of the people. The followers of the Advaita school offer homage to the Gurus of Kumbakonam (the Kāñchi Kāmakōṭi pīṭha) and of Srīngēri founded by the great Sri Sāṅkara. The Guru of the Kumbakōṇam Pīṭha has a large following within the State, and since he is the Guru of the ruling family, honours are accorded to him during his visits to the State; the Guru of the other and ancient mutt of Srīngēri also receives high honour. The spiritual heads of the Ahōbilam and of the Vānamāmalai mutts have a large following of Vaishṇavā disciples in the State, while the Madhvās owe allegiance to one of three mutts—the Vyāsārāya mutt, the Uttarādi mutt and the Sumatindra mutt. The Saivā sects, especially the non-Brahmans, pay homage to the Saivā mutts, the *Pandāra Sannidhis*, seated mostly in the Tanjore District. The Chettis of Vallanād have their own guru in their midst while the Nāṭṭukkōṭṭai Chettis receive spiritual instruction from their gurus of the Kīlāmaṭam and Pādirakkuḍi maṭam in the Rāmnād District. The Theosophical Society had a good following in the State, but is not now very prominent. Evangelical reform movements such as the Brahma Samāj and the Ārya Samāj have not made any headway in the State; but the revivalist movement inspired by the followers of Sri Rāmakrishṇa and Vivékānanda has had more success.

The welding of the old religious forms of the Tamils with the new ones that the Āryans brought with them has resulted in a religious system which is well described by Sir Monier Williams: "Starting from the Vedas, it ended in embracing

nothing from all religions and in presenting phases suited to minds. It is all-tolerant, all-compliant, all-comprehensive, absorbing. It has its spiritual and material aspect, itsoteric and exoteric, its subjective and objective, its rational and irrational, its pure and impure. It may be compared to a large polygon or irregular multilateral figure. It has one side the practical, another for the severely moral, another for the emotional or the imaginative, another for the sensuous and sensual and another for the philosophical and speculative. Those who rest in ceremonial observances find it all-sufficient, those who deny the efficacy of works and make faith the one requisite, need not wander from its pale,.....those who are right in meditating on the nature of God and Man, the relation of matter and spirit, mystery of separate existence and the origin of evil, may here indulge their love of speculation." The Hindu feels that owing to differences in the construction of human intelligence and owing to the different levels of spiritual perception in different persons, there should be differences in the methods of worship and in spiritual concepts, affording scope for men of varying mental and emotional moulds. Sri Krishna says:—

येष्वन्यदेवता भक्ता यजन्ते श्रद्धयाऽन्विताः ।

तेऽपि मामेव कौन्तेय यजन्त्यविधिपूर्वकम् ॥ —(Gita IX-23).

Those devotees who endowed with faith and reverence (Śraddhā) worship other gods, they too worship Me alone.....(though by different methods). The Hindu believes that wherever there is greatness, power or glory, there is a part of the one God's splendour.

यद्यद्विभूतिमत्सत्त्वं श्रीमदूर्जितमेव वा ।

तत्तदेवावगच्छ त्वं मम तेजोऽशंसभवम् ॥ —(Gita X-41).

In this faith the worship of the old village and totem gods is still allowed to continue, the higher classes occasionally participating in the worship. Some of these are male divinities, while others are female and the latter are the more dreaded. Some of them are associated with the major Gods as their attendants or offspring, others as their manifestations.

There are other demons which are believed to be the spirits of men and women who have committed suicide or died suddenly. Their souls are supposed to be admitted neither to heaven nor to hell, but to be condemned to hover about in company with other devils and to afflict mankind. "The majority of the devils are supposed to dwell on trees\*, some wander to and fro and go up and down in uninhabited wastes, some inhabit old wells, some skulk in shady retreats and ruined temples. It often happens that a devil will take a fancy to dispossess the soul and inhabit the body of one of his votaries, in which case the personal consciousness of the person or party ceases and the screaming, gesticulating, or pythonising are supposed to be the demon's acts." In such cases exorcism is resorted to by Pújáris or priests and professional magicians. Oblations to the devils consist of meat, grain, toddy, cigars, and bread. When a village is afflicted with some trouble, such as the blight of crops or an epidemic, a great expiatory feast is held, in which the enraged deity is represented by a pot (*karakam*) decorated with margosa leaves and flowers, which is carried through the village with great honour and to which a number of sheep and fowl are sacrificed. The deity is ultimately carried to the border of the village, where the pot is broken to pieces, and the evil spirit is supposed to be removed by this process from the afflicted place. Occasionally the *karakam* consists of as many as seven pots placed one above another.

Some of the godlings worshipped by the lower classes will now be named and described.

*Aiyanár*.—When, at the Puranic churning of the ocean (Amrithamathanam) by the Gods and the Asuras, their opponents, a pot of ambrosia came up, Vishnu undertook to serve it

\* Whenever a particular tree that was supposed to be the habitation of a devil was required by the Sirkar, Sir A. Sashia Sastriar used to quiet the fears of the people by issuing a notice to the devil, pointing out that another tree remote from common resorts had been specially selected for its abode and that after a fowl or a sheep had been sacrificed to it in front of its original tree, it should remove itself to

to all of them and assumed the form of Móhini a goddess of bewildering beauty. Siva, who was absent, wanted, when he heard of this, to see Vishnu in that female form, and when Vishnu gratified his desire, Siva embraced Vishnu with the result that Sásta or Aiyanár was born, who is also called Harihara-putra, i.e., the son of Siva and Vishnu. His wives are Púrana and Pushkala and his vehicles, the horse and the elephant. He is represented with a red skin, a crown on his head and a sceptre in his right hand to show that he is the king of the lower deities. He is the preserver of good order and peace. In front of his temple rude terracotta or even brick and mortar horses and élphants often of considerable size are arranged to form a sort of avenue. He is supposed to use these to patrol the village at night. These shrines are very picturesque and very characteristic of South India. Adoration is paid to him even by Brahmins and no meat is offered to him.

*Mannárswami*, is said to partake of the nature of either Siva or Subrahmanya. There are some who connect him with the god Vishnu at Mannárgudi.

*Káttéri* is a female deity and *Irulan*, a male. There is a legend that Párvati, wife of Siva, once offended her husband and a curse was laid on her that she should become a Kshudradevata an inferior deity, on the earth. She implored Siva to follow her and they descended to the earth as Káttéri and Irulan. According to another account, Káttéri is the wife of the hunter Siva who fought with Arjuna.

*Pidári* is a well-known goddess supposed to be very violent like the goddess Káttéri. Her name is a corruption of Pídai-hari, "remover of evils." She is represented in a sitting posture with a drum, a snake, a trident and the skull of the fifth head of Brahma.

*Káttavaráyan*. When Párvati had once incurred the displeasure of her Lord and was ordered to descend to the earth and there excavate to bound for flower-gardens, Káttavaráyan

was created as the *watchman* of the gardens. His adventures, including accounts of his amours with his Idaiya, Brahmin and Chetti mistresses, are given in a book called "The story of Kattavarayan."

*Karuppar* is supposed to be a form of Vishnu. He is of a dark-blue colour like Vishnu and is known under various names such as *Pathinettampadikkaruppar* (i.e., the God Karuppar of the 18 steps as at Alagarkoil near Madura). *Sangilikkaruppar* or Karuppar of the *chain*, has as his shrine what is known as a *kombalayam* or a seat on the bough of a tree, of which the different parts are connected by an iron chain.

In many temples a God called *Mun-adián* or *Mun-ódi* can be seen, who may be described as the herald of the God of the temple, the name meaning literally head-servant or fore-runner. He is represented with a crown on his head and with lion's teeth.

*Munis* are persons of abnormal powers acquired by *tapas* (austerities) who are supposed to be alive and to help such as seek their favour.

*Droupadi* and her husband *Dharmaputra* are often worshipped. A short account of Droupadi's festival and of தீபதிவல் or 'fire walking' performed in connection therewith may be given. It is a festival lasting 18 days on which the Mahábhárata is read, and such as have made a vow to walk through fire must abstain from women and lie on the bare ground. On the eighteenth day their heads are crowned with flowers and their bodies decked with saffron, and they come dancing to the fire, stir it to increase its activity, rub their foreheads with its ashes and walk either fast or slow according to their zeal over a very hot fire, extending to many feet in length. Some carry their children in their arms and others bear lances, sabres or standards. Droupadi married five brothers at the same time. Every year she left one and passed to the arms of another, but first took care to purify herself by fire. Each is the origin of this singular festival.

*Viran* or Madurai-Viran is said to have been a watchman in the service of Bomma Náyak. He fell in love with a princess of the Madura Náyak family and suffered for it. His spirit is worshipped as that of a hero. It is said that the godling once became subject to a magician and, when he was asked how he would prove his subjection to him, offered him the use of his legs. The magician declared thereupon that the godling would afterwards be called Nondi-Viran or the 'lame Viran.' Viran used to be specially invoked by Kallars before their cattle-lifting expeditions.

A woman who dies before her husband (*Sumangali*) is worshiped as *Pávadaikkári* (wearer of auspicious things, or one with the smell of flowers), one who dies unmarried is worshipped as Kanniamman, and one dying as a widow is occasionally worshipped as Kulamári.

*Mádan*, *Sámban*, *Pethannan*, *Sinnán*, *Malukkan*, and *Mutyáluravuttan* are spirits of persons who died violent or unnatural deaths.

Of these *Mádan* is supposed to have the face of a bull with the body of a man. He is said to be very fond of the burning ground, and is therefore occasionally called *Sudalai-Mádan*.

*Echil-pei*, which is supposed to be always hungry, *Kolli-vái: pisásu*, which is supposed to emit flames from its mouth and corresponds to Will of the Wisp, and *Móhini-pisásu*, which is supposed to be always seeking sexual connection, must be classed as evil spirits.

The Kanimárs are manifestations of Bhagavatí or Párvati, wife of Siva, and are enumerated as 1. Bráhmi or Sarasvati. 2. Máhésvari or Párvati. 3. Kaumári. 4. Vaishnavi or Lakshmi, 5. Várahi. 6. Máhéndri or Indraní. 7. Chámundi or Káli. They are also called in Sanskrit *Saptamatrika's*.

The other minor goddesses are:—

1. Ellammá or Ellai-ammá, the boundary goddess. [There are some that interpret Ellammá to mean *Sarvámhá* or the all-verful-goddess.] She is supposed by many to be no other

than Rénuka, and the first account that is given below\* of the origin of Máriamman is taken to apply to her. In her temples may be seen the figures of—1. Jamadagni, her husband, 2. Póttu Rájá (=bull-king), her herald, 3. Mallaka Chetti, a hero who helps her in battle, 4. Parasuráman, her son, 5. உயிர் தூண்டிற் காரர், "Angels of Life," who, having themselves died violent deaths, catch in a net those that die such deaths and bring them to Ellammá, who herself died such a death, 6. Mátangi, the Paraiya woman, to whose trunk Rénuká's head was joined, 7. Vignésvara and 8. Bhadra Káli.†

2. Sellammá or the "dear goddess."

3. Ekáttá, the sole mother.

4. Tántóni Ammal—the self-created goddess.

5. Ponni Ammal—the golden goddess.

6. *Angálamma* (live-coal goddess). *Angála Paramésvari* was created by Siva to help Virabhadra, leader of a host of demons, in preventing Daksha, son of Brahma, from performing a sacrifice, and slaying those who were assisting him in doing so, because Daksha had not invited Siva himself, and Siva's wife, Sati or Dákshayani, (Dakshá's own daughter) to take part in it. Another account of *Angála Ammal* is that she was the spirit of a Brahmin girl, given in marriage to a Chandála (outcaste) who had learnt the Vedas. The girl, when she learnt the truth, is said to have set fire to her house and so perished. Her husband is said to have become the chief of the devils and to be known as *Periyatambirán*. There is another account of *Periyatambirán*, according to which he was the deity whom Daksha had intended to enthrone in the place of Siva.

*Máriamman*.—There are two or three different accounts of *Máriamman*. According to one she was originally Rénuká, the

\* See under Mariamman.

† See Ziegenbalg's *Genealogy of the South Indian Gods*. உயிர் தூண்டிற் காரர் is referred to as தூண்டில் in the well-known Tamil book, "Nand: Charitram." The phrase "Angels of Life" is taken from Dr. Oppen's *Original Inhabitants of Bharatavarsha*.

wife of Jamadagni and mother of Parasuráma. Her husband, suspected her of having been unchaste in thought. He therefore ordered his son Parasurama to cut off her head. As a reward for his ready obedience he promised Parasurama a boon, and he thereupon asked for his mother to be restored to life. The father directed him to join her trunk and body together and repeat a prayer that he taught him. But Parasurama in his haste, by a very singular blunder, joined the head of his mother to the body of a Paraiya woman, called Mátangi, who had been executed for some crime. The result was the goddess *Máriamman*. The gods gave her the power of curing small-pox. She is represented with a winnow and a broom-stick, as befits a Paraiya. She is supposed to live in the neem or margosa tree, (*Azadirachta indica*) and a person suffering from small-pox is not allowed to scratch himself with anything except the twigs of this tree. According to another account, Sakti, the female divine essence, was sent by the Gods to crush the Asuras against whom they had been unable to prevail in battle. She marched against them, afflicted them with severe attacks of small-pox, and thus vanquished them. A third account is that she was a Brahmin girl, who unwittingly married the son of a Chandála (untouchable) woman of the name of *Pecchi*\*. Some call the seven Kannimárs her daughters, and பாவாடைராயன், a male deity represented as wearing a petticoat, her son. This god is said to be always in a state of excitement induced by hemp, drugs, wine, etc., and is therefore called *Ganjáveriyan*, *Sárayaveriyan*, etc.

*Máriamman* is extensively worshipped in Southern India. She is held in great veneration and is known as *Ammá* or *Tái* (=Mother) and *Periamma* (=the great Mother). As the goddess of small-pox, she is called *Márimuttu*, *Mahámáyi*, *Nallamuttu*, *Muttyálamma* and *Sitalammal*. Near her temple are found the figures of Virabhadra, Mátangi, Káttavaráyan mentioned above and சுக்குமந்தடிக்காரர், her door-keepers who carry big clubs.

\* This resembles the account that is given above of *Angálamman*.

Special seats of her worship in the Pudukkóttai State are seven in number, viz., Nárttámalai, Vaittikkóil, Konnaiyúr, Tennangudi, Tiruvappúr, Kannanúr and Ilaiyánúr to the east of Tirumayain. At the first three of these places, hook-swinging was practised till it was stopped by Sarkar order in 1876. Those who imagined that they had received a great benefit from the goddess or wished to obtain them, made a vow to suspend themselves in the air. A strong post about 10 feet high was fixed perpendicularly on the ground, on the top of which a long pole was fixed in such a manner that it would revolve as on a pivot. One end was weighted and to the other end a kind of chair was attached in which sat the devotee, who was hoisted up and swung by hook fastened in his flesh.

Among the forms of self-torture still practised to please this Goddess may be mentioned walking on wooden shoes with spikes sticking out of them; dragging a car four or five feet high by means of ropes attached to hooks fastened in the flesh; measuring the whole distance to a place of pilgrimage with the length of the body by lying down and rising alternately; rolling all the distance to a place of pilgrimage; holding an arm constantly erect until the blood ceases to circulate in it; wearing a 'mouth-lock,' which is an instrument usually made of silver and worn with a pin stuck through both the cheeks between the teeth so as to keep the mouth open; and passing a silver spike through the tongue.

**Vows.**—Vows are commonly made at the shrines of deities by all classes. The higher classes make offerings to celebrated shrines outside the State such as Tirupati, Vaithísvarankoil, Palni, Swámimalai and Tirucchendur and to several shrines of Venkatésa and Subrahmanya, within the State. A very common vow made by those desirous of offspring is that, if a child is born to them, they will shave its head for the first time at the shrine of the deity invoked or will hang a cradle there. The votive offerings may be ears of paddy jewels, gold or silver representations of the parts of the

human body supposed to have been cured by the deity, or simply milk or sugar carried in a *kávali*.

**Festivals:**—Numerous festivals are held all the year round. The New Year's day falls in April for Tamils, and in March or April for Mahráttas, Kanarese and Telugus. The *Dasara* or *Navaratri* is a ten days' festival devoted mainly to the Goddess Dévi.\* It is a season of great devotion combined with mirth and amusement. Worship is performed in every household; and the womenfolk and children amuse themselves with displays of dolls and statuettes in wood, marble, clay, soapstone, etc., and singing, and dancing *Kummis* before them. It is the principal festival in the State and is a great socio-religious function. Special worship is performed in all the temples and His Highness the Raja participates in the worship. Charity is doled out on a large scale. Brahmins are fed in thousands, and presented with rice doles and cash. Sanskrit and Tamil Scholars throng to the capital from different parts of South India and exhibit their erudition. On the last day, they are given *Sambhāvanas* or money presents varying according to the degree of their proficiency and scholarship. The ninth day is known as *Sarasvati puja* or *Áyuda puja*, a day devoted to worshipping the goddess of wisdom and all weapons, instruments, tools, etc. The scholar 'worships' his books, the carpenter his tools, the chauffeur his motor car and so on. On the tenth day, the festival closes with a State procession of His Highness to the shrine at Tirugokarnam. This is known as *Vijaya yātra* or the march to victory in commemoration of the victory of the Gods over the Asuras or the demons. A few arrows are shot off in the presence of the Raja and the deity to symbolise the victory. The *Dipāvali* (literally "the garland of lights")

\* During this festival, Devi, the Mother of the Universe, is worshipped in her triple aspect of Power (Durga), Wealth (Lakshmi) and Wisdom (Sarasvati). As Durga, she is worshipped in the first three days, as Lakshmi in the second three, and as Sarasvati in the last three. Special worship is performed to all the other Gods also during this festival.

festival in October—November is intended to commemorate the destruction of the monster *Narakásura* by Sri Krishna. The festival is observed by taking oil-baths early in the morning which is considered equivalent to bathing in the Ganges, putting on new clothes, and letting off crackers, and other fire-works. The *Sankarānti* or *Pongal* is another very popular festival celebrated in January on the day of the sun's transit to Capricorn. Rice newly harvested or supposed to be so is boiled in milk with dal (pulse) and sugar, and after it has been offered to the gods, especially to the Sun is partaken of. Next day cattle are decorated and their horns painted with green and red and they are fed with rice boiled with sugar and milk. On the third day the *Jallikattu* or *manjivirattu* described above is celebrated. Sri *Rāmanavami*, the birthday of Rama, which occurs in March—April, *Krishna jayanti* or *Janmāshtami* the birthday of Krishna in August, *Sivarātri* a day holy to Siva in February—March, and *Vináyaka chaturti* in August—September, holy to Vináyaka or Ganésa are other festivals popular among all the higher classes. The new-moon days, of which those in *Thai* (January—February), and *Ādi* (July—August) and (*Mahālaya amāvasya*) (August—September) are very important, and the days of the transit of the Sun from one Zodiacal sign to another are all sacred to the spirits of the departed, who are propitiated with offerings of sesamum and water. *Upākarmam* or *Āvaniavittam* is a festival peculiar to the “twice-born” castes. It is a survival of the old custom of commencing the study of the Védas at the beginning of the monsoon season. On this day Brahmins and other “twice-born” castes put on new ceremonial threads (*Yagnopavita*) and go through the formality of beginning to read the Védas. The *padinettām perukku* or eighteenth day of *Ādi* is an important festival observed by all classes. It takes place when the rivers of the Cauvery delta are in flood. The eleventh days of the lunar fortnights (*ekādasi*) and the full-moon days are

days of fasting. The days of the asterism *Krittika* are holy to Subrahmanya. *Kāmanpandigai* festival of the Hindu God of love, Kāma, occurring in March, is observed generally by the lower classes to commemorate the destruction of Kāma by Siva. In the months of *Māsi* (February—March) and *Arpisi* (October—November) an early morning bath in a tank or river is considered to have special religious efficacy. *Vaikāsi* (May—June) is specially meritorious for charity. The dark fortnight in September (*Mahālyapaksha*) is sacred to the souls of the dead. *Mārgali* (December—January) is a month given to the worship of the gods which is conducted just before sunrise throughout the month.

ii. **Muhammadanism.**—The Muhammadans in the State observe the five principal acts enjoined in the *Qurān*. They are (1) the recital of *Kalima* or short confession of faith—‘There is no deity but God and Muhammad is the apostle of God.’ (2) *Sulat*, the five prescribed daily periods of prayer and preparatory purification, (3) *Roza*, the thirty days’ fast of Ramzan, (4) *Zakat*, legal alms, and (5) *Hajj* or the pilgrimage to Mecca. There are secondary duties such as obedience to parents, circumcision and the shaving of the head and body.

The following are some of the principal Muhammadan feasts and fasts:—

(1) *Muharram*, days of mourning in the first month of the Muhammadan year, in commemoration of the martyrdom of Ali and his two sons.

(2) *Bara-Wafat*—the anniversary of the day of the death (or, according to some, the birth) of the Prophet. At this festival sandal is placed in a vessel, carried in procession and distributed.

(3) *Ramzan* (with *Id-ul-fitr*). Fasting in Ramzan month is one of the essentials of Muhammadan religion. All pious Mussalmans abstain from food and drink from sunrise to sunset in that month. The Prophet used to say of this month that “in it the gates of paradise are open, the gates of hell are shut and the devils are chained by the leg.” On the day of *Id-ul-fitr*,

the feast of the breaking of the fast, which is the first day of the month following the *Ramzan*, the people put on their best clothes, distribute alms and give themselves up to revelry.

(4) *Baqr-id* or the feast of sacrifice. Every Mussalman should keep the feast by sacrificing an animal and preparing his meal from its flesh. The *Baqr-id* and the *Id-ul-fitr* are the two great feasts of Islam.

The title of *Pir* is given to Muhammadan preceptors, and, after death, the *Pirs* are venerated as *Walis*, *Owls* or Saints. The sepulchres of *Walis* are called *Dargahs* or shrines, where flowers, sweetmeats and fruits are offered. There are in the Pudukkottai State dargahs of *Walis* at Káttubávápalivásal, Andakkulam, Vayalogam and elsewhere. (See the Gazetteer below).

The Mussalmans in the State belong to one or other of the classes or tribes, known as—*Pathan*, *Sayyed*, *Sheik* and *Labbai*. *Pathans* who claim Afghan descent number nearly 1,000. *Sayyeds* who are reputed to be descended from the Prophet and hence held in high esteem, number 770 and the *Sheiks* about 2,000. *Labbais* are the offspring of Arab traders and Hindu women. They speak Tamil and are generally known as *Marakkáyars* or *Rávuṭṭars*; the latter, meaning 'horse-soldiers,' is the more familiar name. They number about 74 per cent of the total Mussalman population and are enterprising traders.

The relations between Muhammadans and Hindus are normally friendly.

### iii. Christianity.—

CHRISTIAN MISSIONS:—(a) *Roman Catholic*. The earliest references to the Christian Missions are contained in the letters of the Madura Mission which, besides furnishing an account of Jesuit activities in Southern India, supply ample information about the social and political conditions of the times to which they refer. The first allusions to Pudukkóttai territory relate to a Kallar chief Meycondan of Nandavanampatti on the border of the State. The letters refer to him as a likely convert

Trichinopoly, and Malaiyadipatti. He is reputed to have built several chattrams and a car at Ávúr.

Meanwhile the Jesuits were reorganised in 1814, and Fr. Granier of the order settled in 1838 at Trichinopoly. The possession of Ávúr which was so near to it became once again a matter of dispute, this time between the Jesuit Mission and the Goanese. In 1846 the differences between them became so acute that each side attempted to oust the other by resort to violence; and the then Raja and Political Agent of the State had to interfere. The situation became still more unpleasant in 1857 when the jurisdiction of the Goanese Mission over these areas was distinctly recognised by the Pope. The differences were however composed and the two missions afterwards worked for more than seventy years without any friction.

In 1930 Álaṅgudi and Tirunayam taluks were taken away from the jurisdiction of the Jesuit Fathers of the Trichinopoly Diocese and handed over to the Portuguese (Padruado) Diocese of San Thome de Mailapore, Madras. In these two taluks there are four parishes namely, Pudukkóttai, Sammanasúr, Kóttaikaḍu and Venkatakulam with about 11,000 Catholics.

In the Kolattúr taluk, Trichinopoly Diocese has two parishes, namely, Nanjúr and Ávúr with 10,000 Catholics.

(b) *Protestant*.—According to a letter dated 1849 of Mr. Parker, Political Agent, the Protestant Missionary congregations at Pudukkóttai were originally established by Rev. John Casper Kohlkoﬀ of the Church of England 'between whose father and himself, 110 years of Missionary labour were divided.' In the thirties of the last century the work was in the hands of a society of European and Indian workers at Madras called the Indian Mission Society. One of their catechists—'an energetic man' established a footing in the town and opened some schools in the villages. At the instance of Mr. Blackburne, the Political Agent, the Mission also received grants of land from the State.

In 1845 the Indian Mission Society made over its work to the American Mission at Madura, and for the next three years catechists and teachers of the latter body were sent to Pudukkóttai to carry on the work. By the end of this period the number of Protestants and Protestant Mission schools in the State had increased to 190 and 13 respectively.

But owing to paucity of hands, the American Mission was unable after a time to spare the men required for the work, and therefore in 1848 it made an offer of the Pudukkóttai territory to the Leipzig Lutheran Mission which this body willingly accepted. "The Mission was formerly an enterprise of several Lutheran Churches in Germany, France, Russia and Scandinavia. One of the stations where the Swedes worked and took special interest in was Pudukkóttai. In 1901, when the Church of Sweden Mission and the Leipzig Mission divided the working-field between them, Pudukkóttai was given to the Swedes."

Until 1855 no Missionary was stationed in Pudukkóttai, and the work that was carried on was at best spasmodic, desultory and irresponsible. The first Missionary to live here was the Rev. K. A. Ouchterlony "a young Swede, born in Stockholm though of Scottish parentage." With a true Missionary spirit he devoted himself to his new field, and with admirable faithfulness and a cheerful spirit he carried on his hard and often thankless work. In his humble dwelling Ouchterlony not seldom received visits of the then Raja who took such a liking to him that he jokingly used to call him his Court Chaplain, often invited him to his palace, and gave him a harmonium for use at the divine services.

The history of the subsequent years may be briefly chronicled. A Mission Bungalow was built in 1870. A Primary school which the Mission maintained in the town was raised to the status of a Lower Secondary School in 1884 and to that of a High School in 1906. It has since been provided with convenient and commodious quarters for the boarders.

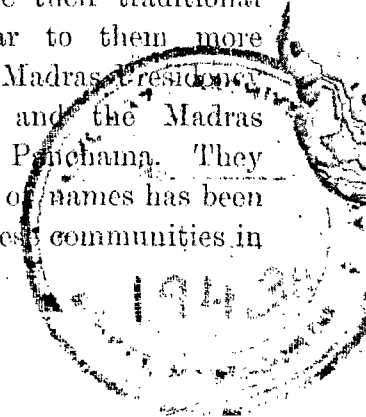
For a long time the Mission held divine service in the school building and in a small chapel within the Mission compound. By 1905 the chapel had become too small for the town congregation, and a Church to hold about 400 persons was built in that year, with funds raised partly in Sweden and partly from local contributions. It was consecrated "on the 6th of November 1906, the year as well as the date being of significance in the history of the Protestant Church, because in that year two centuries had elapsed since the first Protestant Missionaries had landed in India, and on the 6th of November 1632 the Swedish hero King Gustavus Adolphus fell on the battlefield of Lutzen in defence of Protestant faith and rights."

In 1921 the Tamil Evangelical Lutheran Church was founded, and it was entrusted to the care of the established congregations of the Swedish Missions along with the elementary schools. Pudukkóttai and Tirupattūr with surrounding villages form one pastorate under an Indian pastor. Next to Pudukkóttai town, Kóttakarampatti has the largest congregation in the State, with its own church. The Pudukkóttai Village Mission was started in the year 1926 by Rev. and Mrs. P. F. Summerson, with Pudukkóttai town as its centre. It is chiefly doing evangelistic work.

*Other sects* :—There are now a few families in the State belonging to the Malabar Syrian church. They are mostly officers in State Service and their families.

#### SECTION IV.—CASTES AND TRIBES.

**General tendencies.**—Many of the so-called lower communities now show a tendency to exchange their traditional caste names for designations that appear to them more respectable. A section of the Pariahs in the Madras Presidency "offered their thanks to Lord Pentland and the Madras Government for giving them the name of Panchama. They would not welcome it now. The question of names has been much in the attention of the leaders of these communities in



the past ten years and to this is attributed the popularity of the term Ádi-Drávida."\* A still more recent title is Harijan. The educated among the Ádi-Drávidas often append the title *Pillai* to their names; but the latest style is to call oneself, for example, C. Swami Esq. *Idaiyans* (shepherds) and a few other classes wish to be called *Yádavás*; *Patnúlís* (silk-weavers), *Souráshtra Bráhmíns*; *Kammálans* (artizans), *Visvakarmá Bráhmíns* after Visvakarma, the divine artizan (lit. "world-maker;") and so on. If the census figures given against the different castes and classes in the subsequent paragraphs show in many cases marked variations compared with the previous censuses, the differences may be explained by this tendency to adopt more stylish titles which was very marked during the last two census periods.

However, the caste system which has survived for ages shows no very marked signs of decay. "Caste prejudice is not a monopoly of Brahmins. This has been frequently said but will bear repetition. It is in fact more prominent at the lowest level of the community than at the highest. The washermen who attend to the needs of Ádi-Drávidas must marry amongst themselves; the ordinary Ádi-Drávidas will not provide a bride or even eat at the wedding feast. Ádi-Drávidas will not drink from a chuckler's well and so on. Pallans and Paraiyans do not live in the same village....."†

**The Brahmins.**—† (11,769) The Brahmins are divided into Smártás (Advaitins), Vaishṇavás and Mádhvás, according as they follow one or other of the three great original expounders of the Védánta, Sri Saṅkara, Sri Rámánuja and Sri Mádhyva. They are divided into exogamous septs or *Gótrás* tracing descent from one or other of the *Rishis* and also into *Sútrás* or sects

\* Mr. M. W. M. Yeatts, I. C. S., Superintendent of the Madras Census Operations.

† Mr. M. W. M. Yeatts I. C. S. in the Madras Census Report, 1931.

‡ Figures in brackets after the name of a caste or tribe indicate the number of persons belonging to it according to the census of 1931.

according to the Brahminical canons to which they own allegiance. Some of these Sútrás are—

(1) Ásvaláyana Sútra of the Rig-Véda.

(2) A. Ápastamba Sútra, Baúdháyana Sútra, Bháradvāja Sútra, Satyásháda Hiranyakéśa Sútra and Vaikhánasa Sútra of the Krishṇa (black) Yajur Véda,

B. Katyáyana Sútra of the Śvéta (white) Yajur Véda, and the

(3) Dráhyáyana Sútra of the Sáma Véda.

In the State, Ásvaláyanas, Ápastambas, and Baúdháyanas are commonly met with. The followers of the Vaikhánasa Sútra are mostly priests in Vishṇu temples.

The subdivisions, which we shall find most convenient to follow, in dealing with the Brahmin community, are the five divisions known as the Pancha Drávidas, viz.,

1. The Drávidas or Tamil Brahmins.
2. The Ándhras or Telugu Brahmins.
3. The Karnátakas or Canarese Brahmins.
4. The Maháráshtras or Désasthas or Maráthi Brahmins.
- and 5. The Gúrjaras or Gujarati Brahmins of which class there seems to be no family in the State.

The Tamil Brahmins of the State are again subdivided into (1) Vaḍamás. (2) Brahacharanams. (3) Ashtasahasrams. (4) Váttimás. (5) Vaishṇavás. (6) Gurukkals or the priests of the Siva temples. (7) Naimbiárs or Bhattars, who are Vaishṇavite priests, and (8) Prathamasaḅhins. Among these subdivisions, there is no intermarriage.

Váttimás are the *Mádhyamás* or men of the middle-country that is Central Provinces. The Vaḍamás, or "Northerners," are divided into Cholá Vaḍamás or Vaḍamás that came to the Cholá country first, and northern Vaḍamás who came later. The subdivisions of the Brahacharanams, the Ashtasahasrams and the Váttimás are generally named after the villages in which they originally settled.

*Prathamásákhins* are found in the village of Talinji in Kolattúr Taluk. They form an exclusive community, called "Midday Paraiyás," because a Rishi is said to have laid a curse upon them in consequence of which they became Paraiyás for a period at noon daily.

The Vaishnavás worship Vishnu and his consort Lakshmi or Sri as the supreme deities. They wear on their fore-heads a caste-mark of two white lines symbolic of the holy feet of Vishnu with a red or yellow line representing Lakshmi between them. The *Vadakalais* draw the white lines more or less in the shape of a U and the *Tenkalais* in the shape of a Y. On the occasion of *Samásrayana*, the ceremony of initiation, they bear on their shoulders the impress of the discus and the conch, the emblems of Vishnu. There are two major sects among them,—the *Vadakalai* and the *Tenkalai*. The *Tenkalais* chant Tamil verses in their rituals in place of Sanskrit mantras and prayers. Both recite the *Divya Prabandha* consisting of the hymns in praise of the Lord, sung by the Álvárs or the Vaishnavite Saints. Both believe in the doctrine of *Saranágati*, or surrender to the will and grace of God, as the sure means of attaining Salvation or *móksham*. The *Vadakalais* hold that to achieve *Saranágati* the first step is to submit to the guidance of a spiritual preceptor (ácharya). They attribute equal rank and power to Vishnu and Lakshmi, and regard the latter as the interceder with the Lord on behalf of suffering souls. But the *Tenkalais* rank her second to Náráyana or Vishnu, though above all the other Souls. They also say that God in His infinite mercy will Himself take care of erring Souls even without their asking; that is, they preach the doctrine of absolute dependence on God and Salvation by faith and not by works.

(ii) *Telugu Brahmins*. The Telugu Brahmins in the State are divided into

- (1) the *Niyógis* or *Lauktikas*, who came from the North as officers, civil or military,

- (2) the *Vaidiks*, of whom many seem to have come south originally as Purohits and some as officers. They are subdivided into Murikinádu or Mulakanádu Brahmins, Vélinádu Brahmins, Végi or Vénginádu Brahmins, Karnakamma Brahmins, Telingana Brahmins, etc.

and (3) the *Kónasima* or *Kónasamudram* Drávidás, etc. These are Tamil Brahmins who settled in the Telugu country, adopted the Telugu language and customs and then returned to the Tamil land.

(iii) and (iv) The Canarese and Mahrátta Brahmins are divided into Smártás and Mádhvás. The Mádhvás stamp their body and forehead every day with the emblems of Vishnu.

The principal ceremonies or *samskárás* prescribed for the Brahmins are *námakaranam* (giving a child its name), *annaprásanam* (giving it rice for the first time), *choulam* (shaving its head), *upanayanam* (investing it with the sacred thread), and *Viváham* (the wedding ceremony). Formerly the parents of the bridegroom had to pay a large sum to the parents of the bride as is even now the case among Gurukkals and Bhattars, but among other classes a very high price (in some cases amounting to thousands of Rupees) has to be paid for the bridegroom.

In olden times the proper functions of the Brahmins were—learning the Védas, teaching the Védás, performing sacrifices for themselves and others, receiving gifts, and bestowing such gifts on others; and in consideration of their performing these, they were given grants of land free of tax. Nowadays they have largely monopolised the superior and clerical grades of Government service to an extent that has compelled Government to take special measures in order to secure a substantial leaven of other communities and castes. In addition they predominate in the learned professions, but have also taken to trade, and business of all kinds.

**The Valaiyans.**—(27,916) These form an important section of the population of the State. They are supposed to have been so called from *valai*, a net, because they originally netted game in the jungles. Their usual titles are Ambalakáran, Védan and Sérvai. They are divided into several endogamous sections, of which the chief are the Valuvádis, Śaraku Valaiyans and Vēda Valaiyans.

Among the Valaiyans, adult marriage is the rule, and the consent of the maternal uncle is necessary. The *táli* is tied by the sister of the bridegroom. Divorce is permitted on payment of the price paid for the bride; the male children go with the husband while the divorced wife keeps the girls. Widows may remarry. They cremate their dead except those who have died of small-pox; these they bury. A household is regarded as ceremonially polluted for 16 days after death has occurred in it, and for 5 days after any girl in it has attained puberty. The usual occupations are snaring birds, fishing, agricultural and manual labour, and collecting honey and medicinal herbs. They will eat almost anything, including rice found in ant-holes, rats, cats, dogs and squirrels.

**The Valuvadis.**—(3,304) Valuvadi is a name assumed by prosperous Valaiyans as a mark of superior social status. Valuvadis are found at Peruṅgaḷūr, Vadakaḍu and Māṅgaḍu. They worship the god of the Śástankóvil near Tirumayam and Subramanyaswami of Nagaram in the Tanjore district.

The following note is taken from Thurston's *Castes and Tribes of Southern India*, (1909) "*Valuvadi*, was originally a term of respect, appended to the name of the Nagaram Zamindar. Some Valayans in prosperous circumstances and others who became relatives of the Nagaram Zamindar by marriage have changed their caste name Valayan into *Valuvadi*. Thirty years ago there is said to have been no Valuvadi caste."

**The Kallars.**—(22,124) Like the Valaiyans, these form, a large proportion of the population of the State. They are divided into a number of endogamous sections called Nádu

such as Ambu Nádu or Anbil Nádu, to which the family of His Highness the Rája belongs, Álaṅguḍi Nádu, Unjanai Nádu, Sóttruppálai Nádu, Sengáttu Nádu—East and West, Kulamaṅgilya Nádu, Páppá Nádu, Pálaiyúr Nádu, Valla Nádu, Vadamalai Nádu, Tenmalai Nádu, Kásá Nádu, Visaṅgi Nádu, Kīl Senkili Nádu, Mēl Senkili Nádu, Perumánádu, Koḷattúr Nádu, Vīrakkuḍi Nádu, and others numbering in all about fifty. In the eighteenth century the Kaḷḷars were notorious robbers. But agriculture has converted most of the Kaḷḷars in the State into peaceful citizens. The Ambu Náttu Kaḷḷars follow Brahmin usages and do not permit the re-marriage of widows or divorced women. Among other sections of the Kaḷḷars divorced women and widows are permitted to remarry. Caste problems and disputes are settled by the elders of the nádu, but sometimes the Periatanakáran or "the chief man" is the arbitrator. The dead are generally burnt and pollution is observed for sixteen days after a death. Each Nádu has a separate temple, where the Nádu assembly meets. Every Nádu has several exogamous divisions—*malaiyádu*. Some of the Nádu and their exogamous divisions will now be mentioned.

(a) Ambu Nádu has over twenty-five exogamous septs, such as Tondaiman to which His Highness the Rája belongs, Malavaráyan, Pallavaráyan, Rāṅgiyan, Mannavélan, Rájāli, Tennathiraiyan, Kāliṅgaráyan, Kaliyarán, Mākāli, Valaṅkondán, Panrikonrán, Kāduvetti, Thóppai, Sammatti, Adaiyavaḷaṅján, etc., found in the villages of Vadatheru, Tentheru, Karambakkuḍi, Piláviduthi, Vadakkalūr, Panthuvakóttai, Nāraṅgiyanpatti, etc. These follow, as has been already said, the customs and manners of the Brahmins. The following are said to be the exclusive privileges of Ambunáttu Kaḷḷa women:—(1) *முது பல்லை*—(a covered palanquin.) (2) *நீலை முகூட்டு*—(the practice of women covering the body from head to foot when they go out.) (3) *கூடுகூடு*—(a kind of ear-rings.) (4) *கருங்குழை*—(a necklace of black glass-beads.) (5) *பச்சை* and *கருவகோளி*—(green and black glass bangles) and, (6) *பச்சைக்கை*—(bodices).



(m) *Tenmalai Nádu* is just to the south of Vaḍamalai Nádu mentioned above. These two Nádu are mentioned as இருமலைநாடு (*Irumalainádu*) in inscriptions in the adjacent temple at Kunnándárkóvil. The caste pancháyats meet at Mukkáni Amman Kóvil in Andakkulam. The joint meetings of the pancháyats of Vaḍamalai and Tenmalai Nádu are held in Kunnándárkóvil temple.

The boundaries of the Tenmalai Nádu are given in the following stanza:—

வற்றன கோட்டை வளருங் குழந்தைநகர்  
உற்றதொருபிரம்பூர் கின்னனார் கூகாரம்  
பொன்மலைகொள் வீசுந்தம் பொற்பாதந் தான்போற்றுந்  
தென்மலைநாட் டெல்லை வகை.\*

(n) *Valla Nádu* Kaḷḷars are divided into thirty-six divisions, such as Tambirán, Araiyan, Sámanthán, Soriyan, Munaithirayan, Máḍusutti, Akattiyan, Mailan, etc., living in twenty villages to the east of Pudukkóttai, such as Tiruvidaiyáppatti, Kothakóttai, Mañiambalam, Vándrákóttai, Vallattirákóttai, Máñjanviduthi, etc. Their caste pancháyats are generally held in the Siva temple at Tiruvarankulam which is the temple of their Nádu, and they all subscribe for and bear the expenses of one ucchi-sandhi or mid-day service in the temple every day.

(o) *Várappúr Nádu* consists of about twenty-two divisions, such as Karuppatti, Kónéri, Mákáli, Tonḍaimánpiriyan, Nettiayan, Séthurán, Kidáthiriyán, Tambirán, etc. These inhabit seven sub-nádu, namely, (1) Váravala-nádu comprising Várappúr and Thekkuthernu, (2) Thuraippála-nádu comprising Tonḍaimanúrani, Athiránviduthi, etc., (3) Pérámbúr-nádu which consists of the village of Vellálaviduthi, (4) Panrisúl-nádu containing the villages of Valáṅkondánpatti, Sevalpatti, Ápp-

\* The Stanza is rather doggerel than verse. Its meaning is—Vatṭunákóttai, prosperous Kulandainagar, Pirambúr, Killanúr, and Kúhúr are the boundaries of Tenmalai Nádu whose people worship the golden feet of Lord who holds mount Meru as his bow.

patti, etc., (5) Mélamadaikkóttai nádu comprising the villages of Idaiyapatti, Krishnanpatti, Karuppattividuthi, (6) Panna-panrikuthi-nádu comprising Maḷaiyúr, Ponnarviduthi, Ariyáṇḍi and Títthánpatti villages, and (7) Nával-nádu comprising Sembattividuthi, Sévakanpatti, Uñjinaipatti, Mélaviduthi, Páppánviduthi, Páchikkóttai and Máukóttai.

(p) *Virakkudi Nádu* comprises twenty-two subdivisions such as Káduvetti, Sempuli, Viramádan, Kurippan, Mátharán, Malavan, Vándaiyán, Kaniyán, etc., inhabiting about twelve villages including Vándánviduthi, Kilatteru, Tirunapañchéri and Ponnarviduthi to the east of Várappúr Nádu and north of Tánava Nádu,

(q) *Tánava Nádu*. This consists of Vadakádu village.

(r) and (s) *Siruvayal Nádu*, North and South. The caste pancháyats of north Siruvayal Nádu meet in the Kíranúr temple and those of south Siruvayal Nádu in Nárttámalai Siva temple. It appears that the joint meetings of Senkili Nádu, east and west, Malai Nádu, north and south, and Vaḍa Siruvayal Nádu used to be held at the Visalúr temple.

(t) *Visangi Nádu*. This clan resides in the northern portion of the Kolattúr Taluk and were once notorious for dexterity in cattle-lifting and for the commission of grave crimes, especially, robbery and dacoity. These Kaḷḷars live in thirty-six villages and claim as their subdivisions, Tenmalainádu, Vaḍamalainádu, Pirambunádu, Erinaṅgalanádu, Tirunaṅgalanádu, Siruvayalnádu, Kásanádu, Korkainádu, Paingánádu, Orattanádu, Kónúrnádu, Senkilinádu (east and west), Nirvaḷanádu, Tennamanádu, Irumbánádu, Vallambanádu, Kavinádu and Kulamaṅgilyanádu.

They are divided into 156 subdivisions such as Panchavarán, Pandráin, Tettuvándan, Solatiraiyan, Ílatiraiyan, Munaitiraiyan, Vallatiraiyan, Tennatiraiyan, Tenkondán, Kádavarán, etc.

The depredations of this section of Kaḷḷars were not confined to the State or the adjoining British districts, but extended to the remotest parts of the Presidency. They gave great trouble

to the Tanjore Rájás, and, until recently, Kallars of this section were employed as watchmen in the Tanjore district. A house where a watchman of this section was employed was supposed to be immune from their depredations. Generally speaking, however, the class have now abandoned a life of crime for the less precarious occupation of agriculture, particularly the cultivation of ground-nut.

(u) *Kari Nádu* is the tract of land about Tiruvappúr.

(v) *Tirumangala Nádu*.—See under Visangi Nádu above.

It comprises the Kallars of Seṅgalúr, Rájápati and Lakkaḍipatti villages in Kolattúr Taluk.

(w) *Perungalúr Nádu* consists of the Kallars living in the tract bounded by the Várappúr Nádu on the East, Kulamaṅgilya Nádu on the West, Kíl Súrya Nádu containing Vadaválam on the South and Panaṅgaḍu Nádu on the North. The Kallars of this Nádu are divided into fifteen exogamous sépts, such as Séplán, Sénthirán, Pambáli, etc.

There are still other Nádu's such as Vágaivásal Nádu, Paravákkóttai Nádu, Puṇyarási Nádu, Mannárguḍi Nádu, Maḍukkúr Nádu, Siṅgavala Nádu, Kuḷaváippatti Nádu, Áḷudaiyárkóvil Nádu, Mínpusal Nádu, Kuppaittévan Nádu, Kuruvikkarambai Nádu, Vaḷuvádi Nádu, and Tuḷasi Nádu.

**The Paraiyans.**—(15,633) The Paraiyans have been associated with the land for an exceedingly long time. They live apart from other castes at a distance from the village proper in quarters called Paraičhéri. They are said to be expert in determining disputed field-boundaries.\* The

\* Those who do so are known as எல்லைப்போர் or "boundary runners." Wearing as garlands round their necks the flesh of sacrificed sheep and beating drums tied round their waists, they run on and on till they come back to the point from which they started. "They are very expert in this matter, unerringly pointing out where boundaries should run, even when the Government demarcation stones are completely overgrown by prickly-pear, or have been removed.....the only satisfactory explanation of this is that the connection of the Paraiyans with the soil is of much longer standing than that of other castes"—(Thurston).

knowledge of medicine and astrology possessed by Paraiya priests or soothsayers, known as *Valluvars*\* shows that they were once a cultured race. Many of them wear the sacred thread during marriages and funerals and at the festivals of village deities. They trace their descent from Brahmin priests. They have eighteen endogamous subdivisions, among which are Sólíya Paraiyans, Áyá Paraiyans, Ammá Paraiyans, Pásikatti Paraiyans and Kudiraikkára Paraiyans (sycees). They are not permitted to enter Brahmin villages nor do they allow Brahmins to enter their villages. If a Brahmin by mistake enters a Paraiya street, Paraiya women follow him with mud-pots, which they break behind him, and then embracing him sing dirges until he leaves the street. The Paraiyas are employed as agricultural labourers, ordinary coolies, Talaiyáris or watchmen, Vettiyaṅs or grave-diggers and Tóttis or scavengers.

The Sólíya Paraiyans claim to be superior to the other Paraiyans, calling themselves the descendants of Tiruvaḷḷuvar, the author of the *Kurral*. They are said to have come from the North. They wear the sacred thread during marriages and funerals, practise infant marriage, prohibit widow marriage and enforce strict chastity among their women. Women excommunicated from this section are admitted into some other sections of the Paraiyas. Pollution after the attainment of puberty lasts for 30 days. The dead

\* These wear rosaries of Rudráksham (*Elaeocarpus ganitrus*) beads and carry a collection of almanacs and manuscript books on astrology. They are soothsayers and prepare horoscopes and write charms for people who are ill. They do not mix with the other Paraiyans, and refuse to admit them into their houses. As evidence of the ancient status of the Paraiyas, we may mention that at Melkote, an important Vaishnava shrine, the Paraiyas have the right of entering the temple on three days in the year specially set apart for them, and that in the Tiruvarankulam Brahmótsavam, it is a Paraiya, described in an ancient copperplate as "யாழைமேயறி மாலைக்குடி....தேவசைப் உடைத்து வடந்தொழும் பழையன்", that has to break a cocoanut before the car starts on the car-festival day.

are mostly burnt. Caste disputes are settled by the Periatthanakáran (the village headman) and the elders of the village, from whose decisions appeals lie to the Pattaraikáran, a higher officer, who is required to be of the Right-hand section\* and then to the Désam Chetti\*\* of Vaittúr, whose decision is final. The Sóliya Paraiyans are said to be divided into seven Nádu, viz.:

1. Ponnamarávti Nádu;
2. Maruṅgai Nádu (Maruṅgápur);
3. Talaikká Nádu (Konnaiyúr);
4. Kulisai Nádu (Iluppúr);
5. Máva Nádu (Manappárai);
6. Kónádu (Tanjore);
- and 7. Thuruva Nádu (Trichinopoly).

The Ammaṅṅappariyans are so called because the children of a woman of this division called her அம்மா (Amma) and not Áyá as Áyappariya children do, nor அத்தா (Áttá) as other Paraiya children do. The rules regulating their conduct are similar to those of Sóliya Paraiyans.

There is a section of Paraiyans, known as Kúttáḍip-paraiyans or dancing Paraiyá. These have Nádu assigned to them and the dancers of each tract confine themselves to it.

Many of the Paraiyans of the State follow the example of Tiruvaḷḷuvar, from whom they claim descent, and weave (coarse) cloths called பழையன் துண்டு.

\* In olden times there were two grand divisions of the people, known as Valangai or the Right-hand section and the Idangai or the Left-hand section. To the Right-hand section belonged

- |                  |                   |
|------------------|-------------------|
| 1. The Idaiyars. | 4. The Washermen. |
| 2. The Kómattis. | 5. The Barbers.   |
| 3. The Oddars.   | 6. The Paraiyans. |

and many other castes. The Pattaraikáran and the Désam Chetti mentioned in the text were men of the Right-hand division. It appears that these Right-hand castes collected subscriptions and conducted the mandagappadis on the seventh day of the festivals of the temple at Virálimalai in the months of *Tai* (January—February) and *Váikusi* (May—June). (*Mandagappadi* is a ceremony in which the deity is taken in procession and installed temporarily in one or more mantapams or pavillions where it is worshipped, garlanded and so on.)

\*\* The word *Desam* means country. He is usually the headman who may be said in a manner to correspond to an unofficial Justice of the Peace.

**The Pallans**—(24,921) These are employed almost exclusively in the cultivation of paddy, and their women are experts in planting and weeding. They are divided into several endogamous sections, bearing names such as Ayyáppallans, Ammaṅṅappallans, Appáppallans, Uḷavuppallans, Kadakappallans, Káládis, Dévéndra Pallans, etc. [See the *Gazetteer* Chapter below under 'Mélattaniyam.] Appáppallans and Ayyáppallans are so called, because the children in these sections call their fathers Appá and Ayyá respectively. A similar reason is given for the name Ammaṅṅappallan. Kadakappallans derive their name from the baskets (*kadakams*) that they make. Uḷavuppallans are ploughmen. Káládis are wanderers or "people who leg it." Many of them are supposed to be professional thieves. The Pallans live, like the Paraiyans, in streets of their own, and a perpetual conflict about caste privileges goes on between these two castes, who belong respectively to the Left-hand and the Right-hand section. The whole of the State is divided into seven Pallan-subdivisions or nádu, viz.—

1. Vadasiruvásal Nádu (In and about Kíranúr).
2. Tensiruvásal Nádu (To the south of Nádu No. 1).
3. Kulanaṅgilya Nádu (In and about Sembáttúr).
4. Kavinádu (In and about Tirugókarnam).
5. Paraṅgi Nádu (In and about Virálimalai).
6. Kónádu (Other parts to the north of the Veḷḷár).
7. Kánádu (Parts to the south of the Veḷḷár).

To arbitrate in disputes there is an Úrkudumban ('the village family man'), appeals against whose decisions are taken (first) to Náttukkudumban, the corresponding authority for the nádu, and, if necessary afterwards, to Éḷunáttukkudumban, the head man of all the seven nádu together, at Pudukkóttai. The Sóliyappallans are a subdivision of the Dévéndra section of the Pallans and are so called, because they came from the Chóla country. They are regarded by the other Pallans as inferiors.

**The Idaiyars.**—(25,251). This name is derived from *idai* or இடை—middle, it being supposed that the Idaiyars originally lived with their cattle in the pasture lands between the hilly regions and the arable tracts. It appears from ancient Tamil classics that they came to Southern India long ago. They are mostly worshippers of Sri Krishna and are thus Vaishnavites. According to the local legend there were originally about a thousand families of Saiva Idaiyars in and about Tiruvarangulam in Vallanādu, who claimed descent from Tirumudikanda Tirumalaikkón or 'the shepherd named Tirumalai, that discovered the god' that lay concealed at the place Tiruvarangulam. [See the Gazetteer under Tiruvarangulam]. The Vallanādu Idaiyars are said to be their descendants. These shepherds conduct the morning service at the Siva temple at Tiruvarangulam and celebrate a *mandagappadi* on a day of the grand annual festival there. The Idaiyars, to some extent, imitate Brahmin manners and customs. Thus during marriages they wear the sacred thread and light the holy fire. They burn the dead and widows are not permitted to remarry in most of the subdivisions. Vallanādu Idaiyars are the Idaiyars who live in and about Tiruvarangulam. These are divided into a number of *Karais*, the members of a *Karai* have the same tutelary deity. They are said to be divided into eighteen sections, such as Káraikkál, Vallanādu, Kaḷḷar, Kokkikaṭṭi, Sólíya, Peṇḍukkuméikki and Aruttukkaṭṭi.

Kaḷḷar Idaiyars are said to be so called from the founder of the division being supposed not to have been born in the usual way, but to have emerged from under the ribs of his mother. The widows of the Aruttukkaṭṭi Idaiyar caste may marry again. In the Peṇḍukkuméikki caste, women inherit the property, and their husbands go and live in the house of their mothers-in-law. The Kokkikaṭṭi Idaiyars tie a *kokki* or hook to the marriage tali. There are exogamous sections within most of these divisions, named after places such as Karaubak-kudi, Velliakkónpatti, Mohúr in the Pattukkóttai Taluk, etc.

**The Vellalars.**—(16,761). The name is said to be derived from *vellam*—flood, the Vellalars being literally "lords of the flood." "Vellalars" therefore means men skilled in controlling water for irrigation. They are generally admitted to occupy the highest rank among the Non-Bráhmín castes. They are divided, it is said, into eighteen\* endogamous sections, such as Tonḍaimaṇḍalam Vellalars, Káráṭṭa Vellalars, Sólíya Vellalars, Kóngu Vellalars and Paṇḍárams. Tonḍaimaṇḍalam Vellalars, of whom there are many in the Puḍukkóttai town, are vegetarians. Káráḷa Vellalars and Sólíya Vellalars eat flesh. Káráḷa Vellalars are divided into Kánáṭṭárs and Konáṭṭárs each of which divisions has many exogamous subdivisions. Among Káráḷa and Sólíya Vellalars re-marriage is not permitted and the dead are usually burnt.

There is another class of Káráḷa Vellalars, called Siruvásalnáṭṭu Vellalars, living at Marudúr, Álaṅguḍippatti, Kaṇṇaṅguḍi, Maṅgáttévanpatti, Naiyár, Veḷḷanúr and Kóvil Vírakkuḍi. They have no connection with the Kánaḍu Vellalars or the Kónáḍu Vellalars.

Mr. Hemingway states that Sólíya Vellalars are found all over Southern India and that they are generally regarded as of doubtful descent, since persons of lower castes, who wish to be considered Vellalars, usually claim to belong to this subdivision. The Sólíya Vellalars are divided into several exogamous *Gótrams* or septs, such as Kádai gótram (or the quail sept),

\* It is stated in the Trichinopoly Gazetteer that there are not less than twenty endogamous subdivisions of the Vellalars including the Kániáḷars, the Paṇḍárams or Gurukkals, the Naináns, the Arumbukattis, the Sittakkáṭṭu Chettis, the Chólavaram Chettis, the Panjukkára Chettis and the Kodikkáls. Of these, the three sections known as Chettis, Paṇḍárams and Naináns are vegetarians. In Thurston's *Castes and Tribes*, it is stated that the Vellalars were originally the trading class of the Tamil nation, but with the immigration of the more skilful Kómatis and other mercantile classes, the hereditary occupation of the Vellála Chettis gradually declined. "In ancient times they had the prerogative of weighing the persons of Kings at the *Talabharani* ceremony (a ceremony in which the King was weighed against gold which was afterwards distributed to Brahmins)."

Koudári gótram (or partridge sept) and Gángéyan (or Ganges sept) gótram. The Sólíya Vellálars of Ambunádu seem to occupy a higher rank than other Sólíya Vellálars. They are divided into two exogamous divisions, called Ainnúrru (500) Picchars and Arunúrru (600) Nallakáttars. These are said to have consisted originally of five hundred and six hundred families respectively of whom some immigrated to Ambukkóvil from Anbil near Trichinopoly with the Ambunáttukkallars.

The Koṅgu Vellálars seem to occupy an even lower position in society than the Sólíya Vellálars, since they will eat with the Tottiyáns and other sections of the lower Non-Brahmin castes. Their title is Gávundan. Boys of this class are often married to their maternal uncles' daughters, who are very much older than themselves.

**The Chettis.**—(20,438.) The word 'Chetti' is said to be derived from *Sreshthi*, the title of a Vaisya or merchant. Various classes and castes, besides the Vánians and the Kómattis, to be dealt with separately, append the title *Chetti* to their names, of which the following are found within the State, (1) Náttukkóttai Chettis, (2) Áriyúr Chettis, (3) Sundaram Chettis, (4) Vallam Chettis, (5) Vallanáḍ Chettis, (6) Vándakóttai Chettis, (7) Vellán Chettis, (8) Kásukkára Chettis, (9) Virálúr Chettis, (10) Nárāyaṇapuram Chettis, (11) Séniyans, and (12) Sénaittalaivans. Of these the first four have their heads clean shaved, while the rest grow a top-knot or *Kudumi* like the Brahmins. The Vellán Chettis and Kásukkára Chettis wear moustaches, while the others are prohibited from wearing them. Widow marriage is prohibited among all. Kásukkára Chettis and Séniyan Chettis wear the sacred thread. The males among the Náttukkóttai Chettis do not wear ear-rings except during marriage occasions. The other Chettis wear gold ear-rings. The Vallam Chettis and the Kásukkára Chettis wear close-fitting kaḍukkans, (ear-rings) while the Vallanáḍu and Vándakóttai Chettis wear big pendent rings the weight of which enlarges the lobes of the ears.

The Náttukkóttai Chettis, the Áriyúr Chettis and the Sundaram Chettis claim to have been voluntary exiles from Kávérippattanam and to be related to one another. Those that came from the East street, settled at Uaiyáttanguḍi and became the Náttukkóttai Chettis, those that came from the West street settled at Áriyúr and became the Áriyúr Chettis and those that came from the South street settled at Sundarappattanam and hence are known as Sundaram Chettis. The places where they live are called *nagarams* (lit. 'cities') and the Chettis themselves are called *Nagarattárs*. The Kásukkára Chettis claim to have come from Conjeevaram. The Vallanáḍ Chettis seem to have been very early settlers from Vallam (or from Kávérippattanam) and the Vallam Chettis recent ones.

*The Náttukkóttai Chettis* (11,891) are divided into nine sections corresponding to nine temples. They have a *Peria-thanakkáran* for each locality, who generally settles their minor disputes in consultation with the other people of the village. Serious cases are decided in their respective temples in the presence of the trustees. Re-marriage of widows is prohibited. Immoral women and men who have had the misfortune to serve a term of imprisonment are excommunicated. Marriage settlements are always reduced to writing. These Chettis perform ceremonies for their children, which they call *puthumai-puthu* (=new). While quite young, children have their heads formally shaved and their ears bored. When a child is seven years old, a further ceremony is performed at which twenty-seven lamps representing the twenty-seven stars are lighted on a plantain leaf, worshipped and thrown away. This ceremony takes place in the month of Kártigai (November-December) for boys and is called Kártigaippudumai, and in the asterism of Tiruvátirai in the month of Márgaḷi (December-January) for girls, when it is called Tiruvátiraippudumai. The Náttukkóttai Chetti boys receive their *upadésam* or initiation from their spiritual Gurus, of whom there are two, living at Pádarakkuḍi and Kilāmaṭam respectively.

The women of this caste receive their initiation from their spiritual preceptor at Tulávúr. They attach great importance to omens good and bad. When they leave their villages to go and trade in distant places, they halt in a neighbouring village, sometimes for a month and more, until they see the wished-for good omen which they take to be a divine direction to start.

*Áriyúr Chettis.*—Áriyúr Chettis seem to be a division of the Náttukkóttai Chetti caste. Their spiritual preceptor lives near Arantáingi. There are two endogamous sections among them, the right hand section who are vegetarians and the left hand section who eat meat. Áriyúr Chettis also live near Ponnamarávatí. These have a spiritual preceptor of the Páñdiya Nádu outside the State for their men and a Saiva preceptor at Tirukkalambúr for their women. They are divided into the following seven exogamous divisions or Nádu, called after villages in the State.

- |                   |                 |
|-------------------|-----------------|
| 1. Ponnamarávatí. | 5. Kallampattí. |
| 2. Sembúti.       | 6. Pudúr.       |
| 3. Álavayal.      | and 7. Várpét.  |
| 4. Ammañkuricchi. |                 |

It is said that the Áriyúr Chettis first settled in the neighbourhood of Ponnamarávatí, that their God was the God of the temple at Piránmalai, that there was a Vellála ruler at Válaramáñikkam named Nandan, that an Áriyúr Chetti who bore the name of Máli Chetti became his minister, that a section of these Chettis thereupon settled at Válaramáñikkam and that the God (Sivá) of the temple there then became their family God.

*Sundaram Chettis.*—Possibly these are the same as the Sundarattan Chettis mentioned by Mr. Thurston. They take their name, as already mentioned, from Sundarappattanam or Sundaram near Ponnamarávatí, where they are said to have first settled. According to tradition, the original forefathers of the Áriyúr Chettis, the Sundaram Chettis and the Náttukkóttai Chettis were brothers, of whom the ancestor of the Áriyúr

Chettis was the eldest and the ancestor of the Náttukkóttai Chettis, the youngest.

*Vallanáđ Chettis.*—The women of this section are not permitted to cross to the southern side of the Vellár. There are about eight hundred families or *thalaikkattus* in this section. They probably migrated from Vallam to other places in order to carry on their profession as money lenders. There is a tradition that they belonged to Kávérippattanam, that they fled from there in a body and were pursued, for some unknown reason, that they sought the protection of the Kallars of Ambu Nádu, who being unable to give them all the help that they required, called in the Vallanáđ Kallars and with their help repelled their pursuers. To commemorate their indebtedness to them, they distributed their settlements in Kalasamangalam (Pudukkóttai) into nine divisions corresponding to the nine Kuppams of the Ambunáttukallars; and called themselves "generally Vallanáđ Chettis."

There is another class of Vallanáđ Chettis living at Kottamangalam, Mángádu, Mannavélanpatti and elsewhere who call themselves 'Pillais' (sons) or descendants of the Vallanáđ Chettis proper, but do not consider the god at Tiruvarangulam as their tutelary god. These will take food in the houses of the Vallanáđ Chettis proper, but the latter refuse to eat with them.

*The Vallam Chettis.*—According to Mr. Thurston, these are known in the Madura District as Vallam or Tiruvappúr Chettis. It may be conjectured that they originally came from Vallam, settled for a while at Tiruvappúr, a suburb of Pudukkóttai Town, and finally migrated to Madura. Like the Náttukkóttai Chettis, they shave their heads clean, but unlike them they wear ear-rings. They are agriculturists and petty traders and also go to Burma and other places as accountants and agents of Nattukkóttai Chettis.

The *Vándákóttai Chettis* are otherwise called Gadiakkára Chettis from *gadiyam*, a herd of pack-bullocks, the tradition

being that they used to carry on pack-bullocks the articles required for the Palace at Pudukkóttai, before wheeled carts were common. Though they live near Vallanádu, they are in no way related to the Vallanád Chettis. They are divided into two exogamous *gotras* or septs, called Nágaparipálaka *gótra* and Siva *gótra*.

*Vellán Chettis*.—These are merchants who travel about buying and selling. They say that they came originally from Alliturai in the Trichinopoly District. Their present homes are Máttúr, Pudukkóttai, Kolaváippatti and Vennávalkudi.

Another section of Vellán Chettis seems to have come from Tanjore. These are subdivided into (1) the Terkattiárs, or southern men, whose God is at Nodiyúr near Vallam, and (2) Vadakkattiyárs, or northern men, whose God is at Vaidisvarankóil in the Tanjore District. A Saiva Paṇḍáram near Vallam is their spiritual Guru.

*Virálúr Chettis*.—These are found in Virálúr, Rájálippatti, Rámakkavaṇḍapatti and eleven other villages. They are said to have once numbered one thousand families, and one of their rules required that they should live within sight of the Virálimalai temple. But owing to a dispute one-half of them left Virálimalai and settled near Ratnagiri in the Trichinopoly District. These are now called Ratnagiri Chettis. Brides of the Virálúr Chetti class wear a cloth called *ஒரிசை மந்திரக்கூடை*, which will be described under Sényia Chettis. Virálúr Chettis specially venerate and worship the God Subrahmanía of Virálimalai, Máriamman of Virálúr and Níliamman of Únaiyúr in the Maruṅgápurí Zemindári.

*Seniyan Chettis*.—These are found mostly at Sényiappatti in Kodumbálúr vattam. They are said to have come from Trichinopoly. Though not vegetarians, they will not eat mutton on account of a tradition that one of their ancestors was kept alive by sheep's milk. They are Vaishnavas, but worship Márkandéya, their family God, on the Sivarátri day in the month of *Mási*, (February—March) when they smear their

bodies with *vibhūti* or holy ashes. They wear the sacred thread and have Brahmin priests. The *ஒரிசை மந்திரக்கூடை* cloths, which the Virálúr Chetti brides are bound to wear at their weddings, are woven by these Sényiars. These are red cloths of somewhat peculiar texture, measuring 15 cubits by 2½ cubits and supposed to have magical powers.

*Narayanapuram Chettis*.—These are said to have come about seventy years ago from Nārāyaṇapuram near the Palni hills and settled near Kodumbálúr. They have no connection with any other class of Chettis.

*Kaṣukkára Chettis*.—These are found at Perungalúr, Iechiyaditthannírppandal, Pudukkóttai and Tiruvappúr. They are Saivites. They are divided into two sections, meat-eaters and vegetarians. From this class, it is said that the following four sections have branched off:—(1) the *Vadamba Chettis*, (2) the *Sóliya Chettis*, (3) the *Manchaputra Chettis* and (4) the *Mulagumari Chettis*. They wear the sacred thread like the Brahmins.

*The Senaitthalaivars*.—These are found at Karambakkudi, Koppampatti and some other places.

**The Kammalans (14,380).**—‘Kammalan’ is a general name given to the five classes of craftsmen, goldsmiths, carpenters, sculptors or stone-masons, blacksmiths and coppersmiths, claiming to be descended respectively from Manu, Maya, Silpa, Thvashtira and Daivagña, sons of Visvakarma, the architect of the Gods. Hence they style themselves Visva-Brahmins. The five sections mentioned above intermarry and take food together. The Kammála women, unlike those of many other non-Brahmin castes, wear the upper portion of their cloths like Smártha women. The nattu (a kind of nose-screw) is their distinctive ornament.

The Kammálas claim to be in no way inferior to the Brahmins, and in their marriages closely follow the Brahmanical ceremonial, including *hóma* (oblations in fire). Adult

Kammálas wear the sacred thread like the Brahmins. Widows are not permitted to re-marry; but unlike the Brahmin widows, they may wear jewellery and chew betel. The Kammálas are Saivites; and their special deities are Pillaiyár, Kámátechiamman and the seven Kannimárs. Each of the five Kammála sections has an elected Náttamaikkáran and a Káriasthan to settle disputes. Over them all is Añjuvittu Náttamaikkáran, elected by lot by the representatives of the five subdivisions. In marriages in Kammála houses, blacksmiths are given betel first, because it is explained they make tools for themselves and the other Kammálans.

*Telugu Kammálas* neither intermarry with Tamil Kammálas nor take food with them. Their mother tongue is Telugu and their practices resemble those of Telugu Brahmins.

**The Udaiyans.**—(Nattamáns 12,408) The Udaiyáns are known otherwise as Nattambádis (lit. villagers). The Nattamáns seem to be only a subdivision of the Udaiyáns, though, in the Census Reports for 1901 and 1911, they are treated as separate castes. The report for 1901 gives the number of Udaiyáns in the State as 855, and of Nattamáns as 11,160, while the report for 1911 gives the number of Nattamáns as 12,814, and does not mention the number of Udaiyáns separately. As observed in the Trichinopoly Gazetteer, the Udaiyáns and the Nattamáns seem to be identical, and with the Malaiyamáns and the Sudarmáns, are endogamous subdivisions of one and the same caste.

The Udaiyáns are divided into exogamous divisions called Kánis. They wear sacred threads at marriages and funerals. They are very industrious agriculturists. They have no regular caste pancháyats. Before arranging a marriage, the bride's party go to the bridegroom's house to dine with him, and to test his health by seeing how much he can eat. Their titles are Udaiyán, Múppan and Naynár.

Many Nattambádis are Christians.

**Ahambadiyans.**—(11,416) The word 'Ahambadiyan' is said to be a corruption of *Ahamudaiyán*, which means "owner of a house." According to their own traditions they are the descendants of the illegitimate sons of an early Sétupati of Ramnad. It is therefore, they say, that they are called Ahamudaiyans or "men full of pride" owing to their aristocratic birth. The usual titles of Ahambadiyans are Servaikáran, Pillai and Tévan. They employ Brahmin *purohīts* at their marriages. Among them Polygamy may be said to be rather common.

The Ahambadiyans of this State are divided into:—

- (1) Añjúr (five villages) Ahambadiyans.
- (2) Kóttaiapparú (attached to a fort) Ahambadiyans, who are known also as Tánjúr Ahambadiyans.
- (3) Rájakúla (Palace) Ahambadiyans.
- (4) Añjukóttai (five fortresses) Ahambadiyans.
- (5) Kilasimai (the eastern country) Ahambadiyans.
- (6) Kóttaiakkádu (forest surrounding a fort) Ahambadiyans, etc.

The Añjúr Ahambadiyans reside in the villages of Vaittúr Muttampatty, Eraiyúr, Vattanákuruchchi and Meikkudippatti. They are said to have come from Vaittúr near Ayyampet in Tanjore district with the ancestor of the Pallavaráyan line of rulers in the Pudukkóttai State, and to have named the first village in which they settled Vaittúr, after their original home. They are said to go occasionally to Pandáráváдай near Vaittúr to worship their tutelary God, Vírabhadran. They are divided into several exogamous septs, including Vallataraiyan, Péyvetti Péyádi, Váttáccchi, Sólagan and Kastúri. The Ahambadiyans of the five villages mentioned above and the Kaḷḷans of the six villages forming the Kulamaṅgilya Nádu assemble in the Máriamman Kóvil at Tenmaṅgudi to settle disputes and discuss questions of common importance.

Kóttaiapparú Ahambadiyans are divided into several exogamous septs such as Peruchcháli, Malukkan, Tambirán and Kundrándan. They settled at first it is said, at Tánjúr in the

Tirumayam Taluk and afterwards spread to other villages. All disputes among them are settled by their headman living at Tánjúr. Their widows are not permitted to re-marry.

There are similar exogamous division among the other endogamous sections of the Ahambadiyans.

**The Maravans.**—(5,617) These are found mostly in the southern and western parts of this State. One account says that the Maravars originally lived in the Rájéndramaṅgala nádu (in modern Ramnad Zamindari) and that once when the ruler of the land wanted to marry a Marava girl contrary to custom the Maravas fled from the village and settled in what now forms Pudukkóttai State. They pierce large holes in the lobes of their ears. Polygamy is permitted and also the marriage of adult young women to mere boys. They worship, under the name of Pattavars, men of their caste who fell in battle fighting bravely.

The Maravars in general are divided into two endogamous sections, the Sétupati or Vaḷkóttai and the Koṇḍaiyan Kóttai. The Maravars of the State belong to the former section. Maravars are said to be divided also into 18 *kilais* or branches, of which we may mention (1) *Pichchar* or *Pichchai kilai*, (2) *Marakkal kilai*, (3) *Viran kilai*, (4) *Tondaiman kilai*. Most of the Maravars of this State belong to the first two branches. The eighteen divisions referred to above were no doubt originally exogamous, but the practice is that all Maravars who worship the same deity, to whatever *kilais* or branches they may belong, form an exogamous community. The Pudukkóttai Maravars are law-abiding and peaceful cultivators, unlike the Maravars of Madura, Ramnad and Tinnevely. Their ordinary title is Tévan.

**The Balijas.**—(6,764)—In the Tamil districts Balijás are usually known as Vadugans (=the northern or Telugu people) and Kavarais. Many of the Balijás trace their descent from the Náyak kings of Madura and Tanjore. But this is not admitted by others, who consider them to be a mixed community

recruited from the Kápus or Reddis, the Kammás, the Vélamás and other Telugu castes. The fact seems to be that the Balijas followed the Vijayanagar armies and settled in the south when the Náyak Governors who were their leaders established themselves at Tanjore and Madura. Some of them may have been originally soldiers by profession; but they are now all agriculturists and traders. The Kápus or Reddis say that they could easily enumerate all the varieties of rice, but cannot give the names of all the sections into which their caste is split up. The Gazula Kápus or bangle-makers of Vaíttúr form a subdivision of the Balijás; most of the Balijás bear the title of *Náyak*.

The Janappans or Saluppanas, also Telugas, are described as hawkers and cultivators.\*

**The Kusavans (Potters)**—(4,970). They trace their origin to Sáliváhana, the famous mythological potter-king. They are divided into three territorial sections—the Chéra Kusavans, the Chóla Kusavans and the Pándya Kusavans, and also into seven † endogamous nádu, such as Nárttámalai nádu, Kadavaṅgudi nádu (in the neighbourhood of Virálimalai) and Trichinopoly nádu. They imitate the customs and manners of the Brahmins, wear the sacred thread, perform *hómas*, employ Brahmin priests and condemn post-puberty marriages and re-marriage of widows. They are Saivites, and their caste title is Vélán. For purposes of arbitration in caste disputes the Kusavans are divided into four nádu, called Kánádu, Kónádu, Siruvásal nádu (see above under Kallars) and Kavinádu.‡

**The Kurumbars.**—(5,384). These are reputed to have been the earliest settlers in this country. They are supposed

\* Another Telugu caste is that of the Jetties. They are called *Mallaka Chetties* in Tamil and are a set of professional wrestlers and gymnasts. They wear the holy thread and do not condescend to do any degrading work.

† The Solavaguppu Kusavans seem to be divided into only five exogamous sections such as Palanimangala Udaiyans, Mudikattu Udaiyans, etc.

‡ The Kusavans of the area about Virálimalai are reported to be divided, not into nádu, but into ten úrs (villages.)

to be the representatives of the ancient Pallavás, once so powerful in Southern India, and if so, must have gradually drifted from Tondamandalam which they once occupied, or come to Pudukkóttai direct over the Palni hills from the Kuruba country in the Canarese land, which is supposed to have been \* their original home. There is no doubt that the Kurumba language, is a corruption of Canarese †. The Kurumbar are a pastoral people who own large flocks of sheep and weave cumblis (blankets) and are found in Sellukudi, Aranippatti and Mángudi. They are divided into several exogamous sections called *Vaguppús* or groups of villages. Over every such group of villages there is a headman who is both priest and judge, and presides over the Vaguppú's tribal meetings. The patron deity of the Kurumbar is Viralakshmi, to whose temple at Sellukudi Inám lands were granted by the Tondaimán ruler known as Bhója Rájá. They style themselves Gávundans and Náyakans.

**The Ambattans (Barbers)** (5,052). These are divided into seven endogamous sections, namely, Vaduga Ambattans, Kalla Ambattans, etc. A Brahmin *purchit* officiates at their marriages, and most of them discourage the re-marriage of widows. They have four endogamous nádús, each with its *periatanakkáran* (headman), who has control over a number of heads of families. The Ambattans are both Saivites or Vaishnavites. In the Vaishnavite section, those that have been branded by their Brahmin guru with the Chank (conch) and Chakra (discus) abstain from meat and drink. Saivite and Vaishnavite barbers intermarry. They may not shave Pallans or Paraiyans. Ambattans are generally known as Pariyáris (=pariháris or curers), because Ambattan women are the village midwives and Ambattan men the village surgeons.

\* Coorg, Nilgiris, Wynad and other places. There is a portion of Malabar which is now known as *Kurumbanad*.

**The Vannans (Washermen)** (4,309).—These occupy a low social status among the non-Brahmin castes. Among them when a girl attains puberty she is taken, as in many other castes, to a hut specially built for her at some distance from her house, where she is required to live for fifteen days. On the sixteenth day she leaves the hut and returns to the house, but has to stay for fifteen days more in a corner of the verandah. It is only on the thirty-first day that she is permitted to re-enter the house. Divorces are easily obtained in this caste as in several others, and divorced persons are permitted to re-marry.

For the lower classes of Súdras there are separate washermen, called *Podara Vannán*.

**The Andis.**—This name is applied generally to a class of non-Brahmin beggars recruited from all classes of Súdras. But all Ándis are not beggars; for example, Púkkára Ándis make garlands of flowers, and Úr Ándis are Ándis settled in villages as agriculturists or accountants. The Ándis that beg are called *Kóvanándis*, as they are supposed to possess nothing except the loin-cloths (கோவணம்) that they wear. The Lingadhári Ándis will be described later under Pandárams.

**The Muttiriyans.**—(8,001) These are otherwise known as Ambalakárans. As has been observed by Mr. Thurston, there seems to be some connection between Ambalakárans, Muttiriyans, Urális, Védans, Valaiyans and Vettuvans. But its exact nature remains to be ascertained. They observe the same customs and manners as the Ahambadiyans. The names *Ambalakáran* and *Mutracha* or *Mutarasan* may indicate that they once enjoyed a higher status than they do now. There is no evidence, however, to connect them with the Muttiriyán noblemen of whom we find mention in inscriptions of the Pallava period. The special god of Muttiriyans is said to be Karuppannaswámi of the Kollimalai hills in the Salem district. Their usual titles are *Muttirigan*, *Ambalakáran*, *Servaijáran*.

**The Pandarams.\***—The name *Pandáram* is used both as the name of a caste and as that of a class of mendicants recruited from the Saivite Súdras, who profess extreme piety and wander about begging.

The Pandárams proper are usually landholders and priests of many non-Brahmin classes. Mr. Francis, in the Census Report of 1901, says that the Pandárams are really superior to the Ándis since they are usually Vellálas by caste, while the Ándis are recruited from all classes of Súdras. Lingadhári Pandárams, amongst whom those that speak Telugu are known as Jangam Ándis, wear the figure of the lingam suspended from the neck in a metal box. But these Lingáyat Pandárams differ in many respects from the Lingayats proper.

**The Shanans (Toddy drawers).**—(2,439).† They have hitherto been held to occupy a low position among the non-Brahmins, though they claim to be Kshatriyas and trace their descent from the Pándya kings. They call Bhadrakali their mother or foster-mother, and say that she taught them their usual occupation of toddy-drawing.

**The Uppiliyans.**—(1,452). These derive their name from their traditional occupation, the manufacture of salt and saltpetre. They are said to be also called *Karpúrachettis* from selling camphor as well as saltpetre. They are considered superior only to the Valaiyans, the Úralís and the Pallis. Their usual title is Náyakani. The manufacture of earth-salt ceased on the passing of the Pudukkóttai *Earth-salt suppression Regulation* in 1888; and they are now engaged in cooly-work especially earth-work. It is said that an Uppiliyan has to remain unshaved all his life if he cannot get a virgin for his wife.

**The Kuravans.**—(1,562). They are divided into five endogamous sections, namely, 1. The *Uppukkuravans*, who

\* In the census of 1931, Andis, Dásaries, and Pandárams have been grouped together. Their number is 5,487.

† Many Shanans now prefer to be called Nadars.

once made salt (uppu) but are now petty traders in cattle, dried fruit, etc. Basket-weaving and the rearing of pigs, are prohibited among them on pain of ex-communication.

2. The basket-weaving Kuravans. It is supposed that these were the original Kuravans, and that the other sections of the Kuravans were later recruits to the caste. They will eat almost anything including cats.

3. The *Narikkuravans* are Kuravans who eat jackals as their name implies (Nari=jackal). They sell needles.

4. The *Panrikkuravans* breed and sell pigs (panri) and are employed as scavengers.

5. The *Dombas* are acrobats. All of these, except the Panrikkuravans are nomadic. The vernacular of the Kuravans is Telugu.

**The Chakkiliyans (Cobblers).**—(1,024). These are divided into four endogamous sections named Reddi Chakkiliyans, Anupa Chakkiliyans, Mora Chakkiliyans and Tottiya Chakkiliyans. Of these, the vernacular of the first three seems to be Telugu, and that of the last class Tamil. They are of very low social status. The Paraiyans and the Pallans take food with them. The ordinary washerman will not wash for them. Their clothes are washed by a special class of Vannans known as *Podara* washerman. Their marriages are arranged for them by their Náttánmaikkárar (headmen).

**The Patnulkarans.**—\* (1,210). These are silk-weavers said to have come from Souráshtra or Gujarat. The Kaikólans and the Sáliyans were the indigenous Tamil weavers. Ottakúttar, the well-known poet, is said to have been a Kaikólan. The Náyak rulers of Madura are said to have imported the Patnulkarans from the north, being dissatisfied with the cloth woven by the Tamil weavers. The Patnulkarans of the State are found chiefly at Tiruvappúr, a suburb of the town of Pudukkóttai. They are noted for their skill. Their usual title is *Chetti*. They do not generally claim, like their fellow

\* Sourashtas.

caste-men in some other places, to be styled Sourashtra Brahmins, or like them take the Brahmin titles of *Aiyar*, *Aiyangar* and *Bhágavatar*. The Patnulkárans are mostly Vaishnavites and speak *Patnuli*, a dialect of Gujaráti.

**The Razus.**—(1,644) The Madras Census Report for 1901 says of them.—“The Rázus are, perhaps, descendants of the military section of the Kapu, Kamma and Vélama castes that followed the Vijayanagar Governors. At their weddings, the Rázus worship a sword, which is a ceremony that usually denotes a soldier caste....But they eat fowls which a strict Kshatriya would not do, and their claims are not usually admitted by other Hindus. They have three endogamous subdivisions, Murikinádu, Nandinmandalam and Suryavamsam of which the first two are territorial.” They wear the sacred thread, and their marriage and other customs are like those of Brahmins. The women of well-to-do Rázu families observe *gosha*.

**Kandy Rajas.**—These are the descendants of the relatives of the last King of Kandy, who were sent to Pudukkottai as State prisoners in 1816, after the deposition of the king in 1815. The last King of Kandy was closely related to the Náyaks of Karukappúlámpatti in the Tirumayam Taluk, and all Náyaks related to him are called generally Kandy Rájás. The Kandy Rájás are found in Púlámpatti, Vellaikkurichehi, the town of Pudukkóttai and some other places. The women of this caste wear toe-rings of gold which are considered an emblem of noble birth. The caste is divided into a number of exogamous sections. Widow-marriage is not permitted, and unchaste women are expelled from the casté.

**Lala Kshatriyas.**—The Lálas call themselves Kshatriyas and claim to be descended from some Rajputs of Jaipur, who halted in the State when on a pilgrimage to Ráméswaram, and were persuaded, to remain here to assist the ruler of the State in extending his dominion and consolidating his conquests. They seem to have helped the Rájá in his wars with the Páláya-kár of Marungápurí, and to have been granted service-tenure

lands near the western border. Formerly whenever the Rájá went out, they used to escort him on horseback, and, at Darbars, they sat on his right in their military uniform. Their manners and customs resemble those of the Brahmins.

**The Oddas.**—(1,172). These are a Telugu people who are supposed to have come south in the time of the Náyak kings of Madura and Tanjore and are now employed as scavengers and on earthwork such as digging or repairing tank and channels. They are a hard-working class.

**The Pallis.**—In the Trichinopoly Gazetteer it is stated that, since the word *Palli* is also used to denote a Palla woman, the Pallis prefer to call themselves Vannians (or Kshatriyans of the *Vahni* or fire-race) and that they claim to be superior to the Brahmins and have taken to wearing a sacred thread on all occasions. The Pallis seem however to be a low agricultural caste, while the Vanniyans are connected with the Viságingináttu Kallars with whom they intermarry. One section of the Vanniyans are called Pandárattár Vanniyans and another Kóttayapuram Vanniyans.

**The Tottiyans.**—These are mostly found in the neighbourhood of Virálimalai. Some Zamindárs of the Madura District belong to this caste. Tottiyans speak Telugu and no doubt came in the wake of the Vijayanagar armies to Madura. They are divided into nine endogamous divisions. To settle their caste-disputes they have a *Periyatanakáran* or headman who conducts inquiries sitting on a blanket or *kambli*, hence perhaps the Tottiyans are called *Kambalattáns*. Their spiritual preceptor lives at Conjeevaram; and many caste disputes are referred to him during his tours for decision. Tottiyans use the title *Náyakan* and their village headman *Ur Náyakan*. The Tottiyans do not admit the superiority of the Brahmins and do not worship the usual Hindu gods. Their caste deities are Jakkamma and Bommakka, supposed to be the spirits of two of their women who committed sati long ago. Many of the Tottiyans are believed to be adepts in the black art, and able to control evil

spirits. Among the Tottiyans young boys are married to grown-up women.\*

There is a section of the Tottiyans known as *Káttu* (jungle) *Tottiyans* with whom the other Tottiyans have no connection. These are said to have contracted an alliance with a Muhammadan family and to have been served with beef by them. Thereupon, they fled into the jungles—hence their name.

**The Vallambans.**—The Vallambans are found in this Presidency mostly in the Madura district and the Pudukkóttai State. They call themselves *Vallam tólia Vellálas* or the *Vellálas* who were driven out of Vallam, a village near Tanjore. They are found in the south-east portion of the State, and are divided into two† territorial subdivisions, namely, Pálaiyanádu Vallambans and Kílnádu or Kílanilai nádu Vallambans. The Vallambans are themselves devil-worshippers and call festivals in the temples of Siva and Vishnu *peyáttam* (or devils' dances.)

**The Úralis.**—(9,378). The Úralis are practically confined to the Trichinopoly and Madura districts and Pudukkóttai State. They claim to be Kshatriyas who originally migrated from Ayódhya (Oudh). The story is that the forefathers of the Úralis had illicit intimacy with servant girls, quarrelled on this account with their wives and other relatives, came to South India bringing their mistresses in seven palanquins, and married these mistresses and thus became the progenitors of the seven endogamous sections of the Úrali people dwelling in seven areas, namely (1) Vadaséri Nádu, (Ratnagiri in the Trichinopoly district); (2) Pillúr Nádu; (3) Malaiyamán Nádu called Sengudi Nádu in the Trichinopoly Gazetteer; (4) Kaduvankudi Nádu

\* "A parallel is to be found in Russia where, not very long ago, grown up women were to be seen carrying about boys of six to whom they were betrothed."—Quoted by Mr. Thurston from "*Marriage Customs in Many Lands*."

† In the Trichinopoly Gazetteer it is stated that there are three other subdivisions, namely the Mál nádu (or Jayankonda nádu), Chengi nádu and Amaravati nádu.

(Virálimalai); (5) Talaikka Nádu (Únaiyur in the Maruṅgápurī Zamindári); (6) Paluvanji Nádu and (7) Maruṅgai Nádu, (Maruṅgápurī). The first three of these are called Vadaséri Úralis and the last four Náttuseemai Úralis. The word *Úrali* means territorial lord, and they call themselves *Muttu Rájás* disputing the right of the Ambalakárans to this title. Their ordinary title is Gavundan. They claim to be superior to other non-Bráhmín castes, and it is said that they will take food with members of no other caste but will accept food from the Vellálas, but will not eat it along with them.

**The Karumburattans.**—(6,629). The Karumburattans are found only in the Madura district and the Pudukkóttai State. They rank fairly high among Súdrás for they will not take food, for example, with the Valaiyans, Kamínálans, Úralis, or Mélagars. They are divided into five endogamous sections, corresponding to the following districts:—

Vadaséripaṭṭi Nádu, near the Pudukkóttai town;

Kiliyúr Nádu, in Kolattúr taluk,

Perunkudippaṭṭi Nádu in Kolattúr taluk,

Nilayappaṭṭi Nádu, in Tirumayam taluk and

Pálaiyur Nádu in Alangudi taluk.

They are found mainly in the southern parts of the Tirumayam taluk and are employed in various capacities by the Náttukkóttai Chettis.

**The Melakarans.**—(3,060) These have a high opinion of their own social status, claiming to be Kallans, Ahambadiyans and so on, and stating that their profession is merely an accident. They are divided into two classes, (1) the pipers proper and others forming the periyamélam (band composed of clarinet or náḡasaram, pipe, drum, and cymbals) and (2) the Nattuvans to whose nautch—music, (the chinnamélam), the Déva Dásis dance. The Dásis, the women of the Melakárar caste, are professional dancing girls. The rules of the caste require that married women should not wear bodices or petticoats or wear Kammas (ear-rings set with gems).

**The Sattans.**—The correct name of this caste is said to be *Sattádavar*\*. They are non-Brahmin Vaishnavás who do not wear the holy thread like the Brahmin Vaishnavás. Their ordinary titles are Aiyar and Álwar. Most of the Sattáns of the State are attached to the Vishnu temple at Tirumayam. They perform such minor offices in the temple as making garlands of flowers for the gods and lighting and feeding the sacred lamps. They follow the customs and practices of the Tenkalai Vaishnavás.

**The Tadans (Dasaris).**—They are Vaishnava beggars whose vernacular is Telugu. The words† *Tádan* and *Dásari* literally mean servants or slaves; and the story goes that a rich Chetti, who had been for a long time childless, made a vow that, if he should have a son, he would devote him to the service of his God Vishnu, that he was subsequently blessed with many sons and that he dedicated one of them to the God. These beggars carry conch-shells which they blow to attract attention and gongs which they strike as they go on their rounds.

**The Occhans.**—These are found mostly in the western parts of the Tirumayam taluk. They were, formerly temple musicians. But they are at present pújaris in Pidári and other Amman temples. Their insignia are the Udukkai or hour-glass-shaped drum, and the silambu, or hollow brass ring filled with bits of brass, which rattle when it is shaken. The renowned Tamil epic poet Kamban is traditionally believed to have belonged to the Occhan caste. In their puberty, marriage and death ceremonies, the Occhans closely follow the Pallis or Vanniyans.

\* *Sátáni* is the shortened form of *Sattádavan*, the unclothed man. "They are prohibited from covering three different parts of their bodies, viz, the head with the usual tuft of hair, the body with the sacred thread, and the waist with the customary strip of cloth" (Mr. C. Hayavadana Rao quoted by Thurston). They behave like the Vaishnava Brahmins. Thurston calls them *Sátánis*.

† *Dásan* and *Tádan* (which is the Tamil form of *Dásan*), have the sense of servant or slave.

The Occhans have their caste organisation, and in all places where they live, they are under the control of the head man (*Periyathanakaran*).

**The Ilmagans.**—(634) These are a caste of cultivators. They are confined to the districts of Madura and Trichinopoly and to the Pudukkóttai State. Many Ilmagan women have boy husbands, who have a number of children fathered upon them while they are still young.

**The Senaikkudaiyans.**—These are domestic servants and petty traders and cultivators. Their usual title is *Pillai*. They seem to be different from the Senaikkudaiyáns of British India who are described by Mr. Thurston as Ilai Vániyans or betel-vine cultivators.

**The Vaniyans.**—(1,535). These extract oil from gingelly, ground-nut and other seeds. They are divided into two classes, *Orrai Chekkáns* or Vánians using single bullocks, and *Irattai Chekkáns* or Vánians using two bullocks to work their mills. They are said to be divided into 1,001 exogamous septs. Their usual title is *Chetty*. They follow the customs of the Brahmins.

**The Sembadavans.**—The Sembadavans make nets and fish in tanks. *Sembadavan* is derived from *Sem*=good and *badavan*=boatman. They sometimes call themselves *Guhá Vellálas*, (after *Guhá*, the boatman who rowed Rama, Lakshmana and Sita across the Ganges on their way to the Southern forest).

**The Pillaipcrans.**—These are not recognised as a separate caste by Mr. Thurston, or in any of the Census Reports. They are a caste like the Vallambars to whom they claim to be superior. They are vegetarians, while the Vallambans are meat-eaters, and they therefore will not take food with the Vallambans. It is said that there are about fifty families of this caste in the State. They say that they came to the State more than a century ago from Mallai (or Mahábalipuram) by way of Mailai (Mailápúr), Conjeevaram and Arantangi.

## CHAPTER IV. AGRICULTURE.

**Introductory:**—Agriculture forms not only the chief industry in the State, but also the mainstay of a large number of its inhabitants. Out of a total population of 4,00,694 the number of earners and working dependents, as returned in the Census of 1931, was 258,435 of whom 131,433 followed agriculture or pasture as their occupation. The following table shows the extent of lands of every description in the State in Fasli 1344 (1934—35).

|                                   |     |     | Acrea.   |
|-----------------------------------|-----|-----|----------|
| Total area of the State           | ... | ... | 7,54,291 |
| Deduct.—                          |     |     | Acrea.   |
| Game preserves...                 | ... | ... | 32,239   |
| Porambokea and unclassified landa | ... | ... | 2,11,796 |
| Assessed waatea                   | ... | ... | 41,707   |
| Occupied landa.—                  |     |     | 2,85,742 |
| Inam                              | ... | ... | 1,37,570 |
| Ayan                              | ... | ... | 3,30,979 |
|                                   |     |     | 4,68,549 |

The area under cultivation in Fasli 1344, was 4,58,578 acres; 3,28,974 acres were held under ryotwari tenure, and 1,27,598 acres under inam tenure, while 2,006 acres were assessed or unaaessed landa occupied without patta. All the Porambokea and assessed waatea to the extent of 2,53,503 acres were open to the free grazing of cattle.

Alanguai, by virtue of its fine loamy soil, is better suited for agriculture than Tirumayam or Kolattur where the soil is largely rocky or gravelly and irrigation is less adequate.

**Classification of landa:**—Besidea the two classa of agricultural landa, wet and dry, there is a third class called *achukattu landa* which though not recognised at the Revenue Settlement is considered by the ryota as a separate class.

The *achukattu landa* are the same as the *manavari* or rain-fed landa of the Madraa Presidency. Before the Revenue Settlement of 1910, only those landa that had a recognised source of irrigation, such as a tank or channel were classed under wet. The *achukattu landa*, having no such source of irrigation, were some of them fit for wet cultivation owing to water percolating from tanka or other fielda on a higher level or to the rain water being retained in the fielda by the high banka. The former class of *achukattu* were settled in 1910 as inferior wet landa, and the latter as dry. There were before 1910, 11,875 acrea of *achukattu landa* of which 9,834 acrea were classified as inferior wet landa and 2,041 as dry landa. Good wet landa are found in the ayacuta of the best tanka, and the best dry around Karambakkudi and Virálimalai. But even the best of the wet fielda must be considered inferior to those in the Cauvery delta, owing to the absence of perennial streama and of the alluvial silt that they deposit.

**Soila:**—The main typea of soila found in the State are the red (*Serval*) and the black (*Karisa*) soila. The former preponderate largely over the latter. These soila are sub-divided and named in different waya in different parta of the State. There is a rich chocolate loam called *padugai* in the ayacuta of Kavinad, Vallanad and other large tanka enriched by tank-silt and green manure but decidedly inferior to the silt-fertilised alluvium of the Cauvery delta. *Karisa* is black loam; its value is considerably lowered when it is mixed with clay. The red variety of soil is met with everywhere and is called *serval* when loamy, *manal* when sandy, and *saral* when gravelly. In parta of Tirumayam and Kolattur Taluka, a saline soil known as *Kalar* occura which is ill-suited to cultivation. This salinity or alkalinity is due to the presence of the soluble carbonata of Sodium and Potassium which can be removed as followa:—  
(1) by growing green manure cropa such as sunn-hemp or *daincha* and ploughing them in, (2) by applying silt and ploughing it in, (3) by growing cropa such as Ragi and Tobacco which thrive

well on such soil and in course of time remove the injurious salts, and (4) lastly by improving the drainage of the fields. These soils are, however, rarely cultivated.

**Cultivation.**—The methods of agriculture practised in the State generally resemble those obtaining in the adjoining districts—subject no doubt to minor variations depending on local conditions. As elsewhere, there are three sorts of cultivation, viz., wet, dry and garden. The principal crops under each head are—

| Wet.           | Dry.       | Garden.          |
|----------------|------------|------------------|
| Paddy.         | Varagu.    | Maize.           |
| Plantains.     | Ragi       | Chin-ls.         |
| Sugarcane.     | Cholan.    | Flower-plants.   |
| Yams and Taro. | Cumbu.     | Tobacco.         |
| Betel trees.   | Groundnut. | Tomatoes.        |
| P-gi.          | Grams.     | Radish and other |
|                | Gingelly.  | root crops.      |
|                | Cotton.    | Vegetables.      |
|                |            | Plantains.       |
|                |            | Fruit trees.     |

In the summer, cucumber, gourds, ragi, plantains and gingelly are grown on wet lands.

The principal wet crop is paddy, and the principal dry crops *Varagu*, Ground-nut and *Ragi*. The *Kódai vellamai*, or summer cultivation, commences in *Masi* (February–March) and ends in *Adi* (July–August). The *Kála vellamai*, which is more extensive, begins under normal conditions in *Adi*, and extends over four to six months. When conditions are unfavourable, wet lands are sometimes used for dry crops, or paddy is raised with well-water alone; or again two short-term varieties of paddy are grown instead of one long-term variety; or *Kálam* cultivation is begun late, and extended into *Kódai*; or, if the worst comes to the worst, the *Kódai* operations are abandoned altogether.

**Broadcast sowing.**—Paddy is sometimes sown broadcast and sometimes raised in seed beds and subsequently transplanted.

The former method is adopted if water is scarce, the latter if it is plentiful. Superior paddy is, with rare exceptions, always transplanted, but inferior varieties are sown broadcast, especially the harder varieties known as *Kuruvai* (A. D. T. 3) which are able to resist drought.

**Double-crops.**—Double-crop cultivation which presupposes an excellent soil and an unfailing supply of water is the exception rather than the rule in the State, and is only found to any extent under the larger tanks such as Kavinád, Vallanád and Neerpalani. Only 20 per cent of the lands under first and second class irrigation sources, and 7½ per cent under third class sources are officially stated to be under a double-crop in normal years.

**Paddy.**—The superior varieties of paddy are *Garudam samba*, *Nellore samba*, (A. D. T. 5) *Kichili samba* (G. E. B. 24) *Sadai samba* (Co. 6) *Pattanam samba*, *Karthigai samba*, *Thotta samba*, *Vellai samba*, *Pallaya samba*, *Kaivirai samba*, *Serumanian* and the A. D. T. 2 variety. Inferior varieties are *Kuliadichan*, *Arian*, *Sarappili*, *Poonkar*, *Aruvathankuruvai*, *Kuruvai* (A. D. T. 3) and *Karunkuruvai*.

*Kichili samba* (G. E. B. 24) is becoming very popular with the ryots. It has slender stems which are strong and not liable to be laid flat by rain and wind. It is hardy and resists drought and pests. Under ordinary conditions it yields 42 Kalams per acre and is of 4½ months duration. *Nellore samba* (A. E. B. 65) is shorter in duration than the local variety by about 15 days and its rice is also superior to the local variety.

The short duration or *Kuruvai* paddy (A. D. T. 3) is in external appearance like the *Nellore samba* and matures in 90 days. The rice is white.

The varieties recently introduced or tried are Co. 1 to 9 and A. D. T. 5 and 8; the strains Co. 1 to 9 are resistant to the *pyricularia* disease.

The *sambás* are long duration paddies, maturing in from five to seven months and requiring constant irrigation. The *kars*, or short-duration varieties, mature in from two to four months. The grain of the former, being less coarse, and easier of digestion is consumed by the upper classes, while the latter which are cheaper are eaten by the poor. The names of the grains in several cases describe their shape, size, etc. Thus *Garudan samba* has red and white streaks, like those on the body of *Garudan* or the kite. *Sirumanian* (*Siru*=small, *mani*=grain) is small and round. *Aruvathán kuruvaí* matures in 60 days (*Aruvathu*=60). Among the *kars*, *arián* deserves special mention. It can stand any amount of water; its seedlings thrive even when completely submerged.

**How Produced:**—The *kála* cultivation of paddy begins in July or August, or as soon as the South-west monsoon current has brought sufficient rain.

The first stage in the operations is the preparation of the *náthangál* or nursery. It is either *puluthi kál* or *tholi kál*, dry or wet. *Puluthi kál* is prepared by ploughing the nursery dry so as to reduce the soil to fine dust (*puluthi*). It is resorted to for *samba* crops, the cultivation of which has to be begun very early, before the regular rains have set in. Dry nurseries do not require much watering. Their seedlings resist drought so well that they may safely be left in their beds for a couple of months should transplantation be delayed by lack of rain. Ordinarily, the seedlings are fit for removal after a month or so.

The *tholi* or wet *náthangál* which corresponds to the *séru-náthangál* of the Delta, is prepared by ploughing and reploughing the selected plot at short intervals, while it is submerged under a couple of inches of water. It is manured by ploughing green leaves into it, until the bed becomes a soft pulpy mass. It is then levelled by drawing a wooden board measuring about 8 ft. by 2 over it. This operation which is known as *parambadithal* is performed by yoking a pair of oxen

to the board and driving them over the nursery. The driver stands on the board applying his weight so as to level the surface of the nursery. Wet nurseries require plentiful rain or well filled tanks.

The seed sown in the nursery is either *varal virai* (dry seed) or *sáravacha virai* (soaked seed). The soaked seed is allowed to stand in water for about twenty-four hours, covered with straw and gunny rags and then strained through wicker baskets. This process brings about the partial germination of the seeds, the tiny sprouts which make their appearance being known to the ryot as *kombu* or *paruvam* or *mulai*. Seed is soaked when rain is late and there is no time to be lost. Seedlings thus prepared, though ready for transplantation in about three to four weeks, are not able to resist drought or excessive submersion.

Seed is sown thick in the nursery, at the rate of 40 to 50 Madras measures a nadugai ( $16\frac{3}{4}$  cents or about  $\frac{1}{2}$  acre). One nadugai yields sufficient seedlings to plant an acre. When dry seed is used, the bed is kept well submerged; if soaked seed is used it is drained; otherwise the seed will rot. A simple contrivance employed locally to drain the nursery is the *seendi* which consists of a bundle of straw or palmyra leaves, drawn across the nursery, so as to cut furrows to allow the water that has stagnated in pools and puddles to escape.

Generally, seedlings remain in the nursery for a fourth of the time that they take to mature. *Kuruvaí* seedlings are thus ready for transplantation after three or four weeks, and *samba* after a month and a half.

Rain immediately after sowing is not beneficial and is therefore called *pagai malai* or hostile rain. A clever device sometimes adopted is to keep the seedlings submerged, so that the rain may not beat on them and dislodge the rootlets that have not had time to establish themselves in the soil.

By the time that the seedlings are ready there should, in a favourable year, have been sufficient rain to give the tanks a good supply of water. The *seyedils* or fields to be planted are ploughed and manured, and the seedlings, pulled up from the nursery and tied into bundles called '*mudis*,' are transplanted in bunches. The fields are hand-weeded two or three times and well irrigated, the depth of water being increased with the height of the crop. Harvest begins usually in Thai-Mási (January-March). The crops are cut close to the ground, bundled up into *Aris* (sheaves) and *kodungais* (bundles which can be conveniently grasped between the arms), and carried to the *kalam* or threshing floor, where they are threshed, first by beating them on the floor, and secondly, by driving cattle round and round over them. *Tháladi* or hand-threshing yields the best paddy by far, *Póradi* or cattle-treading yields a poor quantity of grain, with a large admixture of chaff. It is out of the first threshing that the ryot reserves his seed for the next season.

The ryots of the State, like their neighbours in the adjoining districts, follow the time-honoured ways of cultivation, and very often use a high seed rate of 36-45 Madras measures per *nadugai* of seedbed. The State Agricultural Department has been endeavouring to show them the advantages of using a low seed-rate, and of economic transplantation of seedlings coupled with the ploughing-in of green manure crops such as *daincha* (*Sesbania aculeata*), sunn-hemp (*Crotalaria juncea*) and *kolinji* (*Tephrosia purpurea*) and red-gram (*Cajanus indicus*). The department is also advocating the use of light iron ploughs and the application of artificial manures, such as superphosphate and sulphate of ammonia, in conjunction with bulky organic manures for quick and heavy yields.

**Dry crops.**—Dry cultivation, especially as carried on extensively and intelligently in the Alangudi Taluk, affords interesting examples of rotation and mixed-cropping. *Cumbu* and *Varagu* are grown in alternate years, since they exhaust

the soil. *Cumbu* is also grown along with *Thuvarai* (*dholl*) or red-gram. *Cumbu* is cut after three months and *Thuvarai* after six. *Cumbu*, ground-nut and oil-seeds are also sown together, and since the first two mature in three and six months respectively and the last take longer to ripen, they are harvested in succession. A useful practice is to sow *Varagu* and red-gram in the same field. Since *Varagu* requires more water than gram, a season of plentiful rain gives a good *Varagu* harvest, while scarcity of rain does not prevent a good harvest of gram.

**Varagu:** (*Paspalum scorbulatum*) *Varagu* is the most important and extensively grown of the dry crops. It is a six months crop, usually sown with red-gram. Its grain forms the main food of the agricultural classes. A shorter variety called *vayal varagu*, of about four months duration, is slowly spreading as a summer crop in wet lands.

**Gram.**—Horse-gram, which is largely cultivated in the Kolattur Taluk, is sown in October and harvested in January. Red-gram is grown along with *Cumbu* or *Varagu*. Green and black-grams are more sparsely cultivated. In the Alangudi Taluk, red-gram is frequently grown as a green-manure.

**Cholam and Maize.**—*Cholam* is occasionally grown with *mochai* (*Dolichos lab-lab*); Maize (*Zea mays*) is usually grown as a summer crop in wet lands, or as a garden crop under wells practically throughout the year.

**Ragi.**—(*Eleusine coracana*): *Ragi* is raised on dry and also on garden lands. One of its varieties known as *Vilakeppai* (furrow *ragi*) deserves mention. It is the only dry crop in the State that is transplanted. The *seyidil* or transplanting field is ploughed at the setting-in of the south-west monsoon, and as a furrow is cut by the plough, the *ragi* seedlings which have remained in the nursery for about twenty days are "dibbled" singly along it at intervals of a foot or ten inches. As the next furrow is formed, the soil overturned by the plough falls on the seedlings in the first furrow and covers their roots. A new

strain known as E. C. 593 evolved by the Millet specialists of the Madras Agricultural Department has been tried successfully in the State Farm as a summer crop.

**Cumbu, etc.**—*Cumbu* (*Pennisetum typhoideum*) is grown with gram. *Samai* (*Panicum miliare*) and *Tenai* (*Setaria italica*) are sown on poor lands in small quantities. The African *Bajri* or *Navnagar cumbu* is being tried.

**Oil seeds.**—The Ground, Earth or Pea-nut (*Arachis hypogaea*) forms an important crop under this group; and it was grown on 35,400 acres in the State in 1934-35. It suits sandy soils and *Padugai* land, that is alluvial land consisting of a mixture of fine sand and silt, is equally good. It is cultivated as a dry crop from June-July to December-January.

**Cultivation Details.**—**Ground-nut** (*Arachis hypogaea*) The ryots are unanimously of opinion that ground-nut is a crop that exhausts the soil and cannot be cultivated on the same land for a series of years without the liberal use of manure. Land cropped with it year after year they consider, is apt to get foul. In the report of the Royal Commission on Agriculture in India (1928) however, it is suggested that the leaves of ground-nut could be used as green manure without interfering with the commercial value of the crop and that this "would furnish an additional reason for extending the area of this valuable crop." (paragraph 86). So far as unirrigated land is concerned, there are hardly any cereal crops but *varagu* (*Paspalum scorbiolatum*) and *Tenai* (*Setaria italica*) with which ground-nut can be cultivated conveniently, and it is sown either mixed or in rotation with *tenai* or *varagu*. *Tenai* is considered a much more exhausting crop than *varagu*, and hence ground-nut is not sown after it unless manure is liberally applied. The ryots prefer to alternate the crop with either *Cumbu* (*Pennisetum typhoideum*), or the spiked Millet or *ragi* (*Eleusine coracana*) instead of with *varagu* in a rotation, but the *cumbu* harvest comes off so early as to leave the land bare for a considerable

portion of the year and yet so late that a ground-nut crop sown afterwards is apt to suffer for want of rain. Ground-nut following a *Cholam* crop is said to be predisposed to the attacks of *ver puchi* (*Sphenoptera* sp.). On irrigated dry lands ground-nut grows best if sown after *cumbu* or *ragi* has been harvested.

A liberal application of tank or channel silt, ashes and other manure is a conspicuous feature in ground-nut cultivation. Lime is also regarded as essential for ground-nut.

**Varieties.**—Several varieties of ground-nut are now grown but the commonest and most important is termed "Mauritius". The varieties are classified according to the habit of the plant and size of the nut, (pods). Some have an erect habit, some have spreading branches which lie flat on the ground; some have large pods, while others have small ones; others bear fruit early and produce nuts centred round about the tap root in clusters. Ground-nut was once a very paying crop and between the years 1920 and 1930 the trade in ground-nut constituted 72 to 74 per cent of the total export trade in oil-seeds by sea and rail from the Madras Presidency including the Pudukkottai State. The area under this important crop in the State has decreased from 45,900 acres in 1924-25 to 15,400 acres in 1934-35 no doubt owing to the fall in price. The Agricultural Department have very recently introduced the drought-resisting "saloun" variety.

**Gingelly.**—(*Sesamum indicum*) is grown in the State on a very small scale and on the dry poor soils. It is sometimes sown on paddy fields as a second crop. It contains 40 per cent by weight of oil.

The area under *plantains* and *sugar-cane* is now increasing. These crops pay the ryots better than paddy.

**Sugar-cane.**—*Sugar-cane* (*Saccharum officinarum*) is now grown in Satyamangalam, Melur, Pasumalaipatti, Kalamavur, Sittannavasal, Thalampatti, Kulipirai, Edayathur, Alavayal, Koppanapatti, Kannangudi and Puliyur. The chewing varieties called *Namam* and *Bonthan* or *Rasathali* are largely raised.

in these villages. The ryots of Kannangudi and Puliyúr grow the reed variety and manufacture jaggery therefrom.

**Plantains.**—(*Musa paradisiaca*) These are cultivated in Kudumiamalai, Viralur, Vellalur, Puthambur, Sembattur, Sathiamangalam, Melur, Pillamangalam and Karaiyur. In addition to the dwarf variety (Mauritius), the big varieties, called *Monthian* and *Rasthali* are largely grown for sale in the capital town and in the Chettinad.

**Tobacco.**—(*Nicotiana tabacum*). The cultivation of this crop has become very intensive in Arimalam, Sevalur, Kulipirai, Rangiyam and Puthambur. The cured stuff finds a ready market locally. The variety grown is only fit for chewing. There appears to be considerable scope for the extension of the area under tobacco, large quantities of which are imported into the State. The matter is engaging the attention of the Government. The crop has recently been introduced in Poovarasakudi.

**Tomato.**—(*Lycopersicum esculentum*) is a new garden crop much valued for its vitamin-contents and grown in Kodumbalur, Viralur, Kothakóttai, Edayápati, Koilpatti, Pallathividuthi and in town gardens. The variety "Ponderosa" is found to be the best. The local demand for the fruit is steadily increasing.

**Tapioca.**—(*Manihot utilissima*) *Maravelli kilangu*, comprises the sweet and early varieties. The red and the white varieties were successfully tried in the State Farm and then introduced in the villages of Annavasal, Álangudi, Keelappatti—Rasiamangalam, Kottaikadu, Vayalogam, Selliampatti and Mullankuruchi and are becoming very popular since the ryots find in them a good and nourishing food.

**Betel vine.**—(*Piper betel*) is confined to a few villages such as, Sembattur, Annavasal and Perunchenai, and is cultivated by Muhammedans (Ravuttars) Indian Christians or Pallans. There are two varieties, the "white-leaved" and the "dark green-leaved." The latter is of an inferior quality and is largely used.

The betel vine is trained on standards of *Agatti* (*Sesbania andiflora*). Vegetables such as brinjals, chillies and drum-sticks are usually grown in the betel-gardens and bring in a small additional income to the cultivators. The drum-stick stems are useful as supports to the betel vines.

**Groves and plantations.**—There are no extensive gardens or fruit trees in the State. There are however small plantations, here and there, especially along the river-courses, of cocoanut (*Cocos nucifera*) and palmyra (*Borassus flabellifer*) palms. Small topos (gardens) are found in Kadayakkudi, Málayidu, Tirukalambur, Ponnamaravati, Valayapatti, Yenádi, Karaiyur, Dayathur, Nerunjikkudi and Tiruvidaiyappatti. The State Agricultural Department has successfully introduced the Travancore variety of cocoanuts in the villages of Regunadhapuram, Tirumayam and Virachilai. They yield large nuts which are much appreciated by the ryots. The various industries for which the cocoanut and palmyra afford materials have been little developed in the State. The Government hope to encourage the manufacture of palmyra jaggery (coarse sugar).

**Mango.** (*Mangifera indica*) orchards are not uncommon. Good grafted varieties of mangoes have been successfully introduced in the villages of Karambakkudi, Manathichithy, and in Kadavampatti, in the Ananda Bagh, and in the Kokumari and Sivagnanapuram topos. The graft varieties produced here have earned a name even outside the State. Sendamangalam, Tirukkattalai, Immanampatti and Veppangudi also produce fine mangoes.

**Jack.**—Of greater importance are the *jack* (*Artocarpus integrifolia*) trees which grow in Karambakkudi, Kóttaiikkadu and many other places in Álangudi Taluk. The commercial value of the *jack* is great; the timber is utilised in house-construction, the tender fruit (the female inflorescence) is cooked as a vegetable (infructescence) and the ripe fruit, which some-times grow to such a large size as to sell at Rs. 2 each, are much in demand for the sake of the sweet fleshy flakes which are edible.

*State Enterprise.*—The State has done a good deal in the way of forming plantations. The Forest Department is in charge of some extensive topes of mango and other trees.

The Government also own a number of casuarina (*Casuarina equisetifolia*) topes along the banks of the Vellar and the Perungalur stream which supply fuel to the capital. There are also a few cashew-nut (*Anacardium occidentale*) plantations. The roasting of cashew-nuts is a useful and profitable cottage industry, which at the suggestion of Dr. D. Spencer Hatch, the Government are trying to encourage.

**Manures.**—The usual manures are green leaves, cattle manure, town and village refuse and ashes. *Viráli* (*Dodonaea viscosa*) is grown extensively on dry lands and its leaves are cut annually for five to ten years. Other green leaves used as manure are those of *Cassia siamea*, *Cassia auriculata* (*Ávárái*), *Pongamia glabra* (*Pungai*), *Tephrosia purpurea* (*Kolinji*), *Thespesia populnea* (*Poovarasu*), *Morinda tinctoria* (*Nona*) *Calotropis gigantea* *madar* (*Erukkan*) and Red-gram, the Cadjan pea (*Cajanus indicus*). Ryots, especially in the villages of Ilanjavur, Virálur, Sendakkudi, Thanjur, Keelayur, Kodumbalur, Annavasal and Melathur, are coming to recognise the advantages of growing green manure crops in their fields and ploughing them in, so that the atmospheric nitrogen found fixed in the bacterial nodules of the green manure leguminous crops such as the *Daincha* (*Sesbania aculeata*), and *Kolinji* (*Tephrosia purpurea*) and *Sanappu* (*Crotalaria juncea*) is added to the soil. So the growing of green manure crops is more beneficial than applying green leaves. It is also cheaper; the cost of raising them is only Rs. 2 per acre.

A vast quantity of cowdung is made into cakes and burnt as fuel. This matter is engaging the attention of the Government but the problem is, of course, where the ryot is to find an alternative source of fuel-supply (Cf. Report of the Royal Commission on Agriculture in India—1928—paragraph 82).

Hasty criticism of the ryot's wastefulness in thus misapplying valuable manure ignores the real difficulties involved. Even when cowdung is stored for use as manure, however, care is not taken to conserve the valuable urine by spreading litter or earth (to be removed daily) on the floor of the byre, or to form proper pits protected from the heat of the sun for the reception not only of the cowdung but of village refuse of all sorts, with great advantage alike to the fertility of the fields and to the sanitation of the village.

**Pests and Diseases.**—Pests may be divided into two main classes—Insect pests and Fungus pests. We shall first consider the insect pests that affect some of the more important crops.

**Paddy.**—(*Oryza Sativa*).

The stem-borer (*Schaenobius incertellus*) is a caterpillar which bores into the paddy stem, kills the shoot and causes white ears. The grub of the Rice-Hispa (*Hispa armigera*) mines into the leaf-tissue while the beetle scrapes the green foliage. The Rice grass-hopper (*Hieroglyphus banian*) feeds on the foliage and cuts away the ear-heads. The caterpillars known as case worms (*Nymphula depunctalis*) cut the leaves into pieces to make cases in which they live, and feed on the paddy blades. The maggot of the paddy gall-fly (*Pachydiplosis oryza*) bores into the stem, attacks the bud shoots and causes galls known as 'silver shoots'.

**Cholam.**—(*Sorghum vulgare*) is affected by the Cholam stem-borer (*Chilo zonellus*) which bores through the stem, killing the young plants and damaging the older stems. The Black-hairy caterpillars (*Estigmene lactinea*) and the Root-lice (*Aphis* sp.) affect Cholam, Ragi, Varagu and Cumbu.

**Sugar-cane.**—(*Saccharum officinarum*).

Cane stem-borers bore into the stem, killing young shoot and damaging growing canes. Two or more kinds of moths are sometimes found on canes, of which *Argyria stricticraspis* and *Diatraea renosata* are the most important. White and

(*Odentotermes obesus*) or termites—often bore into the planted setts under-ground and kill the tender shoots and buds.

**Pulses.**—Gram caterpillar (*Heliothis obsoleta*):

The caterpillars eat the leaves, bore into the seed pods and eat the seeds.

**Oil-seed crops.**

Ground-nut:—*Surul puchi* (*Stomopteryx nerteria*). This small caterpillar feeds on the foliage and damages it. The *Ver puchi* (*Sphenoptera perotteti*) is a grub which bores into the stem and kills the plant. The Green caterpillar (*Heliothis obsoleta*) affects oil-seeds and Bengal and Red-grams.

Gingelly:—The Sphinx caterpillar (*Acherontia styx*) is a caterpillar which eats leaves and shoots.

Castor:—The caterpillar Castor semilooper (*Achoea janata*) defoliates the plant and the Castor seed-borer (*Dichocrocis puncti feralis*) bores into the seed capsules and petioles. Tobacco caterpillar (*Prodenia litura*) defoliates the castor plant.

**Vegetables.**—The stem-boring caterpillars (*Euzophera perticella*), the fruit-borer (*Leucinodes orbonalis*) and leaf-folding caterpillars (*Eublemma olivacea*) are common pests.

**Fruit crops.**—Mango-hopper (*Idiocerus niveosparsus*). The bug sucks the juice from the flower-heads and makes them drop off. The white wriggling maggots of Fruit-flies (*Chactodacus incisus* and *C. ferrugineus*) bore into the fruit pulp and spoil the fruit.

**Fibre crops.**

Cotton:—1. Pink boll worm (*Platoedra gossypiella*), a small pink caterpillar, is a serious pest of cotton. It bores into the bolls and feeds on the seeds.

2. Stem-weevil (*Pempheris affinis*) is a small weevil and an important pest especially of Cambodia cotton. The grubs bore into the stem and cause galls.

**Tobacco.**—(*Nicotiana tabacum*).

The tobacco caterpillar (*Prodenia litura*) does damage specially in the nurseries, while the tobacco aphid or plant lice amage the plants by sucking their juice.

**Palms.**—Most of the palms, especially the cocoa-nut and the palmyra, are subject to the attack of the Rhinoceros Beetle (*Oryctes rhinoceros*) and Red Weevil (*Rhynchophorus ferrugineus*). The grubs of the weevil bore into the crown and eventually kill the tree, after which the rhinoceros beetle lays eggs and breeds in the decaying stem.

**Some common Fungus diseases of crops.**

**Cereals: Paddy.**—False smut (*Ustilagoidea virens*) is called *Nelpalam* in Tamil. This affects only a few plants; large velvety greenish masses about twice the size of normal grains appear between the glumes. This occurs only when the crop is bumper and the damage done is negligible.

**Blast:** (*Piricularia oryzae*) *Kollinovu*: Brown spots with grey centres occur on leaves and leaf-sheaths and the nodes and the neck of the ear-head turn black. When the neck of the ears is affected, grains do not develop.

**Cholam, Cumbu, Varagu and Ragi.**—(*Sphacelotheca sorghi*) *Kariputtainovu*, in Tamil resembles the short smut; but does not cause such serious damage. Leaf-shredding disease (*Sclerosporia graminicola*) *Talainovu*, in Tamil, checks the formation of ear-heads. Even if they are formed the grains do not set.

**Pulses.**—Wilt (*Rhizoctonia* sp.) causes the leaves suddenly to droop and dry up.

**Ground-nut.**—*Tikka-leaf spot* (*Septogloeum arachidis*). Dark spots each surrounded by a bright yellow ring appear in large numbers on the leaves which consequently fall off.

**Tobacco.**—Mildew (*Erysiphe cichoracearum*) *Sambalnoi*, in Tamil, is a very common disease causing severe damage.

**Chillies.**—Fruit-rot (*Colletotrichum capsici*)—in Tamil,—*Alugalnoi*. The fruit turns yellow and rots. It also loses its characteristic pungency.

**Palms.**—Budrot (*Phytophthora palmivora*). The central shoot yellows and dries up and the other leaves drop off one by one.

**Sugar-cane.**—Red-rot (*Colletotrichum falcatum*)—in Tamil,—*Sembulli pulippu noi*; is a widely distributed disease. On splitting an affected cane a sour smell may be noticed and the tissues become red. Definite red patches with a transversely elongated white centre are present.

**Fruit crops.**—Mango: Sooty mould (*Capnodium mangiferae*): A dense black sooty crust appears particularly on the upper surface of the leaves.

**Local remedial measures.**—The local remedial measures consist in sprinkling ashes over plants affected by aphid or plant lice, and lime water on those affected by insect and fungus pests. In the event of an attack by any pest, pig-manure or cake-manure is said to be applied to stimulate the plant. The field is sometimes allowed to dry.

**Prickly-pear.**—No account of pests and other disabilities of local agriculture would be complete without a reference to the common prickly-pear (*Opuntia dillenii*).

This exotic cactus was probably introduced into India on account of its usefulness in forming impenetrable fences. It was introduced into the Madras Presidency before 1786. It soon spread over large tracts and became a serious nuisance, being extremely difficult to eradicate or control. Though capable of being converted into fodder, and also into manure, its drawbacks far outweigh such utility as it possesses. Dense thickets of this plant in the neighbourhood of villages are by no means favourable to sanitation and harbour snakes. There have been

periodical prickly-pear crusades in all parts of South India. The one that took place in Pudukkottai at the time of Sir A. Sashayya Sastriar is still remembered. The plant effectively resisted all attempts to extirpate it by uprooting, burning and burial. Recently, however, the introduction of the *Cochineal* insect which feeds on it, has had a most remarkable effect in reducing the area covered by it, both in Pudukkottai and in South-India generally.

**Popular agricultural beliefs, etc.**—These are a body of empirical maxims handed from father to son, and crystallising the wisdom or in some cases it may be the unwisdom, of generations. The conservative tendencies of the ryot have preserved them to this day with all the accretions that religion and superstition have made thereto.

The Hindu ryot believes in the efficacy of *Varuna japam* or the recital of hymns to Varuna, the rain-god, for the purpose of securing rain. (When pests ravage the crops, or the rains fail, the lower-caste peasantry betake themselves to the *Pusári* through whom sacrifices of sheep, etc., are offered at the altars of the godlings of the rural pantheon.

Another curious way of invoking rain is for the village elders or priests to beg boiled rice and sauce from every house in the rainless village. When a sufficiently large quantity of rice and sauce have been collected the inhabitants go out in a body to the nearest water course or channel where the two are mixed, and male and female figures are formed with them on the dry sand. The people gather round the figures, beat their breasts, and set up a cry of lamentation loud enough, it is hoped, to be heard in Heaven.)

Some of the rules of husbandry embody sound agricultural principles. One of them which runs “அகல் உழுதிறதை ஆழ உழு” brings out the superiority of deep ploughing over superficial ploughing. “மேழிச்செவ்வம் கோழைபடாது,” which means *there is nothing like the riches that the plough yields*, further emphasises

the value of ploughing. “பயிர் பாராமல் கெட்டது, கடன் கேளாமல் கெட்டது” inculcates the need of constant care and supervision of the fields, comparing the careless cultivator to the creditor who having never insisted on the repayment of his dues loses his money in consequence.

A very familiar maxim predicts rain when ants carry their eggs about in search of shelter. The croaking of frogs and the flight of winged insects called *ésal* (Termites: winged forms), for instance, are also supposed to presage rain. Should the sun be obscured on Sunday mornings especially in the wet season, continuous rain is to be expected for a week. Rainless days are in store if lightning should be seen North-East in *Vaikasi* and *Ani* (May—July). Lightning in *kódai* (summer) is as bad as thunder in *kálam* (winter), for neither is a sign of wet weather. Again, a halo seen round the *Kártigai* (November—December) moon portends dry days. To expect rains after *Kártigai* is as fruitless, says a \* Tamil proverb, as to expect liberal gifts from any person other than Karna, a Mahábárata hero famous for philanthropy.

**Agricultural stock Implements :** The State Agricultural Department has been successfully advocating the use of cheap, efficient and improved mouldboard iron ploughs, which not only go deeper into the soil but also conserve the soil moisture. “Roll-easy” mhote wheels and pumping plants are coming into use for irrigation in Annavásal, Puliyúr, Seṅgampatti and Adanúr.

**Live-stock :** The local beasts are generally puny and under-sized, and do not belong to any distinctive breed.

To improve the local breeds, the State is maintaining a Stud Farm attached to the Agricultural Farm at Pudukkottai. There were 6 stud bulls in the Farm, at the close of Fasli 1344. The total number of cows served in the fasli was 847. Ryots who come to the weekly market in the town bring their cows

\* கார்த்திகைக்கப்பறம் மழையிலலை, கர்ணனுக்கப்பறம் கொடையிலலை.

for service at the Stud Farm. The fee for service was recently reduced from annas 12 to annas 6.

Besides the Stud Farm, there is a model Dairy Farm which had on June 30, 1935, nine milch cows, three adult heifers, seven weaned she-calves, seven suckling she-calves and one suckling bull-calf. The Scindi cows in the farm are heavy milkers; and their milk is rich in nutrients. The total supply of milk during the last three faslis was as follows :—

|            |     |     |                 |
|------------|-----|-----|-----------------|
| Fasli 1342 | ... | ... | 7,842 measures. |
| Fasli 1343 | ... | ... | 6,192 measures. |
| Fasli 1344 | ... | ... | 9,496 measures. |

The dairy supplies the palace and its pure milk meets a real want in the town. It was working at a loss, but now it is not owing to reform of diet that has resulted in an increasing demand for good milk. The Darbar are now prepared to subsidize ryots who maintain approved stud-bulls (see below).

**Cultivation expenses.**—The expenses of cultivation are hard to determine. Few subjects are more controversial. Moreover they vary appreciably from place to place, and even from field to field, and depend greatly on the skill and prudence of the individual farmer. According to a proverb\* locally current, very little is left to the ryot after reckoning up the entire cost of husbandry. The cost of cultivation of wet lands in the State is higher than in the delta district of Tanjore or in Trichinopoly or Madura. More manure is required for the wet lands in the State than in those Districts. The Settlement Scheme Report of 1910 fixes the cultivation expense for the best wet fields at Rs. 16 and for the best dry lands at Rs. 7 per acre. There is no reason to believe that the cost of cultivation has considerably increased since 1910 though wages have slightly increased. But an important point to bear in

\* The proverb has been rendered into English as follows :—

“If the ploughman counts the cost  
His ploughshare even will be lost”.

mind is that about 96 per cent of the ryots in the State cultivate their own lands with their own labour and that of their families. Thus they have no need to incur a large proportion of what are included in any conventional enumeration of cultivation expenses. They can and do make a living, both on this account and because of their personal interest in the land, where the absentee landlord may find that the income from his estate is decidedly disappointing at present prices.

**Tenures.**—The existing tenures are of three kinds—*mél váram* or sharing tenure, *kuttagai* or lease, and *pannai* or hired labour.

Under the *váram* system, the *swánthar* or landlord has his fields cultivated by *kudis* or cultivating ryots, and shares with them at the end of the season a portion of the produce. The *kudi* is a native of the soil, attached to and possessing an interest in the land. He has the inalienable right (*kudikáni* right) to cultivate the land and the *swánthar* can collect only the *mélváram*. He supplies his own seeds, ploughs and cattle, employs his own hired labour, whenever extra hands are required, and generally meets all charges of cultivation.

In the case of the best wet lands, the landlord and the ryot divide the paddy equally, and share the straw in the ratio of 1 to 5. This is called *sari* (half-and-half) *váram*. As regards dry and inferior wet lands, the *swánthar* receives a third or two-fifths of the produce, the ryot getting much more of the straw. These systems are known respectively as முனாத்தில் ஒன்று (one-in-three) and அஞ்சக்கிண்டு, or அஞ்சக்கு முன்று (two-in-five, and three-in-five).

Under *kuttagai* tenure, the lands are leased for a fixed money rent calculated on the basis of the average yield for a number of years. This is about Rs. 24 an acre for the best wet lands, and Rs. 3 for dry. The risks of bad seasons are borne by the lessee, but the lessor often finds that the permanent interests of his land have been neglected under the *kuttagai* tenure.

Under *pannaiyál* system, the proprietor looks after the cultivation himself. He engages hired labourers, or *pannaiyáls*, who, whatever their position in the past—serfdom or slavery—have long since emancipated themselves, with freedom to transfer themselves from farm to farm, and demand their own terms. Their remuneration, which is always paid in kind, is generally about 50 Madras measures of grain a month. They are also entitled at the end of the season to an additional remuneration amounting to nearly 10 per cent of the harvest. They are also allowed a piece of land called *pariyál* which is a *nadugai* ( $\frac{1}{2}$  acre) in extent planted with the landlord's seedlings, cultivated by the *pannaiyal* and harvested for his own benefit entirely. When it is the *pannaiyal's* lot to work under wealthy landlords, he is fed as well as clothed. He gets a pair of loin-cloths or a *cumbli* (woollen blanket) once a year. He also receives small presents, in the shape of cloth, paddy, and cash, ranging from some annas to a few rupees on the occasion of deaths and marriages in his family.

His lot is thus not so precarious as that of the *atha* coolies or day-labourers, adult or juvenile, of either sex. They are found under all tenures, and earn a scanty livelihood by hiring themselves whenever extra labour is required for transplanting, harvesting, or other operations. During employment adult males earn about six to eight local measures of grain and others about four per diem. Their condition is deplorable when lands are idle from drought, or lie fallow after harvest. In those hard months, they keep the wolf from the door by gathering *avarai* bark, *kanjira* (*nux vomica*) nuts, jungle-fruit, and cowdung, and selling them for what they will fetch.

The evils of absent-landlordism are not so pronounced here as elsewhere. According to the latest official returns, resident and non-resident ryots are 59,095 and 19,413 respectively, the former being rather over three times as many as the latter.

Joint-holdings are rare except in the case of dry inferior lands used as pasturage.

## STATISTICAL TABLES.

## I. Number of live-stock in the State in fasli 1344 (1934-35).

## (a) Cattle and Buffaloes:—

|                                                                            | Males:   | Cattle. | Buffaloes. |
|----------------------------------------------------------------------------|----------|---------|------------|
| 1. Breeding bulls (males over three years kept or used for breeding).      | ...      | 1,187   | 352        |
| 2. Working bullocks ...                                                    | ...      | 79,508  | 5,156      |
| 3. Bulls and bullocks over three years not in use for breeding or work.    | ...      | 3,830   | 808        |
| 4. Young stock                                                             |          |         |            |
| (a) under 1 year ...                                                       | ...      | 8,657   | 2,187      |
| (b) 1 to 3 years of age ...                                                | ...      | 9,309   | 1,770      |
|                                                                            | Females: |         |            |
| 1. Breeding cows (cows over 3 years kept for breeding or milk production). | ...      | 45,561  | 14,496     |
| 2. Cows over 3 years used for work...                                      | ...      | 7,176   | 1,408      |
| 3. Cows over 3 years not in use for work or breeding.                      | ...      | 5,091   | 1,083      |
| 4. Young stock                                                             |          |         |            |
| (a) under 1 year ...                                                       | ...      | 11,190  | 3,705      |
| (b) 1 to 3 years of age ...                                                | ...      | 7,651   | 2,742      |

## (b) Other animals:—

|                    |                                                                           |         |
|--------------------|---------------------------------------------------------------------------|---------|
| 1. Sheep           | ...                                                                       | 216,221 |
| 2. Goats           | ...                                                                       | 85,745  |
| 3. Horses & Ponies | <div>Horses ... 101</div> <div>Mares ... 85</div> <div>Ponies ... 9</div> |         |
| 4. Donkeys         | ...                                                                       | 847     |

## (c) Ploughs:—

|           |     |        |
|-----------|-----|--------|
| 1. Wooden | ... | 54,037 |
| 2. Iron   | ... | 122    |

## (d) Carts:—

|       |     |        |
|-------|-----|--------|
| Carts | ... | 15,765 |
|-------|-----|--------|

## (e) Mechanical appliances:—

|                                          |     |      |
|------------------------------------------|-----|------|
| 1. Sugar-cane crushers                   |     |      |
| (a) worked by power                      | ... | Nil. |
| (b) worked by bullocks                   | ... | 1    |
| 2. Oil Engines with pumps for irrigation | ... | 172  |
| 3. Electric pumps for tube wells         | ... | 22   |

## II. Statement of the prices of staple food-grains for Faslis 1340 to 1344 (during the month of June) in seers per rupee:—

|              | Fasli 1340 | Fasli 1341 | Fasli 1342 | Fasli 1343 | Fasli 1344 |
|--------------|------------|------------|------------|------------|------------|
|              | Seers.     | Seers.     | Seers.     | Seers.     | Seers.     |
| 1. Rice ...  | 6'62       | 7'30       | 9'43       | 9'59       | 8'25       |
| 2. Ragi ...  | 17'08      | 14'86      | 20'52      | 20'76      | 12'21      |
| 3. Cholam... | 13'62      | 14'31      | 18'05      | 18'05      | 10'99      |
| 4. Cumbu ... | 12'64      | 9'98       | 14'22      | 15'59      | 10'28      |

## Labourers' wages:—

| Place.      | Unskilled labourers. |              |                    |
|-------------|----------------------|--------------|--------------------|
|             | Man cooly.           | Woman cooly. | Boy or girl cooly. |
|             | AS.                  | AS.          | AS.                |
| Pudukkottai | 6—8                  | 3—4          | 3—4                |
| Alangudi    | 5—6                  | 2—3          | 2—3                |
| Tirumayam   | 6                    | 4            | 4                  |
| Kolattur    | 5                    | 3            | 3                  |

## III. Statistics of persons who follow agriculture as a profession.\*

(a) Owing to the fact that the majority of the ryots are drawn from communities whose hereditary occupation is agriculture, the number of those who derive their income from land, without themselves taking part in the actual agricultural operations, forms only four per cent of the total number of owners and tenants.

|         |     | Not cultivating at all but taking rent in money or kind. |        | Cultivating solely by cooly labour. |        | Cultivating with family labour or with partial help from coolies. |        |
|---------|-----|----------------------------------------------------------|--------|-------------------------------------|--------|-------------------------------------------------------------------|--------|
|         |     | Men.                                                     | Women. | Men.                                | Women. | Men.                                                              | Women. |
| Total   | ... | 1,778                                                    | 1,045  | 741                                 | 600    | 67,752                                                            | 26,067 |
| Owners  | ... | 1,376                                                    | 880    | 638                                 | 540    | 60,403                                                            | 23,465 |
| Tenants | ... | 402                                                      | 165    | 103                                 | 60     | 7,349                                                             | 2,602  |

\* The figures are taken from the Census Report of 1931.

(b) The number of persons to whom cultivation is a subsidiary occupation was 11,446 (9,236 men and 2,210 women) in 1931. Of these, 1,361 men and 103 women were non-cultivating proprietors taking rent in money or kind. A large number of such persons are Government servants, members of the learned professions or money-lenders.

(c) The following castes contribute nearly 60 per cent of the non-cultivating proprietors:—

|                             |     |      |
|-----------------------------|-----|------|
| 1. Brahman ...              | ... | 302. |
| 2. Kallan ...               | ... | 246. |
| 3. Valaiyan ...             | ... | 192. |
| 4. Vellalan ...             | ... | 190. |
| 5. Nattukkottai Chetti...   | ... | 150. |
| 6. Other Chetti communities | ... | 117. |
| 7. Mussalmans               | ... | 125. |

(d) Over 60 per cent of the cultivating owners come from the following communities:—

|                 |         |                   |        |
|-----------------|---------|-------------------|--------|
| 1. Kallan ...   | 17,263. | 4. Idaiyan ...    | 7,109. |
| 2. Valaiyan ... | 11,741. | 5. Nattaman ...   | 5,131. |
| 3. Paraiyan ... | 7,135.  | 6. Christians ... | 4,280. |

(e) Tenant cultivators are mainly:—

|                 |        |
|-----------------|--------|
| 1. Valaiyans... | 2,934. |
| 2. Pallans ...  | 2,151. |
| 3. Paraiyans... | 1,042. |

(f) More than three-fourths of the agricultural labourers are:—

|                 |        |
|-----------------|--------|
| 1. Valaiyans... | 5,872. |
| 2. Paraiyans... | 5,024. |
| 3. Pallans ...  | 4,236. |
| 4. Idaiyans ... | 1,436. |
| 5. Kallans ...  | 1,039. |

(g) 63 per cent of the miscellaneous unskilled labourers are:—

|                 |        |
|-----------------|--------|
| 1. Valaiyans... | 4,021. |
| 2. Pallans ...  | 3,387. |
| 3. Paraiyans... | 3,318. |

Area (in thousands of acres) under principal crops grown in the Pudukkottai State.\*

| Years.      | Rice. | Ground-nut. | Food grains and pulses. | Gram. | Ragi. | Cholam. | Cumbu. | Sugar-cane. | Til. | Cotton. | Cocconut. | Maize. |
|-------------|-------|-------------|-------------------------|-------|-------|---------|--------|-------------|------|---------|-----------|--------|
| 1924-25 ... | 119.1 | 45.9        | 56.7                    | 29.1  | 36.1  | 21.7    | 11.4   | 0.9         | 0.8  | ...     | ...       | ...    |
| 1925-26 ... | 101.7 | 45.0        | 47.6                    | ...   | 34.9  | 22.7    | 10.1   | ...         | 0.74 | 2.1     | ...       | ...    |
| 1926-27 ... | 90.7  | 42.0        | 44.6                    | 21.3  | 27.4  | 16.2    | 9.3    | ...         | 0.9  | 1.7     | ...       | ...    |
| 1927-28 ... | 36.7  | 37.8        | 42.0                    | 15.1  | 26.0  | 26.4    | 6.3    | ...         | 0.6  | 1.5     | ...       | ...    |
| 1928-29 ... | 62.6  | 39.7        | 38.7                    | 26.6  | 39.7  | 21.6    | 5.7    | ...         | 0.6  | 2.1     | ...       | ...    |
| 1929-30 ... | 111.8 | 31.1        | 44.1                    | 24.8  | 45.6  | 11.9    | 6.9    | ...         | ...  | 1.5     | ...       | ...    |
| 1930-31 ... | 121.7 | 27.0        | 41.0                    | 21.2  | 28.7  | 23.3    | ...    | ...         | ...  | 0.6     | ...       | ...    |
| 1931-32 ... | 110.8 | 17.4        | 56.5                    | 29.0  | 21.8  | 14.7    | 3.9    | ...         | 0.7  | ...     | 0.9       | ...    |
| 1932-33 ... | 132.8 | 16.5        | 56.2                    | 26.6  | 27.7  | 11.4    | 6.5    | ...         | 2.4  | ...     | 0.94      | ...    |
| 1933-34 ... | 116.0 | 19.1        | 43.4                    | 35.6  | 29.5  | 15.0    | 13.1   | ...         | ...  | ...     | ...       | ...    |
| 1934-35 ... | 56.1  | 15.4        | 35.4                    | 31.4  | 26.6  | 8.4     | 6.1    | ...         | ...  | 1.6     | ...       | 1.0    |

#### AGRICULTURAL DEPARTMENT—RECEIPTS AND EXPENDITURE.

The receipts of the Agricultural Department during Fasli 1344 were as follows:—

|                           | Rs.   |
|---------------------------|-------|
| 1. Sale of garden produce | 450   |
| 2. Sale of seed           | 188   |
| 3. Miscellaneous          | 2,052 |
| Total                     | 2,690 |

The expenditure, excluding salaries, etc., of the establishment amounting to about Rs. 5,200, was—

|                                    | Rs.   |
|------------------------------------|-------|
| 1. State Farm                      | 6,822 |
| 2. Purchase of implements and seed | 554   |
| Total                              | 7,376 |

**Productive capacity of lands.**—For reasons already given in the paragraph on the classification of lands, the yield of wet lands in the State is lower than in the adjoining Districts. Some of the best wet lands are reputed to yield 10 kalamas

\* These figures have been taken from the charts exhibited on the occasion of the State Co-operative conference at Viralimalai.

a *nadugai*, equal to 1,800 Madras measures an acre, but this out-turn is exceptional. Ordinarily, the production varies between 900 and 270 Madras measures. Dry cultivation stands on a different footing. Where the cultivator is enterprising and hard-working, and spares no expense on manure, as on the Nattambadi farmsteads in the Alangudi Taluk, the yield may be as much as 40 per cent higher than normal. Otherwise, 360 Madras measures an acre for *ragi*, 550 for *varagu*, 350 for *cumbu* and 550 for ground-nut may be taken as the average. This out-turn of dry crops compares very favourably with the that in adjoining Districts of Tanjore and Trichinopoly.

**Sale value of land.**—In estimating the sale value of land, regard must be had to two factors:—whether it is near a Chetti village, and whether it is occupied by efficient cultivators. Since the Chetties are fond of investing their savings in land, a *veli* (6·74 acres) in the Tirumayam Taluk sometimes sells at Rs. 10,000. Dry lands under Nattambadi cultivation fetch as much as wet lands. In ordinary circumstances, the sale value of wet lands may be taken to be Rs. 100 to 150 per acre and that of dry lands Rs. 30.

**The Peasantry and their economic condition.**—Though the State ryot has not the advantage of irrigation from any river in which there is more than an intermittent flow, the tanks in the State are numerous (perhaps too numerous), and the supply of leaf manure plentiful. The soil, though not of the richest, is not unfruitful. The incidence of taxation cannot be considered heavy,—it is lower than in the adjacent British districts,—and the average incidence is reduced by the large area of inam lands and the absence of any charge for a second or third crop. This is an advantage that must be set against the absence of an automatic system of remission even in normal years on lands that do not yield owing to causes beyond the ryots' control such as prevails in the Madras Presidency. If the cultivator is indebted, that is perhaps due to his improvident ways but certainly not to heavy fiscal burdens.

**State Aid:** Recognising the fact that the ryot is generally conservative and ignorant, the Darbar have attempted in various ways to acquaint him with improved and scientific methods of cultivation. The first important step was the opening of numerous rural Co-operative Societies which were liberally financed by the Darbar. The work of these societies is described in the Chapter on "Co-operation". An agricultural school was opened in the Town in Fasli 1328 (1918—19) for the benefit of the children of the ryots. It soon became evident that it would be a more effective policy to attempt to instruct the cultivators in their villages. The Government therefore abolished the school in 1924, and appointed Agricultural Instructors to tour in the different taluks, and instruct the ryots by means of informal advice, lectures and practical demonstrations. They then established the State Farm at the capital near the ground where the weekly 'Shandy' (fair) is held. The Farm attracts a large number of villagers every Friday. From the year 1925 till the school was abolished, an agricultural class was attached to the State Training School at Tirugokarnam; and the teachers under training received practical instruction in the State Farm as a branch of Rural Science, which they were expected to teach in their schools in the villages, so as to give Elementary Education a "rural bias". Agriculture was introduced as an optional subject for the Secondary School Leaving Certificate Examination in the High-School section of the Rajah's College in 1935-36.

An Association called the "Pudukkottai Agricultural Association", composed of officials—mostly Revenue officers—and non-officials was in existence for some years. It issued leaflets in the vernacular, sold seed and conducted demonstrations. This Association became defunct when the State Farm was established. An annual exhibition (called the Marthanda Exhibition) was held in the capital for a number of years up to 1920. Its features included lectures and practical demonstrations bearing on agriculture. It was then thought that an

exhibition of this kind would be more useful if held in connection with a popular rural religious festival, and hence from 1926 till 1933, it was held at Narthamalai in connection with the annual festival of the Mariamman temple. It was, however, abandoned "as it did not seem to justify its existence".\* In October 1925, a conference of ryots presided over by the Deputy Director of Agriculture, Trichinopoly, was held at Tirumayam.

The programme of work carried out by the Agricultural Instructors and the Manager of the State Farm include instruction and demonstration in economic planting, proper seed selection, the ridge-and-furrow system of cultivation, rotation of crops, the utility of green and artificial manures, and the methods of combating crop diseases, especially by the application of stimulant manures. The introduction of Combodia cotton as a garden crop, either pure or mixed with *Cholam* and of new and useful varieties of paddy such as *Kichili Sambá*, of plantains and cocoa-nuts and of garden crops such as Elephant yam, tapioca, turmeric, tomato, capsicum, *brinjals* and radish has met with some success. Sugar-cane is now largely cultivated and has proved a paying crop, yielding an annual net profit of Rs. 300 per acre. In Fasli 1344 a drought-resisting strain of *Cumbu-bajri*, an African variety, and fruit plants of the citrus variety were introduced.

The State Farm is now very useful as a seed depôt and sells annually a quantity of paddy, ground-nut, green manure, vegetable seeds and chemical manures. The staff were running a show stall at the weekly market accompanied by magic-lantern lectures till 1933, when it was stopped as it did not attract a sufficiently large number of visitors. A plot at a short distance from the Farm was reserved for Senna cultivation, but this experiment has been given up as unprofitable.

\* Administration Report—Fasli. 1343.

Poultry-keeping and bee-keeping are now being started at the Farm. There are also some hives of bees kept in "Ananda Bagh" Park and poultry at the Vijayaraghunatha Dorai Raja Poor Home.

Useful work has been done in the introduction of iron ploughs, such as the Meston, Monsoon and *Konkon* ploughs, and of the "roll-easy" mhote wheels to replace the ordinary country wheels.

Another direction in which the State helps the ryots is by the grant of agricultural loans and loans for well-digging. In Fasli 1335, the Darbar revised the rules relating to well-digging loans; the rate of interest was reduced to 4 per cent; no interest was charged for the first 12 to 18 months; and the period of repayment was extended from 10 to 12 years. In honour of the visit to the State on December 13, 1933 of Their Excellencies the Viceroy and the Countess of Willingdon, the Darbar were pleased to declare that all agricultural loans outstanding on that date would be considered to have been granted free of interest. The balance due to the Darbar at the end of Fasli 1344 by way of loans for purely agricultural purposes was Rs. 382,151 and by way of house-building advances, Rs. 25,452 making a total of Rs. 407,603. Owing to the severe drought in Fasli 1343, the Government ordered the postponement for one year of the collection of the instalments of principal and interest due in that fasli.

The Darbar have come to the conclusion that Scientific experiments concerning agriculture conducted by the department should be concentrated in a few chosen centres. They expect the co-operation of the public, and if enlightened ryots will open private experimental stations, the Darbar are prepared to help them with all the expert advice and guidance that they may need. It is an encouraging sign that the Co-operative Conference held at Viralimalai in February 1936 had an agricultural exhibition attached to it.

The agricultural interests of Pudukkottai are in many ways identical with those of the surrounding British districts. When a granary pest (*Rhizopertha dominica*) invaded the State from the adjoining Madras districts in 1935, the Government of Madras were so good as to depute their Assistant Entomologist and Mycologist to visit the State and suggest measures for its eradication. Pudukkottai joined in the general campaign started by the Madras Agricultural Department for the destruction of prickly-pear by means of the *cochineal* insect, which as already stated has enormously reduced the quantity of prickly-pear.

On July 7, 1936, a conference at which the Administrator presided was held in Pudukkottai, to discuss problems relating to the control of cotton pests, cultivation of tobacco, dry farming, etc. It was attended by the Deputy Director of Agriculture, Trichinopoly, and the Government Entomologist and Cotton Specialist of the Madras Government. Difficulties connected with the enforcement of the Cotton Pest Regulation (Regulation 7 of 1921) in order to eradicate the pink and spotted boll-worms, agricultural demonstrations on the ryots' own holdings with the help of the Agricultural Instructors, the extension and improvement of economic crops such as Sugarcane and plantain and the possibilities of fruit culture in the State were among the problems discussed. The Darbar are giving these questions their careful consideration.

Mention has already been made of the dairy and the stud-bulls at the State Farm. In connection with their general programme of Rural Improvement the Darbar are anxious to secure an improvement in the breeding and feeding of cattle and buffaloes. An announcement in the State Gazette, dated July 1, 1936, is an indication of the Darbar's anxiety "to make available to cultivators an adequate supply of good stud bulls." The Darbar have offered to make a money grant of from Rs. 100 to Rs. 150 to the owner of a breeding bull of which the fitness and capacity

for service has been certified by the Agricultural Instructor and the Touring Veterinary Assistant and approved by the Dewan Peishkar. The grant will be made at the end of the year, after inspection of the bull, and on the same conditions up to a maximum of three years. A smaller sum will be paid if the conditions prescribed by the Darbar are not entirely satisfied, but the bull is maintained in good condition. The Darbar are prepared to lend Government breeding-bulls on certain conditions to Municipalities or other local bodies, Co-operative Societies, Panchayats, etc. The notification also mentioned some important details regarding the care and treatment of breeding bulls. Whether the ryots will embrace this offer remains to be seen.

The question of agricultural-indebtedness has not been overlooked by the Darbar, though it cannot be claimed that a solution of the problem is in sight. Circumstances preclude their undertaking any heavy financial responsibility such as other more fortunate States elsewhere have been able to shoulder. An Agriculturists' Relief Bill was introduced in the Legislative Council in 1934, but in Select Committee its fundamental principles were amended out of existence, and the Darbar have, therefore, not proceeded with it. The Darbar have also appointed a committee to suggest measures for improving the position of the agriculturists and await their recommendations.

**Administrative.**—After the closing of the Agricultural training school and experimental farm which were found to work at a loss in Fasli 1314, the Darbar appointed an Agricultural Inspector and placed him at the disposal of the Pudukkottai Agricultural Association in Fasli 1317. In fasli 1321 after the State Farm was opened, a second Agricultural demonstrator was appointed to be in charge of the Farm. In fasli 1325 a third instructor, and in fasli 1327 a fourth were appointed. The Department was at first under the control of the Dewan Peishkar, but in January 1926, was transferred to the charge of the Development Officer, then temporarily created.

The Department was reorganised in fasli 1338. The State was divided into two divisions—east and west,—each under an Instructor, while the farm continued to have its manager. The post of Development Officer was abolished in June 1932 as a measure of retrenchment, and the Agricultural department was transferred to the charge of the Superintendent of Salt, Abkari and Forests. In August 1933, the control of the department was again transferred to the Dewan Peishkar.

## CHAPTER V.

### IRRIGATION.

**Rivers.**—As has been remarked already in Chapter I, the absence of perennial streams is a serious handicap to agriculture in the State. The so-called rivers (see Chapter I) are fed merely by the surface drainage of jungles and waste-lands or by the surplus water of large tanks. Since most of them depend on tanks, and the tanks only surplus temporarily and after heavy rains, the rivers are seldom full for more than a few days at a time. Their intermittent flow can be intercepted by dams and stored up in tanks lower down. Tank-irrigation is the only method practised or practicable. There is no scope for irrigation from canals.

Of the numerous streams that flow through the State, the following deserve mention.

**The Vellar.**—The *Vellar* is the largest stream in the State. Fed by the British tank at Vallanád, it enters the State at the Minavéli tank in the west, and having run a course of nearly 38 miles within it, crosses the boundary at Kothamangalam village in the east with a calculated maximum discharge of 24,000 cubic feet per second. Along its course there are seven anicuts or dams, from which water is taken to a number of tanks. Most of these have been in existence from the remote past, and have been restored and improved. Three of them are of masonry. There is an anicut near Kuduniámalai from which water is diverted to Visalúr, Vayalókam, Perumánádu and Kavinád tanks. Another at Sendamangalam consists of a body-wall right across the river with a head-sluice and a sand-escape at one end. From this anicut water is taken direct to the Kavinád tank, the largest in the State. This tank has three surplus weirs, one of which feeds the tanks lower down, while the other two discharge back into the *Vellar* itself. The third masonry dam is the Holdsworth anicut which feeds the Vallanád tank.

**The Pambar.**—Next in importance is the Pámbár with a course of about 19 miles within the State, and a maximum discharge of 21,000 cubic feet per second. It rises out of Perundurái tank, 3 miles west of Tirumayan, crosses the boundary near Válarámánikkam, re-enters the State, and discharges itself into Irumbánádu tank, the surplus water of which feeds two or three other State tanks before the river finally leaves the territory. There is a masonry anicut across it at Nedungudi, which supplies a series of tanks near the Kilánilai fort. There are also numerous mud-dams along its course.

**The Agniar.**—The *Agniár* (Agñánavinóchani) rises in the Kolattúr tank, and leaves the State beyond Karambakkudi, after a course of nearly 28 miles. It has a maximum discharge of 15,000 cubic feet per second.

**The Ambuliyar.**—The *Ambuliyár* has a course of only 17 miles within State limits. It rises out of Manjankanmoi tank, and feeds a large number of tanks in Álangudi Taluk. A small masonry dam has been recently built to divert its water to a number of tanks beginning with the Brahadambálsamudram tank.

On the less important streams, though masonry dams are few, there are numerous mud-dams from which water is diverted to tanks. It has been calculated that there is on an average a dam to every two miles of river.

**Tanks.**—The tanks in the State are of two types, those that impound the intermittent floods in the larger streams, and those that merely intercept surface water from their catchment area. In forming the second type of tanks advantage has been taken of the general slope of the land and of local surface depressions, and more or less crescent-shaped 'bunds', or nbankments, have been thrown up to arrest and hold up the

drinking water for man and beast in rural areas, though a very large number of new wells has been sunk in villages in the last couple of years. They are also used for bathing (if not conserved, and sometimes, it is to be feared in spite of their being conserved, for drinking) and are seldom used as sources of direct irrigation.

There are 3,943 tanks in the State, of which 139\*, each capable of irrigating 200 acres or over, are classed as 'Major,' and the rest as 'Minor.' The number of tanks per square mile of the total area is roughly 3·5. The largest tanks having an ayacut or irrigable area of over 500 acres each are—

*Tirumayam Taluk.*—

1. Irumbánádu Periyakanmoi.
2. Mirattunilai Periyakanmoi.

*Álangudi Taluk.*—

3. Kavinád Periyakanmoi.
4. Vallanád Periyakanmoi.
5. Palayakanmoi.
6. Ragunáthapuram Karaikkulam.
7. Sembáttur Periyakulam.

*Kolattúr Taluk.*—

8. Annavásal Periyakulam.
9. Perumánádu Periyakulam.
10. Vayalókam Periyakulam.

Sometimes two or more tanks have a joint ayacut, or, again, small tanks are formed within the ayacuts themselves, sometimes to intercept the drainage of the fields higher up.

The irrigation tanks are generally linked in series. Each tank, except the first in a series, besides intercepting local drainage, is fed by the overflow of the one immediately above it, and feeds in turn the one immediately below it. The slope of the country is generally gradual. Hence the bunds of the lower tanks in a chain cannot be raised above a certain level for the

\* 139 major tanks are enumerated in Appendix I to the Pudukkóttai Irrigation Regulation, No. III of 1933.

purpose of increasing their storage capacity, since the result would be to submerge the crops in the foreshore, irrigated by the tank above. The tanks are therefore generally shallow, and most of them require to be filled more than once (many of them several times) a season, in order that their entire ayacuts may be irrigated.

There are 146 series of tanks in the State. The area covered by a series, or group of series, constitutes a 'basin' which is named after the river into which the surplus of all the tanks in it finally discharges. Thus the Mirattunilai tank group, the Kavinád tank group, the Perumánádu tank group, and others constitute what is called the Vellár Basin. There are 11 such Basins, of which the Vellár Basin with an area of 320 square miles is the largest, and the Tirunallár Basin of 10 square miles the smallest. The following table exhibits the basins, their tanks, and their areas:—

| Basin.                                                     | Number of groups<br>in Basin. | Number of tanks. |
|------------------------------------------------------------|-------------------------------|------------------|
| 1. The Vellár Basin ...                                    | 46                            | 1,166            |
| 2. The Agniár Basin ...                                    | 27                            | 710              |
| 3. The Pámbár Basin ...                                    | 15                            | 543              |
| 4. The Koraiyár Basin ...                                  | 29                            | 429              |
| 5. The Cauvery Lower Basin ...                             | 8                             | 230              |
| 6. The Ambuliár Basin ...                                  | 5                             | 128              |
| 7. The Maharájasamudram Basin.<br>to Virushuliár Basin ... | 4                             | 88               |
| 8. The Virushuliár Basin ...                               | 8                             | 236              |
| 9. The Ámundi River Basin ...                              | 1                             | 111              |
| 10. The Manimuthár Basin ...                               | 2                             | 47               |
| 11. The Tirunallár Basin ...                               | 1                             | 23               |
| Total ...                                                  | 146                           | 3,711            |

**Irrigation Projects and Schemes. A Retrospect.**—The inhabitants of Pudukkóttai, a country subject to uncertain rainfall, and in whose rivers the flow is but intermittent, must have always been occupied with schemes for the conservation of the scanty supply of water. The Vellálars, who were among the earliest settlers, seem to have been the first to take seriously

to agriculture. They saw even in those early days the wisdom of raising dams, forming tanks and sinking wells. The system of linking tanks mentioned above originated with them. In each succeeding age the system was extended and improved by princes, chieftains, and landlords, who constructed additional tanks, or provided new channels, and dams.

The State has always considered the maintenance and improvement of the irrigation works as a legitimate charge upon the public revenues. It has always, in modern times, done what it could by way of repairing eroded or breached bunds, providing and repairing calingulas and sluices, and digging channels from river to reservoir. In 1893—94 it was recognised that "too much attention cannot be paid towards this kind of work," and that "though much had been done in the past more remained to be done in a matter which affected at once the prosperity of the ryot and the revenues of the State." An attempt was made to secure the co-operation of the ryots in the maintenance of the irrigation sources; a matter of vital importance to them, and one in regard to which they had by immemorial custom certain obligations. To these obligations a statutory sanction was attached by Regulation IV of 1903. In 1895, Tahsildars were relieved of their magisterial duties in order that they might devote greater attention to securing labour for the improvement of minor irrigation works, which were found to have been neglected. In 1897, the Darbar decided that "unless a regular survey of the several systems is made by a competent Engineer," real improvement could not be expected. A Special Engineer was consequently appointed to devise schemes and suggest projects, and what follows is largely based on his conclusions.

On the one hand, the physical character of the State, which is on a higher level than the river valleys of the Trichinopoly and Mádura districts, and on the other, financial considerations, render any scheme for the excavation of channels either from the Cauvery or from the Periyár, impracticable. So far as the

Méttur project is concerned, neither the Government of Madras nor that of Mysore are prepared to allow the State a share of the water.

Within the State there are already too many dams built across the rivers, and too many channels taking off from them, to admit of any addition to their number. The State is already studded with about 4,000 tanks, great and small, and there is much more to be said in favour of reducing the number than of increasing it. Where any scheme for extending an existing tank or creating a new tank or dam is examined, it is almost invariably found that it would involve either cutting off the supply to some other tank or submerging cultivation or habitations, while British ryots in many cases contribute their quota of objections. The Special Officer's view, with which Col. Smart R. E. whom he consulted was in agreement, was that there was "little or no scope for really fresh Irrigation Projects either in the country or from outside," and that all that could be done was to keep the existing irrigation works in good repair, a task, it may be added, for which the State's finances are really not adequate. There can be no doubt that, to look at the subject from the purely financial point of view, a considerable proportion of the tanks cannot pay their way, even if they are merely to be kept in workable order, still less, if they are all to be provided with the latest thing in sluices, calingulas, sand-vents, grade-walls, revetments and so forth, as is expected in some quarters. It has even been suggested (apparently in all seriousness) that *all* the bunds of *all* the tanks in the State should be revetted, and not merely revetted but revetted "with granite stones" (i.e., with blocks of gneiss,) a proposal that overlooks the patent facts *that* if effect were given to it the sum required would be a large multiple of the entire reserves of the State, *that* not all bunds, or even a large proportion of bunds need revetment at all, *that* laterite is a perfectly satisfactory material for revetment and there is therefore no reason why gneiss should be brought from long distances when laterite is

v] to be found near at hand, and finally *that* the Darbar have for many years been, and still are, pursuing a consistent policy of revetting, (as funds permit,) such parts of tank bunds as are specially liable to erosion or breaching and really require such protection.

The Darbar have recently instructed the State Engineer to experiment with the gravelling of bunds, where gravel is near at hand and therefore relatively cheap. Gravelling appears to afford a very effective remedy for the disease of "gulleying" (which is so discouraging to one who has seen a bund put in first-class order at considerable cost, and finds it badly disfigured a few months later, if rain has been heavy) and may in some circumstances be usefully substituted for revetment.

The Darbar have also been steadily carrying out a programme of putting up dams across rivers wherever necessary. On the Vellár, for instance, we have the Séranur mud-dam and below that the Visalúr anicut, the Kíranur mud-dam, the Sendamangalam anicut and the Holdsworth anicut. The Kundár has now the Kummangudi, Karapuram, Gúdalúr, and Chandramati anicuts. The Nedungudi Puliyakanmoi, Anikkini and Edyár dams provide for the irrigation facilities of the Pámbár basin; while the Agniár has the Kanangudi and Thuvár mud-dams. The Rájagiri anicut is one of the latest schemes completed.

The following statement shows the schemes investigated by the Special Officer appointed in 1935 and the orders passed by the Darbar on them:—

- | Projects.                                                                                                               | Darbar's Orders.                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <i>Señgirai</i> —Formation of a reservoir.—                                                                          | Supply to existing tanks would be prejudiced. The capacity of the reservoir would not be commensurate with its cost. Scheme has been therefore dropped.         |
| 2. <i>Várpai</i> —Construction of a dam across <i>Mañimuthár</i> to take supply to <i>Énadi kanmoi</i> and lower tanks. | An estimate for Rs. 1,100 for the work has been sanctioned. The work will be executed when funds permit, after collecting the contribution due by the Inamdars. |

| Projects.                                                                                                                       | Darbar's Orders.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. <i>Peruñgudi</i> .—Combination of five small endals near Góvinjan kanmoi into one to supplement irrigation to Góvinjanvayal. | The F. T. Ls. and the deep bed levels of the tanks are different. A common F. T. L. cannot be fixed owing to the proximity of Valayampatti natham and the fields of Ammayan endal in the foreshore. The scheme is therefore not practicable. The weir at the left flank of Góvinjan kanmoi will be rebuilt and a sluice or a channel constructed to supply the endals from the weir when funds permit, and the lands under the endals assigned, if possible, for wet cultivation with the water of the endals. |
| 4. <i>Combination of Kóttayúr kanmoi, Senkulam kanmoi and Ráyavaram kanmoi into one tank</i> .                                  | The F. T. L. of Kóttayur kanmoi is about four feet higher than that of Senkulam and Ráyavaram kanmoi. If the F. T. Ls. of the latter were raised, foreshore lands would be submerged to a considerable extent. The combination would also be prejudicial to the road leading to Ráyavaram and the lower tanks. The scheme is therefore not practicable.                                                                                                                                                        |
| 5. <i>Tirumayam</i> .—Combination of Anai kanmoi and Valavi Chetti endal into one.                                              | Impracticable because extensive foreshore lands would be submerged.                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 5-A. <i>Vira kanmoi, Paramba kanmoi and Théva kanmoi</i> .—Taking supply from the Pámbár.                                       | Not possible because their F. T. Ls. are higher than the bed level of the river.                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 6. <i>Tirukkalambar</i> .—Combination of Ukkarandan kanmoi, Kannapurí kanmoi and Peria kanmoi into one tank.                    | Supply to lower tanks would be affected. Valuable dry and wet lands in the foreshore would have to be acquired. The foreshore lands belonging to Sivaganga Zamin would be prejudicially affected. The scheme is therefore not practicable.                                                                                                                                                                                                                                                                     |

| Projects.                                                                                                                                                                                                                                        | Darbar's Orders.                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Vedunñgudi</i> .—Extension of the river supply from Anavari kummoi to Véla kanmoi, Sándan kanmoi, etc.                                                                                                                                        | The supply to the tanks is sufficient. The proposal involves the alignment of a channel through wet lands with cross drainage works involving heavy expenditure without corresponding benefit. |
| <i>Vayalókum Peria kanmoi</i> .—Raising its F. T. L.                                                                                                                                                                                             | Not necessary, since the tank can already hold sufficient water to irrigate the ayacut with one filling.                                                                                       |
| <i>Virálar</i> .—Restoration of Pudukulam (an abandoned tank).                                                                                                                                                                                   | Ayacut registered as waste. There is no demand for the lands and therefore no use in restoring the tank.                                                                                       |
| <i>Virálar</i> .—Formation of a small endal to supplement the supply of Kodikulam.                                                                                                                                                               | Not possible because the supply to the lower tank Kakkakudikulam would be affected. The scheme would involve an expenditure of Rs. 3,500 without any corresponding benefit.                    |
| <i>Rárápuram</i> .—Improving the dam across Kundár to supply Peria kanmoi.                                                                                                                                                                       | An estimate for reconstructing the anicut has been called for.                                                                                                                                 |
| <i>Tennathirayanpatti and Piliyúr</i> .—Diverting part of the surplus of Peria-kalarikulam in Tennathirayanpatti to Ráyasamudram in Piliyúr.                                                                                                     | The ayacutdars of the lower tanks object to the diversion. Ráyasamudram has an adequate catchment. The proposal has been therefore dropped.                                                    |
| <i>Andakkulam and Mangalathupatti</i> .—Restoration of Odaikulam. — (an abandoned tank lying partly in Andakkulam village, Kolattur Taluk, and partly in Mangalathupatti, Alangudi Taluk) to supplement the supply of Mangalathupatti Sirukulam. | The tank has been restored.                                                                                                                                                                    |

## Projects.

## Darbar's Orders.

14. *Karukkakurichi. West.*— Raising and extending the masonry dam across the Nariár near Vada-theru to increase supply to Semmatti Pudukulam and other tanks. Not possible because water in the river would then submerge the adjacent fields and the Vettikulam ayacut.
15. *Sokkanthapatti.*— Formation of a new tank. This is intended mainly to prevent Malliankulam from being silted up. The outlay of Rs. 10,000 involved is prohibitive. The proposal has, therefore, been dropped but a small silting tank for Malliankulam will be constructed when funds permit.
16. *Sembáttúr.*— Increasing the capacity of Kosamundankulam by extending the bund to the rear and including 2.89 acres. This would cost about Rs. 1,000 and would not appreciably increase the storage capacity. The scheme has been therefore dropped.
17. *Várappúr.*— Construction of a masonry dam across Morayár to supply Sinna Tharappa and Peria Tharappakulam. Site not suitable since the adjoining fields are low. Further, the tanks require river supply only when there is moderate rainfall and not during floods. The ayacutdars can therefore easily put up a mud-dam when necessary, as they have done hitherto.
18. *Semmattividuthi.*— Construction of a dam across the Kalluvari to supply Ráyarkulam in Melaviduthi, Periamánikkamkulam, etc. The F. T. L. of Ráyarkulam is lower than the F. T. Ls. of the lower tanks. The scheme would therefore benefit only one tank, Ráyarkulam, an Inam tank. The inamdars can easily put up a mud-dam as hitherto. The scheme has therefore been dropped.
19. *Várappúr.*— Diverting the surplus of Nemmeli tank in Várappúr village to Nainákulam and other tanks. These tanks have a sufficient free catchment and are fed by streams from forest. No additional supply is needed. Dropped.

## Projects.

## Darbar's Orders.

- Kammanngadu.*— Restoration of the ruined anicut opposite to Kammanngadu. (Please see scheme 17.) The tanks can get a supply from the river without an anicut. The restoration of this anicut is therefore unnecessary.
- Semmattividuthi.*— Diverting part of the surplus of Kacharankulam in Semmattividuthi to Chettikulam and lower tanks. F. T. L. of Chettikulam is more than a foot higher than that of Kacharankulam. The F. T. L. of Kacharankulam cannot be raised without prejudice to foreshore lands. Further, Kacharankulam does not require any additional supply.
- Tirumananjéri.*— Construction of a dam across the Agniár near Tirumananjéri to supply tanks in Tirumananjéri and Karukkakurichi East Vattams. The construction of the dam would be objected to by the British ryots. The tanks in Karukkakurichi East vattam already get a sufficient supply from the Ambuliyár.
- Pudukkóttai.*— Construction of a masonry dam across the Kundár in place of the mud-dam called Pichan Anai in Pudukkóttai. This would cost more than Rs. 10,000. The construction of the dam is objected to by persons owning lands fed by the Kundár lower down.
- Ichikkóttai.*— Construction of a dam across the Karakondán river to supply Ichikkóttai Periakammoi and lower tanks. The Government have directed the State Engineer to submit an estimate. Further action will be decided on after the cost of the dam has been ascertained.
- Ambútrappatti.*— Excavating a channel to take the surplus of Perambúr Periakulam to Nallamuthbukulam, Pudukurichikulam and other lower tanks. The tanks have an adequate supply already. Unnecessary. Dropped.

## Projects.

## Darbar's Orders.

26. *Kilappatti - Rásiamangalam*.—Construction of a new tank. This would cost Rs. 8,700. The ayacutdars of Kudithángikulam rightly object to the proposal as affecting the supply to their tank. Dropped.
27. *Mángádu*.—Diverting the surplus of Tirumochikulam to Pattikulam and other tanks. The scheme would cost about Rs. 8,000 and would only benefit Thedamuthikulam which has an adequate supply already. Dropped.
28. *Visálúr*.—Diversion of the left flank surplus of Visálíkulam to Talayáthi kanmoi. The surplus from the left flank of the Visálíkulam now flows direct into Vellathandakulam across the ayacut of Visálíkulam submerging some fields in the ayacut on the way. The proposal was to divert this surplus into Talayáthikulam. This involves acquisition of lands and construction of a new channel at a cost of Rs. 10,000. Talayáthikulam into which it was proposed to divert the surplus has an adequate supply already and therefore the proposal has been dropped and instructions have been issued to improve the present course of the surplus channel in such a way as to prevent submersion of the ayacut.
29. *Extension of the Kumman-gudi channel scheme*.—Taking a channel from the right flank of Arasándampatti kanmoi to Mirattunilai kanmoi, feeding on its way Themathámpattikanmoi, Govinjan kanmoi and Perungudi kanmoi. The scheme would involve an expenditure of Rs. 10,000. The ayacutdars of Kavinád and Vallanád tanks object to the proposal. Moreover, in normal circumstances, when the river is in flood, the tanks that the scheme is intended to benefit get a sufficient supply already, while when it is not in flood there is not enough water to increase appreciably the supply to even one or two—much less all—of them. The scheme has therefore been dropped.

v]

## Projects.

## Darbar's Orders.

30. *Taking a channel from the Holdsworth anicut to Mirattunilai tank*. This involves the acquisition of wet lands in the ayacut of three sarvamányam tanks (Chetti éndal, Neivásalpatti Méla kanmoi, and Kíla kanmoi), excavation of a channel and construction of masonry works. The cost has been estimated at Rs. 5,000, but would almost certainly be much more, since the wet lands that would have to be acquired are very costly and a number of cross aqueducts would have to be constructed to enable the lands north or east of the channel to be irrigated. The drainage of the lands in these ayacuts would also be interfered with, and this would create other problems. No additional lands would be brought under wet cultivation. Also, the Darbar see no reason to suppose that in normal circumstances when Mirattunilai tank was short of water, its supply could be supplemented from the Vellár without prejudice to Vallanád and other tanks. Apart from all other considerations, the Darbar cannot embark upon costly and unremunerative schemes in the present state of their finances. The scheme has therefore been dropped.
31. *The Thánjur channel scheme*.—Diverting the surplus of Mirattunilai kanmoi to Maramadakki kanmoi, Alinji kanmoi, Sethu kanmoi and some tanks in Keelappanaiyur and Thánjur vattams. The cost of the scheme is estimated at Rs. 6,000. The utility of this scheme depends on an increase in the supply to Mirattunilai tank. It is not feasible to increase its supply. (See schemes 29 and 30 above). This scheme is therefore not practicable.
32. *Ponnamaravati East*.—Construction of calingulas at both flanks of Alavalanthán kanmoi, and a dam across the surplus vari at the right flank to facilitate the flow of the surplus to the State tanks Peria Thalippa kanmoi, Sinna Thalippa kanmoi and other tanks lower down. The Darbar have sanctioned an estimate for Rs. 3,370 for these works. They will be executed when funds permit.

## Projects:

## Darbar's Orders.

33. *Kummangudi rattam.* — An estimate for Rs. 4,680 for constructing a calingula and a weir for Thalayathi kanmoi, to take supply to Vallamban kanmoi, has been sanctioned. The State Engineer has been directed to provide for the works in the programme of Fasli 1347, after collecting the contribution due from the inamdars.
34. *Káramangalam rattam.* — There is no use in investigating this scheme till scheme No. 33 has been executed.
35. *Kadavampatti.* — Construction of a dam across the Vellar to supply Kadavankulam.
36. *Kadavampatti.* — Constructing a masonry work at the left flank of Kadavankulam to take its surplus to Nedunkulam and lower tanks.
37. *Mánjamviduthi.* — Construction of a calingula for Gnánambálsamudram kulam.
38. *Mánjamviduthi.* — Digging a channel to carry part of the surplus of Gnánambálsamudram kulam into Pila kulam and lower tanks.
39. *Karuppatiipatti.* — Improving the supply to Pidari kulam.

The site of the proposed dam is in Marungá-puri Zamindári. The Zamindári ryots and the lower riparian owners would certainly object to its construction. Even if the dam were constructed, it is doubtful whether it would substantially benefit Kadavankulam. Hence this scheme has been dropped.

These tanks already receive their supply from Kadavankulam. It would be uneconomical to construct costly masonry works merely to benefit these tanks, the ayacut of which is only 37 acres. The scheme has therefore been dropped.

The tank ~~surpluses~~ at its right flank over a deep and hard bed of gravel. This arrangement is quite satisfactory. No masonry calingula is necessary.

Pila kulam and other lower tanks could only receive any surplus from Gnánambálsamudram kulam during heavy rains, and in those circumstances the tanks would not require any additional supply. The scheme would involve the construction of costly masonry surplus works. It is obviously misconceived. Hence it has been dropped.

An estimate for Rs. 690 for a grade wall across the Nattani *vári* to supply Pidari kulam has been sanctioned. The work will be executed when funds permit.

**Projects from sources outside the State.**—A scheme was once put forward for tapping the Cauvery at Kodimudi (on the Trichinopoly—Erode Railway line) and taking it through Kolattúr to Pattukkóttai at a cost of Rs. 100 lakhs. The State was not in a position to execute this project out of its own resources, but it was hoped that the Madras Government might do so for the benefit of its own unirrigated taluks in the Trichinopoly, Coimbatore and Tanjore Districts, and that the State might be able to meet the cost of the works within State limits, in addition to paying for the use of the water. The scheme, however, was abandoned.

In 1900–1901, the Darbar decided that the surplus funds then at the disposal of the State should be largely devoted to irrigation, than which there was no ‘nobler object,’ and a Tank Restoration Party was organised to investigate the condition of the ‘Ayan’ tanks, and to carry out new and useful projects. The ‘Party’ was busy for a number of years preparing an irrigation map and submitting proposals such as the construction of a dam across “the Koraiyár at its junction with the Virálimalai—Kalamávúr road, and the excavation of 2 supply channels from the Vellár Causeway to the Mirattunilai and Vallanád,” etc., but nothing practical was done.

The year 1906–1907 saw the entertainment of high but fond hopes that the State ryots would one day realise their long-cherished desire of securing an assured supply from some river in British India, and every scheme projected or investigated by the Madras engineers was carefully studied by the State officers from the point of view of its possibly benefiting the State. As many as seven projects were scrutinised:—

1. The Cauvery project.
2. The Periyár project.
3. The Porandalore project.
4. The Bhaváni project.
5. The Noyel project.
6. The Amarávati Reservoir project.
7. The Nanginiyár project.

The Periyár project related to a scheme for irrigating an additional 26,000 acres by utilising one of the channels from the Periyár intersecting the Railway line between Ammayanáyakanúr and Sholavandán at about 700 feet above Mean Sea level and crossing the Trichinopoly—Madura Road at 550 feet. From this channel a branch channel of over 28 miles in length was to be constructed to Ponnamarávati in the State at 470 feet above Main Sea level.

The Amarávati project was to excavate a channel about 80 miles in length from the Amarávati at Anaipalayam (near Karur). The head was to be near the dam on the river at 446 feet above Mean Sea level, and was to be connected by the new channel with a reservoir to be formed in the State by enlarging the Perámbúr and Nírpalani tanks in the Kolattúr Taluk. This project was also expected to benefit a number of tanks in the Karúr, Kulitalai and Trichinopoly Taluks.

Under the Nanganjiár project, a channel over 115 miles in length was to be excavated crossing the Kodavanár near Rájá-patti (near Karúr), and terminating at Pinnangudi within the State. Since the channel would receive a copious supply of water from June to October, the project was calculated to benefit not only the State but also the British Taluks of Karúr, Kulitalai and Trichinopoly, through which it would pass.

The most imposing scheme, by far, was the Cauvery project under which a channel 130 miles in length was to be constructed at a cost of Rs. 2.78 crores from the Reservoir at Neringipett with its head at 650.00 above mean Sea level. The channel was to run "parallel to, but begin higher up than, the Kalingaráyan channel in the Coimbatore District, and cross the Noyel and the Amarávati by means of dams." The channel was to join the Vellár at Pinnangudi in the State at 400.00 above mean Sea level. The scheme would benefit the Coimbatore and Trichinopoly Districts as well as the State. Since the Pattukkóttai Taluk would also benefit by it, there would be no necessity for carrying out the Káttár Reservoir project planned by Col. Smart

for the relief of that taluk. It was cheaper and better than the latter scheme, since the area commanded by it would be larger. It was also pointed out that, should the project be realised, the number of irrigation tanks in Karúr, Kulitalai, Pudukkóttai and Pattukkóttai might be augmented.

It soon became apparent that several of these schemes were impracticable. The Porundalore project was "not likely to be undertaken in the near future" and the Bhaváni project, "if sanctioned" was "not likely to affect the State." The only practical scheme seemed to be the Cauvery Reservoir Project which Mr. Clay was engaged in investigating. In 1910, it was believed that if carried out it would command extensive areas in the Álangudi Taluk.

Hope next centred round the Méttur canal which "was first intended to pass through a portion of the Karambakkudi firka in the State. The probable area of the channel through the State was estimated at about 1,500 acres, and the extent of wet lands that would be brought under cultivation in the State at 8,000 acres. In the 1928 (March—April) session of the Legislative Council, the Dewan-President intimated that the Madras Government had decided not to take the canal through the State. He regretted that he was not in a position to publish all the correspondence relating to the history of the project, and could only say that the Madras Government had declined to comply with the Darbar's request that the ryots of the State, who might be benefited by the scheme, should be accorded the same terms as the British ryots. He hoped however that the Darbar would succeed in their efforts to induce the Madras Government to permit them to take off a channel of their own from the Méttur canal into the State. These efforts also failed, and to an interpellation at the session of the Council in November 1935 the Darbar, replied that the Madras Government had stated definitely that they could spare no water, and even if they could do so, the cost of the necessary works would be prohibitive.

\* Political Agent's letter Dis. 278 of 8-7-07.

The following extract from the letter from the Secretary to the Government of Madras—Public Works and Labour Department—to the Agent to the Governor-General, Madras States, explains why.

"I am directed to say that there are only two ways of supplying Cauvery water to the State, either by extending the Kattalai High level channel or through the Olaváyal and Alivalam channels of the Grand Anicut canal. The Kattalai High level channel is designed to carry supply just sufficient for its ayacut, and if extra water is to be allowed through the channel for the benefit of the Pudukkóttai State, it would not only have to be extended by about 25 miles to reach the State boundary, but would also have to be widened throughout its length of 35 miles. The scheme is thus prohibitively costly. As regards the supply through the Grand Anicut canal the Government regret that as the entire area of 301,000 acres allowed by the agreement with the Mysore Darbar has already been delimited in British territory, it is not possible to include any area in the State." The Darbar subsequently approached the Mysore Darbar on the subject informally but without success.

"*Railway-affecting*" Tanks.—There are a number of tanks that would endanger the safety of the permanent-way of the railway if they breached. A list was compiled of 108 such tanks in the proximity of the main line to Madura, of which 80 were State-owned and 22 private. A special Regulation was passed (VI of 1903 amended by Regulation I of 1922) to enforce the repairs of private Railway-affecting tanks. There are 41 "Railway-affecting" tanks in the State near the Trichinopoly—Mánamadurai chord line.

**Administrative.**—Up to February 1936, the minor irrigation tanks were under the control of the Dewan Peishkar, and major tanks under that of the State Engineer. As a measure of economy, and also (it is hoped) in the interests of efficiency, all have now been placed under the charge of the State Engineer. The normal annual expenditure of the Irrigation department is about a lakh of rupees, but in Fasli 1341, it went up to nearly two lakhs. The expenditure in Fasli 1344 was Rs. 1,62,440.

## CHAPTER VI. FORESTS AND PLANTATIONS.

**Their nature and uses.**—The 'Forests' of Pudukkóttai are purely "scrub jungle". According to the survey of 1813, they comprised 176 hill jungles (*malaikkádu*) and 145 timber forests (*perumarakkádu*). But these are no longer identifiable, since many of them have been destroyed, and others amalgamated. According to the report (1905) of Mr. E. D. M. Hooper, Conservator of Forests, Central Circle, Madras, who inspected the State forests and plantations, they were estimated to cover an area of 143 sq. miles, or 11·09 per cent of the whole territory. They are like other "porambokes" the absolute property of the State. Those maintained primarily as game preserves were treated as 'Reserved,' and the rest serving the people's needs such as pasture, green-leaf manure and firewood, as 'Unreserved.' This classification was not based on any principle, and in fasli 1339 (1929-30), the Darbar reclassified them as "Game preserves" and "Reserved forests." Densely wooded inner belts of such of the forests as have been maintained to be shot over by the Ruler or his guests and are closed to the public, are called "Game preserves." The rest including the outer belts surrounding the "Game preserves" are known as "Reserved forests." The area of the "Game preserves" is 32 sq. miles and that of the "Reserves" 68 sq. miles. A brief account of the State forests is given in Chapter II. Though not extensive, they are valuable and useful in many ways. In the first place, they furnish an unfailing supply of leaf manure. The catchment areas of several irrigation tanks lie within these forests. The Reserve forests contain plenty of game. They are also the breeding place of cattle allowed to run wild, chiefly bulls, sturdy types of which are captured. The forests yield plentiful supplies of *Áváram* bark (*Cassia auriculata*), the fruit of the *Mambala konnai* (*Cassia fistula*) both useful as tanning material, *Etti*

(*Strychnos nux vomica*) and the bark of *Velvéla* (*Acacia leucophloea*) which is used in making Arrack. The trees are to some extent valuable as timber or as fuel. The local timber trees, the wood of which are used for planks, house-building or agricultural implements are the *Má* (*Mangifera indica*), *Pila* (*Artocarpus integrifolia*), *Vembu* (*Azadirachta indica*), *Puvarasu* (*Thespesia populnea*), *Vemmarai* (*Chloroxylon swietenia*), *Iluppai* (*Bassia longifolia*), and *Pterospermum* spp. Many other trees are useful as fuel—chiefly, *Usilai* (*Albizia amara*). The plants on which the lac insect thrives are the *Purasu* or *Palásai* (*Butea frondosa*), *Dalbergia* spp. *Ilandai* (*Zizyphus jujuba*) and *Ficus* spp. Among cultivated plants it thrives best on *Tuvarai* (*Cajanus indicus*). The lac resources of the State still await investigation.

**Forest Conservancy.**—The care and preservation of the forests were, till recent times, scarcely matters of public concern since their economic value was not properly realised. In the early times when the country was settled and colonised, it was doubtless considered the prime duty of a citizen to clear forest land in order to bring it under the plough. The forests were not completely destroyed however, since large tracts of forests were preserved as Royal hunting ground. Regular and systematic conservancy dates from 1870, when the care of the forests was consigned to a separate department. The main duty of the department was “to supply fuel for public works, and to issue permits to private individuals on payment of seigniorage for the removal of produce.” The department still continues to cut fire-wood for sale to the public and supply to the departments of the State. The natural conditions of the State, climatic and otherwise, do not allow of cultural operations on a large scale.

While reorganising the department in Fasli 1339 (1929-30), the Darbar appointed a technically-qualified Ranger to advise the officers of the department. In Fasli 1340 (1930-31), the work of demarcating the Town kasba forests was taken in hand, and was completed in the next fasli. The kasba forests

(east and west) have been mapped with all their important topographical details, and, as surveyed, have an extent of 6,920 acres. Dibbling operations were undertaken every now and then. A Fordson Tractor for ploughing was bought in Fasli 1340 and in the same fasli, 60 measures of seeds of different varieties consisting of Virai (*Hemicyclia sepiaria*) Palai (*Mimusops hexandra*) Karuvai (*Acacia* spp.) and nuxvomica were collected and dibbled in the blank spaces of the several forests. Forest areas containing over-mature and stunted trees are marked out into coupes and sold in auction every year. To accelerate the natural regeneration of forests, the system of selling green leaves in blocks on a three year rotation was started.

**Plantations.**—In 1884, blank areas were first planted with casuarina in order ‘to supplement the small supply of fuel and small timber.’ Sir Sashia Sastriar opened a small plantation on the bank of the Vellár with 5,000 plants got from the farms in South Arcot and at the same time a nursery was started in the Residency gardens with 8,000 ‘younger transplants’ also got from the same place. They were taken out after the first rains and added to the plantation at the Vellár. In 1889, there were in the Vellár plantation 104,500 trees old and young ‘besides nurseries for future operations,’ and another plantation was started near Perungalúr. In 1904, Mr. Hooper remarked, “the planting of this species has proved an unqualified success and the produce has sensibly reduced the strain on the State wastes in the vicinity of the plantations.” Casuarina plantations were gradually extended to the jungles and wastes near Várappúr, Válaramanikkam, Kilánilai, Nedungudi, Pálaiyúr, Mirattunilai, Tirunayam, Vaittikoil, Virakkudi, Peraiyúr, Kuminangudi and Virálimalai. When casuarina plantations came to be raised all over the State by private enterprise, the Government decided in 1923 to restrict the State plantations to what would be sufficient to meet the requirements of the State departments and to supplement the supply of fuel to the public from private sources. The plantations of Perungalúr, Várappúr and on the

Vellár, including the nurseries were last extended in 1931-32 and 1933-34.

This success with regard to casuarina led to similar experiments with other species under State control. Portions of wastes and jungles were converted into plantations of mango and cashew-nut trees. In 1926, 4,000 palmyra seeds were sown on the boundaries of Várappúr and Perungalúr plantations and about the Vervembukádu Block No. 1. Tamarind was planted in a portion of the Kudumiamalai Reserve forest, and in 1928-29, 600 tamarind seedlings were planted in the Kavinád tope. In 1929-30, 500 more tamarind seedlings were planted. Fresh mango seedlings were planted in all fruit topes, and the Palmyra topes in Perungalúr and Kokkumári were extended. In 1932-33, the department opened a nursery for the grafting of mangoes and planted seedlings in the interspaces of several fruit topes. In 1908 Ceara rubber was imported and tried in Rangiam, but the experiment was not successful. Sandalwood seedlings were tried in 1918 with no better results. There are at present 25 plantations covering an area of over 6 sq. miles under the control of the department, consisting of Casuarina, Cashew, Mango and other fruit-bearing trees.

A list of the plantations, with, in some cases the area fit for planting and dibbling at the end of Fasli 1344 (1934-35) is given below.

| No. | Name of Plantations.                       | Area fit for planting and dibbling. | No. of trees (given in round nos.) |
|-----|--------------------------------------------|-------------------------------------|------------------------------------|
| 1   | Kokkumári plantations (mango, etc.)        | ...                                 | 1,600                              |
| 2   | Sivagnánapuram (mango, cocoanut, etc.)     | ...                                 | 1,000                              |
| 3   | Vellár West—Kavinád (palm, tamarind, etc.) | ...                                 | 200                                |
| 4   | Vellár East (casuarina, etc.)              | 51                                  | 30,000                             |
| 5   | Vellár New (cocoanut, mango, etc.)         |                                     |                                    |
| 6   | Vellár (Náanal)                            | ...                                 | ...                                |
| 7   | Mirattunilai (Casuarina, mango, etc.)      | 40                                  | 1,200                              |
| 8   | Do. Poonthope (mango, etc.)                | ...                                 | 1,300                              |
| 9   | Pálayyúr (mango, etc.)                     | 70.5                                | 500                                |
| 10  | Kilánilai & Nedungudi (cocoanut & palmyra) | 0 28                                | ...                                |

| No. | Name of Plantations.                             | Area fit for planting and dibbling. | No. of trees (given in round nos.) |
|-----|--------------------------------------------------|-------------------------------------|------------------------------------|
| 11  | Vaittikoil (casuarina, mango)                    | 94                                  | 4,500                              |
| 12  | Virakkudi Do.                                    |                                     | 1,600                              |
| 13  | Perungalúr West                                  | 23                                  | 200,000                            |
| 14  | Perungalúr East                                  |                                     |                                    |
| 15  | Perungalúr New                                   |                                     |                                    |
| 16  | Pooram & Veeradi Pillayar (cashew)               | ...                                 | ...                                |
| 17  | Várappúr West                                    | 76                                  | 20,000                             |
| 18  | Várappúr East                                    |                                     | 16,000                             |
| 19  | Malayur & Rasimangalam (cashew, etc.)            | ...                                 | 6,500                              |
| 20  | Várappúr (tamarind)                              | ...                                 | 10,000                             |
| 21  | Tirumayam East & West (Palmyra, casuarina, etc.) | 70                                  | 20,000                             |
| 22  | Kudumiamalai (tamarind)                          | ...                                 | 250                                |
| 23  | Annávásal Sarukkapattai (tamarind)               | 15                                  | 100                                |
| 24  | Sellapperumálpatti (tamarind)                    | ...                                 | 400                                |
| 25  | Nedungudi (cocoanut palm, etc.)                  | ...                                 | 600                                |

**Forest Revenue.**—The very conception of Forest Revenue is modern. Before 1866, jungles that were not reserved for the hunt were termed *Karikkádu* (charcoal jungles) because they were considered to be fit only for fuel, and were accordingly let out on leases called *Karikkádu kuthagai*. In 1878-79, the demand under 'income from jungle,' as it was then called, was Rs. 653 of which Rs. 133 was actually realised.

The total demand for Fasli 1344 (1934-35) including an arrear of Rs. 626 was Rs. 37,201, and a sum of Rs. 35,546 was collected. The details of revenue collections for Fasli 1344 are shown below:—

I. *Reserve Forest*:—

|                               | Rs. | A.    | P.   |
|-------------------------------|-----|-------|------|
| (a) Timber                    | ... | 62    | 12 0 |
| (b) Fire-wood and charcoal... | ... | 1,199 | 12 6 |
| (c) Green leaves              | ... | 2,362 | 4 6  |
| (d) Grazing fees              | ... | 1,347 | 6 6  |
| (e) Miscellaneous             | ... | 1,095 | 6 2  |
| Total                         | ... | 6,068 | 9 8  |

II. *Plantations* :—

|                               | Rs.   | A. | P. |
|-------------------------------|-------|----|----|
| (a) Timber ... ..             | 474   | 8  | 7  |
| (b) Fire-wood and charcoal... | 6,337 | 9  | 3  |
| (c) Fruit-bearing produce ... | 827   | 9  | 4  |
| (d) Cashew-nuts ... ..        | 565   | 0  | 0  |

Total ... 8,204 11 2

III. *Quarries* :—

|                                              |        |    |   |
|----------------------------------------------|--------|----|---|
| (a) Stone-mason license fees ...             | 6,916  | 0  | 0 |
| (b) Monopoly and seigniorage fees ...        | 10,660 | 11 | 0 |
| (c) Brick and Tile moulding license fees ... | 887    | 4  | 0 |

Total Rs. ... 18,463 15 0

IV. *Miscellaneous* :—

|                                 |       |   |   |
|---------------------------------|-------|---|---|
| (a) Compounding fees ... ..     | 3,557 | 3 | 6 |
| (b) Sale of wild animals ... .. | 21    | 4 | 0 |
| (c) Other receipts ... ..       | 137   | 8 | 1 |

Total Rs. ... 3,715 15 7

Grand Total about Rs. 36,500.

The Administration Report for fasli 1333 reported that there was an abundance of private fuel for sale that adversely affected the State revenue. Private traders and purchasers of trees in Government forests and tank bunds continued to flood the market with cheap fuel, and in 1344, the sale of fuel in the Government fuel depôt in the town was found to be so slack that in the hope of meeting this competition the Government had to reduce the price of casuarina fuel from Rs. 11 to Rs. 10 a ton and that of jungle fuel from Rs. 8 to Rs. 7 a ton for six months from October 1, 1934. The price was further reduced by one rupee a ton for both kinds of fuel from February 15, 1935, and with effect from May 1, 1936 to Rs. 8 per ton of casuarina fuel and Rs. 5 per ton of jungle fuel. Still the revenue of the Government continues to fall as the following figures will show.

| Fasli. | Receipts under the sale of<br>casuarina and jungle<br>wood. |
|--------|-------------------------------------------------------------|
| 1343   | Rs. 1,132                                                   |
| 1344   | Rs. 3,614                                                   |
| 1345   | Rs. 2,576                                                   |

A detailed account of the quarries is given in Chapter I (pages 11-13). There are 143 granite quarries in the State, besides 44 others set apart exclusively for the Ooliamdars of the Tirugokarnam Devasthanam.

**Administration.**—The Forest department was first organised in 1870 and was placed under the supervision of the Dewan Peishkar and an amin. It was transferred to the control of the Superintendent, Salt, Abkari and Forests in July 1897. In September 1908 it was placed in charge of a special officer, Mr. H. O. Neill, a retired Extra Assistant Conservator of Forests in British service. The department was again amalgamated with the Salt and Abkari department in 1920. As a measure of retrenchment the post of Superintendent, Salt, Abkari and Forests was abolished with effect from February 1, 1936, and the departments under his charge were placed under the control of the Dewan Peishkar.

## CHAPTER VII.

## OCCUPATIONS AND TRADE.

**Introductory.**—The mineral and vegetable products of the country are not such as to afford materials for the establishment of any important art or industry. The State is known to possess high grade magnetic iron-ore; but apart from granite and laterite which are used as building material, the only minerals put to any industrial use are Fuller's earth, red ochre, and brown clay. Mica, alumina, amethyst and rock-crystal occur in small quantities, but have not yet been exploited commercially. The vegetable products are not of great commercial use except a few such as *avárai* (*cassia auriculata*), used in tanning and medicine.

In an inscription \* dated 1299 A. D. of Jatávarman Vira Pándya III at Tiruvarangulam, reference is made to smitheries and to a kind of profession tax of three *kásu* levied on them. In the survey of 1813 also, mention is made of similar activities at Perungalúr, Várappúr, and Vallattirakóttai. There are still to be found on the outskirts of the Sengirai forest remains of a furnace, in which iron-ore must have once been smelted.

About the year 1878, Mr. Bruce Foote, in the course of his geological survey of the country, reported the discovery of a small outcrop of magnetic iron-ore on a ridge near Mallampatti and Amburapatti. In 1908, Mr. Alexander Primrose who was employed to explore the same area in order to determine its mineral potentialities found extensive deposits extending north and south near the two villages which are situated about twelve miles due south of Trichinopoly and eight miles from the nearest Railway stations of Tondamànnallur and Kunàramangalam on the Trichinopoly—Mànàmadura chord line of the South Indian Railway. The neighbourhood is mostly dry and roads run from

\* திரு வந்தா விளக்கு இரண்டுக்கும் கொல்லர் ஊதுகிற உடைகளில் உடை ஒன்றுக்குக் கொன்றுக் காசு மூன்று உடை இரண்டுக்கு காசு ஆகும்.

it to the two Railway stations. Limestone is found at Súriyúr at a distance of two miles from the deposits at Mallampatti.

In 1934, the Darbar requested the Director-General of Commercial Intelligence and Statistics, Calcutta, to place them in touch with any firms or persons who were likely to be interested in working the iron-ore deposits. The Director-General was good enough to insert an inquiry on the subject in the "Indian Trade Journal" on behalf of the Darbar free of charge. Thereafter, a Calcutta firm approached the Darbar stating that they hoped to introduce an European firm which would work the deposits, and sent a representative to inspect them. The correspondence has so far yielded no practical result; and the same is true of enquiries addressed by the Darbar to other quarters including the South Indian Railway.

In the opinion of the Darbar, while the reduction of these ores on the spot by electricity might conceivably be a commercial proposition, it is highly improbable that it could pay to convey crude iron from Pudukkóttai by road and rail to Negapatam, Madras or any other Indian ports for export.

The Agent of the South Indian Railway stated in response to an enquiry made by the Darbar that there would be no difficulty in constructing a Branch line from Tondamàn-Nallur station to the site of the deposits under the "assisted siding terms." The Darbar are prepared to allow all reasonable facilities and assistance to enable any firm or person of standing with adequate financial resources and genuinely interested in the deposits to investigate their nature and extent. Their development might be of great benefit to the Darbar and the subjects of the State.

While inspecting the surroundings of the village of Ammayapatti in connection with the proposal to supply water to the town from the Vellár, Mr. Westerdale expressed the opinion that the area was suitable for a cement factory since

lime nodules and clay occurred side by side. The Darbar are trying to secure expert advice in regard to the possibility of starting the manufacture of cement in the State.

In 1814, an indigo factory was started at Karambakkudi under the joint proprietorship of Mr. John Blackburn and the then ruler of the State. It must have been successful, for it led to the opening of a similar enterprise at Káraithope near the capital. Even now the curious observer may note the ruins of large vats and wells, constructed at Karambakkudi for this industry. Both the factories were soon closed. In the words of Mr. Pennington, "when he (John Blackburn) left India, he disposed of the business to the Rajah who thereafter carried it on as a kind of 'home farm' and put the proceeds (if there were any) into his private purse, but the undertaking seems to have met with considerable opposition from the first, and the ryots complained bitterly of being compelled to grow indigo, so that at last it was determined to close the factories and abandon the business during the early years of the present Rajah's minority about thirty years ago."

#### CHIEF OCCUPATIONS.

*The general distribution of the population of the State by occupation\* is given in the following statement.*

| Occupations of earners and working dependents. | Actual number. |          |          |
|------------------------------------------------|----------------|----------|----------|
|                                                | Persons.       | Males.   | Females. |
| Total population                               | 4,00,694       | 1,91,134 | 2,09,560 |
| Non-working dependents                         | 1,42,259       | 65,742   | 76,517   |
| Total earners and working dependents.          | 2,58,435       | 1,25,392 | 1,33,043 |
| 1. Agriculture and Cattle                      | 1,31,433       | 86,047   | 45,386   |
| Cultivators                                    | 1,21,370       | 78,923   | 42,447   |
| Shepherds                                      | 9,969          | 7,037    | 2,932    |
| Others                                         | 94             | 87       | 7        |

\* See Census Report 1931.

| Occupations of earners and working dependents.             | Actual number. |        |          |
|------------------------------------------------------------|----------------|--------|----------|
|                                                            | Persons.       | Males. | Females. |
| 2. Industry                                                | 15,580         | 11,702 | 3,878    |
| Potters, washermen and barbers                             | 5,496          | 2,898  | 2,598    |
| Wood and metal workers                                     | 4,052          | 4,033  | 19       |
| Building industry workers                                  | 2,597          | 2,356  | 241      |
| Basket and thatch makers                                   | 785            | 330    | 455      |
| Silk weavers                                               | 411            | 273    | 138      |
| Toddy drawers                                              | 332            | 332    | ...      |
| Butchers                                                   | 321            | 279    | 42       |
| Scavengers                                                 | 238            | 125    | 113      |
| Tailors                                                    | 177            | 173    | 4        |
| Shoe and sandal makers                                     | 139            | 139    | ...      |
| Cotton weavers                                             | 133            | 102    | 31       |
| Sawyers                                                    | 87             | 87     | ...      |
| Wool spinners and weavers                                  | 86             | 5      | 81       |
| Other industries                                           | 726            | 570    | 156      |
| 3. Transport                                               | 2,027          | 1,922  | 105      |
| Cart owners and drivers                                    | 1,052          | 1,049  | 3        |
| Others                                                     | 975            | 873    | 102      |
| 4. Money Lenders                                           | 3,668          | 3,222  | 446      |
| 5. Trade                                                   | 8,656          | 6,267  | 2,389    |
| Hotel-keepers and traders in food-stuffs                   | 5,459          | 3,583  | 1,876    |
| Other traders                                              | 3,197          | 2,684  | 513      |
| Public administration including Police and Military forces | 2,579          | 2,530  | 49       |
| 6. Professions and liberal arts                            | 3,187          | 2,962  | 225      |
| 8. Service                                                 | 89,884         | 10,001 | 79,883   |
| Domestic service                                           | 72,977         | 3,207  | 69,770   |
| Labourers                                                  | 16,907         | 6,794  | 10,113   |
| 9. Others                                                  | 1,421          | 739    | 682      |

These figures show that roughly one-third of the population live by husbandry and allied occupations and another third by other occupations. The remaining third of the people are dependent on others for their support.

**The Professions.**—Besides a numerous body of State servants employed in the town and mofussil to carry on the administration of the State, and those engaged in the professions of law and teaching, there are a large number maintained and supported in the name of religion. In addition to the priestly Brahmin class who officiate at the performance of the numerous Hindu rites and ceremonies, there are the *archakars* and other servants employed to carry on the daily worship of the temples. Corresponding to these, are the *Labbais* among the Mohammedans, parish priests and missionaries among the Indian Christians.

**The artisan class.**—Every fair-sized village has its usual complement of the artisan class. There are the village blacksmith making ploughshares, tyres for wheels, and bullock shoes; the village carpenter, the village potter, the village grocer and miscellaneous shopman, and the village barber-surgeon, whose wife is the village midwife.

**Agriculture.**—The main industry of the State is agriculture, as the Census figures quoted above show. The nature and conditions of the agricultural industry on which the population mainly subsists have been set forth in Chapter IV.

**Pasturing.**—There are two distinct types of graziers—the Idaiyans or cowherds who keep cows and trade in milk, curd and ghee, and the Kurumbars who tend the wool-bearing Kurur sheep. The latter occupation is practically negligible, since the local breed of sheep does not yield a heavy clip and wool weaving has not developed beyond primitive methods.

**Weaving.**—After agriculture, there are practically no industries worth mention, except, perhaps, weaving which is carried on principally at Tiruvappúr and Karambakkudi.

[Tiruvappúr which is a suburb of the capital, is by far the most important centre. It contains about 150 families of Sowráshtras mostly devoted to weaving and dyeing silk for which they are eminently fitted by reason of natural skill and long

experience. There is a small settlement of their kinsfolk numbering at present about 40 families at Parambúr in the Kolattúr taluk, many of whom are reported to be giving up weaving as not remunerative. The women, however, still earn a pittance by doing some preparatory work for the Tiruvappúr looms, by way of spinning raw silk.

There are at present about 250 looms at Tiruvappúr, all engaged in weaving silk. Most of them are engaged in weaving *sáris* of 11 to 12 cubits long and 40 to 45 inches wide which are largely in demand among the Nattukkottai Chetties. About 15 looms manufacture *sáris* of 16 to 18 cubits long which are of the type woven at Kumbakónam, Kornád and Tanjore, while about 15 others weave cloths for bodices. The silk *sáris* woven are similar in pattern and get-up to those of Kumbakónam, and Bangalóre, and are embroidered with gold lace. A third kind of cloth is a check tartan known as "*kambáyam*" or "*kaili*," much used by Burmans and Mohanmedans as waist-cloths. In colour and design it resembles the 'female' cloths of the country. Till recently it used to be made both in silk and cotton, and was exported largely to Ceylon, Burma and the Straits Settlements where it used to sell at from Rs. 5 to Rs. 50 a piece. But this industry has now ceased to flourish, owing, in all probability, to the dishonest use of mercerised cotton or 'imitation silk' which was passed off on the unwary as silk, and the loss of market consequent on the discovery of the fraud.

The Paraiyans of Karambakkudi are cotton-weavers. They make towels, *mundus* (coarse men's cloths), and *duppatties* (cotton-blankets) which are also used for purdahs.

The silk most favoured by the silk-weavers at Tiruvappúr is the Chinese variety of the brands 'Manji,' 'Kubin,' 'Lachoon,' 'Kuyin' and 'Hoyung' which they purchase from importing houses at Bombay and Kumbakónam. Some inferior silk is also obtained from Kollegál. Manji is fairly fine. The rest are

coarse and thick. In normal times, the price of silk varies from Rs. 10 to Rs. 15 a viss. French lace known as 'Louis' is purchased at Madura, Kumbakónam and Madras.

"The first preparatory process after the raw silk is obtained is the winding-off or sorting, after which it is twisted over spindles. The winding and twisting operations are done by women who are paid Rs. 2 for winding and Rs. 2 for twisting one viss of raw silk. There are 30 or 40 spindles in operation, and generally two filaments are twisted together to form threads for the warp or weft. Warping is done with a rotatory plant, and a warp is generally 55 to 60 cubits long, sufficient for 5 saris. Generally, winding of weft yarn is done by the women of the family, and if labourers are engaged, they are paid Rs. 2 for a warp of five saris.

"The silk is then boiled off with soap, or with washing soda, or alkaline earth and bleached. A viss of unbleached silk,—120 tolas, when bleached will yield about 84 to 90 tolas of bleached silk. Silk is generally dyed with kiranmanji or shellac to obtain fast red colour and with Kapila (*Mallotus philippinensis*) for organic colour. For other colours, aniline dyes are used. After dyeing, the skeins are dried and then wound-off, after which they are warped.

"The saris manufactured in this village are generally solid-bordered with designs and lace in the edges.

"Economics for weaving a warp.

|                                               | Rs. | A. | P. |
|-----------------------------------------------|-----|----|----|
| Cost of raw silk (3 viss) at Rs. 27 a viss    | 81  | 0  | 0  |
| One mark of lace at Rs. 40                    | 40  | 0  | 0  |
| Drawing and twisting charges, at Rs. 4 a viss | 12  | 0  | 0  |
| Dyeing charge                                 | 25  | 0  | 0  |
| Warping charges at 8 as. a viss               | 1   | 8  | 0  |
| Wages to the boy assistant                    | 3   | 8  | 0  |
| Total                                         | 163 | 0  | 0  |
| Saris sell at Rs. 35 each or                  | 175 | 0  | 0  |
| Net cooly                                     | 12  | 0  | 0  |

"This (the net cooly) varies up to Rs. 15 according to the price fetched in the market, and an average sári weaver is able to earn Rs. 15 a month regularly. The total outturn in the village per annum is worth Rs. 2 lakhs, including all kinds of fabrics, such as madis, and saris of various dimensions. The total outturn in Parambúr is worth about Rs. 3,50,000."\*

The value of the silk yarn purchased by the weavers of Tiruvappúr and Parambúr now approximate Rs. 19,300 and the present total out-turn of silk goods in both places amount to no more than Rs. 35,000. These figures show how the industry in the State is declining owing to the competition of cheap silk saris imported from Kumbakónam, Madura, Madras and Bangalore.

#### Handloom Weaving.

*Cotton Weaving.*—Cotton weaving is carried on to a limited extent. Only the Panchamas weave coarse grey fabrics, such as, mundus, pillow cases, and women's cloths with a thin red border line.

"The names of villages wherein weaving of coarse cotton cloths is carried on are given below:—

| Place.             | Looms.        | Families or houses. |
|--------------------|---------------|---------------------|
| Karambakkudi       | 3             | 100 houses.         |
| Piláviduthi        | 3             | 10 or 12 families.  |
| Rángiamviduthi     | 10            | ...                 |
| Pallavaránpathai   | 8             | 30 (f).             |
| Pattividuthi       | 8             | 50 (f).             |
| Semnattuviduthi    | 10            | ...                 |
| Sengapatti         | some charkas. | 40 (f).             |
| Seniapatti         | ...           | 10 (h).             |
| Kásavam            | ...           | ...                 |
| Sítápatti          | ...           | ...                 |
| Mothapatti         | 6             | ...                 |
| Edayapatti         | 5             | ...                 |
| Velayagoundanpatti | 2             | ...                 |
| Mínarelli          | 2             | ...                 |

\* Extracted from Mr. D. Narayana Rao's Report on the Cottage Industries in the State (1929).

"From the above statement it will be seen that weaving is confined to the neighbourhood of Karambakkudi, the north-eastern part of the State adjoining the Tanjore district, and to Virálimalai, the north-western corner adjoining the Trichinopoly district. The Panchamas say that they have been carrying on this industry from time immemorial and the occupation has been a hereditary one. But judging from the quality of work turned out by them it may be safely said that they have not been able to learn the art and acquire the skill. The weavers have been carrying on the weaving operations with their old primitive tools and implements and have not in the least been benefited by the instructions and demonstrations given in the Karambakkudi weaving school.

"Generally the warps prepared here vary from 28 yards to 60 yards and the distance to be travelled comes to a number of miles when we take into consideration the number of threads put in a warp which, of course, varies according to the width of the cloth woven. Even at Seniapatti where Padmasális carry on cotton weaving in medium counts, they are following this laborious and enervating practice. For preparing a warp the minimum number of coolies required is 4; sometimes even 6 are employed where they have to get longer warps. Each cooly, is paid one anna, and the preparation of an ordinary warp of 56 cubits takes very nearly 4 hours.

"Winding and sizing are done in the usual way. Warps are sized with Varagu ganji and combed in the streets. Panchamas invariably size their yarn not only before putting the warp on the loom but also taken out of it. The weaving is loose, and however their defects they detect the woven cloth heavily. Drawing, winding, and sing are done by the weavers themselves assisted by their family members."\*

The Pudukkottai Weaving Factory, a limited concern, was opened in the capital in April 1936 by the Assistant Administrator. It has now 15 looms working to which 10 will shortly

\* Extracted from Mr. D. Narayana Rao's Report.

be added. The establishment includes 9 expert weavers from Bhavani, Tinnevely and Madura, 6 local men and about 10 women coolies. The factory weaves dhotis, bed sheets, carpets, mercerised towels, etc. The warping mill makes warps up to 160 yards. The yarn is bleached and dyed, and border designs are printed in the factory. There are now 7 looms in Tiruvappúr which weave cotton saris to the approximate value of Rs. 2,000 a year.

**Dyeing.**—There are two distinct classes of dyers at Tiruvappúr, the silk-dyers and the *sáyakárans* or cloth dyers. The occupation of the latter is almost gone; but there is still so great a demand for dyed silk (since among Hindus only widows wear white) that every weaving family owns a set of dyeing vats and churning sticks with which to dye in an emergency, although ordinarily all the silk prepared for the loom is sent out to the expert dyer.

Among the various colours fixed by the dyers the favourite ones are red (*Arakku*) and yellow (*Manjal*).

*Arakku Sáyam*: Dyeing involves three distinct processes—*asá* or bleaching, *káram pidikkirathu* or application of mordant, and *veir* or proper. The prepared silk is first bleached by steeping it in a solution of Fuller's earth dissolved at  $\frac{1}{8}$  of a seer for every seer of silk. During this process, the silk loses a fourth of its weight although this is made up later on when the colour is fixed.

The next stage is to steep the silk in running water, and dip it in a mordant composed of alum and cameric, mixed in the proportion of 2:1 and weighing about 3 rupees weight for every seer of silk.

The dye is *kombarakku* or stick lac, of which 3 seers are used for every seer of silk. The lac is broken into fragments and boiled in water, which is briskly stirred by means of a large wooden churn. The colouring matter which rises to the surface is at frequent intervals ladled into a separate cauldron. This is

said to be repeated seven times in order to make sure of the entire separation of the colouring substance. The contents of the cauldron are now boiled after adding some tamarind in the ratio of about  $\frac{1}{8}$  seer for every seer of silk, and the silk is dipped in it and stirred for a couple of hours. The silk is finally washed and dried in the shade.

**Manjal Sáyam :** To dye yellow, two solutions are prepared of chunam (lime) and Fuller's earth, mixed in different proportions, namely, 3:8 and 3:48. The silk is first dipped in the solution containing the higher percentage of chunam, when it is immediately bleached, the loss of weight being about an eighth of the original weight. The other solution is mixed with a paste formed by kneading together gingelly (sesamum) oil ( $\frac{3}{16}$  seer for 1 seer of silk) and *kapilá* (kamella) powder (*Mallotus philippinensis*) ( $\frac{1}{2}$  seer), and to it the bleached silk is transferred to receive the colour. The mordant used is alum and the silk remains in the vats for a full day.

To dye green, the silk is bleached and washed as for *arakku sáyam*, and steeped in a mordant made of turmeric and gall-nuts (*Terminalia Chebula*) in the ratio of  $\frac{1}{4}$  seer of turmeric, and 1 rupee weight of gall-nuts for a seer of silk. After dyeing with an aniline dye the silk is once again left immersed in another but stronger solution of gall-nuts.

To dye violet, rose, blue, etc., aniline dyes are used in preference to indigenous vegetable dyes which have fallen into disuse. The colours are fixed, even without using mordants.

**Cotton-dyeing :** Cotton-dyeing is not carried on here, the dyed yarn being purchased mostly from Kumbakónam and its neighbourhood. Tiruvappúr had more than a local reputation for cloth-dyeing, but unfortunately the art has now seriously declined. The so-called Tiruvappúr '*sáya véshtis*' or men's waist-cloths dyed in purple, for years competed successfully with the Madura brand of the same kind, and sold in considerable quantities all over the southern districts; but owing to causes

more or less obscure, the industry has nearly died out. The village is still inhabited by a few of the Náyakkans who originally carried on the business; and the following is a summary of the process they employ:—The cloth used for the purpose is piece-cloth known as *kachai* and *mull* cut up into pieces of 14 cubits to form a pair of men's cloths. It is first bleached by the Dhobie, and returned un-starched. The edges which are to receive the purple tint are dipped in a solution of gall-nuts. To form lines along the border, straight or curved according to taste, an iron style is used, with which lines are drawn along the outstretched cloth with molten wax, which penetrating the texture exclude any dye that may be applied at a later stage. The space between the wax lines is subsequently stained black by brushing it with a solution prepared by mixing together smithy ashes known as '*kittum*,' alum, turmeric and iron filings in which the cloth is to remain soaked for about 10 days.

The next process is to remove the wax, which is done, first, by beating the cloth while washing it in running water, and next, by immersing it in boiling water which melts and removes any wax that may still remain.

The cloth is now ready to receive the colour. Two solutions are prepared; one, a mordant made of gall-nuts; and the other a solution of a foreign aniline dye known as '*pipay sáyam*.' The cloth is alternately steeped in the two solutions a number of times and washed and dried at the end of each dip. The colour deepens as the process is repeated again and again. A faint colour known as *pál sáyam* is obtained by comparatively few immersions of this kind.

**Vegetable dyes :** The chief vegetable dyes produced in the State are turmeric, wild and ordinary, for yellow; *manjishti* or the Indian madder (*Rubia cardifolia*) for scarlet or coffeebrown; ventilago gall, for black; *kusumba* or bastard saffron (*Carthamus tinctorius*) for orange; *velvelan* or the bark of *Acacia leucophlæa* for red and black; and *vengai* or red sandalwood (*Pterocarpus santalinus*) for red.

The following particulars regarding the preparation and application of dyes are taken from notes prepared by the Curator of the State Museum in connection with the Exhibition of Indian Arts and Industries held in 1917—1918 at Madras.

**“Black dye.**—The cloth to be dyed is well washed in water mixed with some powdered sheep’s dung. It is next steeped in an emulsion of castor-oil, alkaline earth and sheep’s dung for 7 days and then washed in clean water. Then 1 tola of salt prepared from the ashes of the leaves of the Indigo plant (*Indigofera tinctoria*), 1 tola of Chlorate of Potash and  $\frac{1}{4}$  tola of Copper Sulphate are taken, and mixed in a solution prepared with gum arabic and left to settle for 4 hours. The water is then drained of the sediment and the cloth steeped in it for 7 days. It is next washed in clear water and dried. It is then soaked in salt water and after boiling till the boiling point, taken out, washed and dried. The colour is fast.

**Orange dye.**—The materials used for the dye are the root bark of Chay-root (*Oldenlandia umbellata*), and turmeric (*Curcuma longa*), with alum for mordant. The colour is fast but becomes darker when the cloth is bleached.

**Yellow dye.**—The materials used for the dye are the buds of Black Myrobolan (*Terminalia Chebula*) and turmeric (*Curcuma longa*). The colour is fast but becomes muddy when the cloth is bleached.

**Red dye.**—The dye is the root bark of *Ventilago Madras-patana* with alum for mordant. The colour is fast and stands washing.

**Deep Red dye.**—The materials used are red wood (*Adenanthera pavonina*), alum, sheep dung and alkaline earth as mordant.”]

[**Embroidery.**—A word may be said in passing of the interesting industry of embroidery carried on by a few Mohammedan families in the town. The chief elements in this

orm of decoration are gilt braid (*Thuyyá*), tinsel discs (*Jiginá*), and metallic tubes (*Poorani*) which are stitched on to silk and velvet in various designs. The material to be embroidered is stretched on a frame, placed on supports so as to be a few feet above the ground; the worker, usually a woman, squats on the floor and stitches by passing the needle from the left hand above the work to the right hand below. Embroidered cloth of this kind is used in making caps, badges, actors’ costumes, and court dress.]

[**Woollen spinning and weaving**—This industry is carried on mostly by Kurumbas who are a pastoral and agricultural people owning land and flocks of sheep. They are found in the villages mentioned below, spinning wool and weaving cumbli as subsidiary occupations.

| Village.                | Approximate<br>number of looms. |
|-------------------------|---------------------------------|
| Puduvur ...             | 4                               |
| Nilayapatti ...         | 1                               |
| Vaithikoil ...          | 4                               |
| Puthámbur ...           | 10                              |
| Sellukudi ...           | 15                              |
| Mélúr ...               | 15                              |
| Váriyapatti ...         | 2                               |
| Kurumbapatti ...        | 3                               |
| Durvásapuram ...        | 1                               |
| Muttathanpatti ...      | 2                               |
| Satyamangalam, etc. ... | 6                               |

Sellukudi and Mélúr are the largest centres with 30 and 40 families. On an average, each house in these villages owns 100 to 200 sheep. In years of normal rainfall, the Kurumbas get two shearings of wool from their flocks. On an average the fleece of 10 to 15 sheep is sufficient for one cumbli measuring 6 cubits; and the yield of a sheep may be taken at  $\frac{1}{2}$  lb per shearing. The practice here is to weave this cumbli in two halves and then stitch them together to make one big cumbli. Except the shearing of the wool, all other processes are carried

on by women during their spare time. From start to finish it takes one month to six weeks for a woman to prepare a cumbli. The actual weaving takes only three days.

The cumbliés are woven on primitive looms similar to those employed in cumbli weaving in the Madras Presidency. There are no fly-shuttle looms anywhere.

In the manufacture of cumbliés women take the leading part. They clean the wool by hand and tease it. After that they card the wool by means of a small handbow and spin the yarns either from pure grey or pure black or mixed wool. For sizing it tamarind seed starch is used. The wool is hand spun by the women on spindle, and cumbliés woven from the yarn are thick and coarse. If the weavers were to use charkas they could produce finer yarn and a better class of cumbli.

Most of the cumbliés manufactured are of grey wool. Very rarely pure black or pure white wool is used. Generally, a cumbli sells from Rs. 2 to Rs. 3 if grey, Rs. 4 to Rs. 4½ if pure black, and Rs. 6 if pure white. The production in all these villages is very small and the whole quantity is consumed locally. The average annual production per family does not exceed 4 to 6 cumbliés, and these are sold either in Pudukkottai or in the neighbouring markets. The total production of the State may not exceed 500 cumbliés a year.

Kurumba women weave purely as a subsidiary occupation in their spare time while the men tend the flock and shear the wool. The future of the industry depends on importing and acclimatising better breeds of wool-bearing sheep, and educating the unwilling Kurumba in better methods of spinning, carding and weaving, such as are practised in the Bellary and Kurnool districts of the Madras Presidency. The Darbar arranged with the Government of Madras in 1935 to secure at Darbar expense the services of some expert cumbli weavers from Kudithani in the Bellary District to teach the Kurumbar in the State improved methods in weaving. But the Kurumbar were unwilling to take advantage of this offer, nor did they respond

to the Darbar's proposal that rams should be imported from outside the State to improve the local breed. The good intentions of the Darbar were thus frustrated since the Kurumbar could not help themselves, and were not willing to accept such help as was offered. The Darbar have ordered that only locally-made cumbliés should be bought by Government departments.

**Mat Industry.**—All castes, high and low, use the korai (*cyperus rotundas*) mat. It is the only bed that the poorer classes can afford. The making of such mats by hand is an agreeable home occupation, and the chief reason for its popularity is the inexpensiveness of the equipment that it requires. The industry has been practised on a fairly large scale in the villages mentioned below and the approximate number of looms at work are noted against each.

|                        | Looms. |
|------------------------|--------|
| Kolandarámpatti ... .. | 20     |
| Surakkádu ... ..       | 3      |
| Teethánviduthi ... ..  | 25     |
| Annavásal ... ..       | 2      |
| Káttáthi, etc. ... ..  | 6      |

In these villages korai does not grow, either wild or cultivated. The weavers in Kolandarámpatti, Teethánviduthi and Káttáthi are Panchamas, while those at Annavásal are Mohammedan women and those at Surakkádu Pandáramis. All the korai required for weaving is imported into the State from Trichinopoly and Tanjore. The workers, who are most of them agriculturists, carry on the industry as a subsidiary occupation. The thread for the warp is prepared from the fibre of aloe (*Agave americana*), which grows spontaneously in the State.

Except at Annavásal, where the weavers are gosha women, the workers in all other places are men, and the industry is carried on purely as a subsidiary occupation. The mats are of fairly good quality and specially selected thin korai is generally used. To make them more attractive, they are dyed with red and black aniline dyes. The Pandáram weavers at Surakkádu are able to weave patterns in mats.

Chettiar women excel in making pretty little baskets of palmyra leaves which they give as wedding presents. These are seldom sold.

Apart from the korai-mat makers, there are a few classes of Kavaraï Chetties and Koravans who make mats of the leaves of palmyra date palms, sometimes dyed with aniline dyes. The average wages that they earn range from 2 to 2½ annas *per diem*.

In Péraiúr there are some Mélakáran families who are solely engaged in manufacturing fans out of palmyra leaves. Even this modest industry suffers by competition from Ramnad district where such articles are made in much larger quantities.

**[Basket making.]**—A few families of Shanars at Mirattunilai prepare baskets for household and agricultural purposes from palmyra leaves. The leaves are got free, but the cutting charges amount to Re. 1 per 1,000 leaves. Women alone do this work in their spare time. The leaves are used for the inner plaiting while the outer fibrous part of the leaves is used for the outer cover. These baskets are fairly strong and sell at from 2½ to 8 annas a basket according to their size. On every market day at Pudukkóttai a large number of such baskets are sold.

**Rope-making.**—The State is not wanting in fibre-yielding plants, though no use has as yet been made of them on a large scale. American aloe (*Agave americana*) or *kathalai* is found in plenty, and its long fibres measuring from 3 ft. to 7 ft. in length are used in making ropes, hammocks and twine. Deccan hemp (*Hibiscus cannabinus*) or *Pulichai keeraï* yields a 'soft, white silk' which could be used for making ropes and sacks. There are also the madar or *Erukkan* (*Calatropis gigantea*), the sunn hemp (*Crotalaria juncea*), and *Marul* (*Sansaviera zeylanica*—bowstring hemp) from which good fibre can be extracted. But only cocoanut-fibre ropes are made in some quantity by the Koravars.

**[Bangle Industry.]**—This was one of the chief industries that flourished in the State till recently. It was a subsidiary occupation practised by the Gajulu Balijás. The chief centre

was Vaittúr (Kolattúr Taluk). Among the several causes that led to its decline are the difficulty in securing cheap fuel due to the conservation of the forests, and the popularity of the cheap and attractive bangles of foreign manufacture, which naturally have driven out the rude, less elegant and costly variety of the local make.

Only about five families in the State now make lac bangles, and the average production of each house does not exceed Rs. 20 a year. Lac bangles are made out of the refuse rejected by the dyer after extracting all the colouring substance from stick-lac in the process of fixing *arakku sáyam* (see under *dyeing*). ]

**Metal Industry.**—In spite of the serious inroads of the cheaper substitutes, such as enamelled iron, earthen, china and aluminium wares, there is still a demand for brass and bell-metal vessels. The custom of rich Chettiers, presenting large quantities of brassware to their daughters as part of their marriage dowry accounts for the establishment of this industry at Ponnamarávati, Pillamangalam, Alagápuri, and other centres. A statement showing the various places at which the industry is carried on with the number of families engaged and the kind of work done is given below:—

| Name of village. | No. of families. | Kind of work done. |
|------------------|------------------|--------------------|
| Kiranur          | 2 families       | Bell-metal.        |
| Alagápuri        | 1 factory        | Brassware.         |
| Kuppakudi        | 2 families       | Bell-metal.        |
| Álavayal         | 2 „              | Brasswares.        |
| Kandiyanattam    | 2 „              | „                  |
| Koppanápatti     | 5 „              | „                  |
| Valayapatti      | 1 factory        | „                  |
| Kulipirai        | 2 workers        | Bell-metal.        |

**Bell-metal.**—The monthly production of a family of workers is about 15 seers of worked metal. The local industry cannot however compete with the articles produced with better finish and at cheaper rates at Kumbakónam, Madura and other places.

**Brass.**—Manufacture of brass utensils is mostly carried on in factories owned by capitalists, where workers who belong to the Kammalan or Ásári caste are generally employed either on daily wages or on the piece-rate system, the latter being largely in vogue. The workers are mostly drawn from the Tinnevely district. In each of the workshops, the annual turnover is worth a lakh of rupees and is almost wholly consumed by the Nagarathar community. It is not unusual for a rich Chettiar to order wares costing Rs. 5,000 for a wedding in his house. The copper and brass sheets required are brought from Madras. The chief centres of the industry are Koppanápatti, Valayapatti and Alagápur.

Tin and lead vessels are made at Kíranur against orders.

**Oil-pressing.**—This industry is carried on to some extent in almost all important villages and towns in the State and especially at Álangudi and Karambakkudi. The seeds that are pressed for oil in the State are commonly gingelly, and ground-nut. The out-turn of country *chekkus* (oil-mills) is almost the same everywhere varying from 32 to 35 per cent of the seeds pressed, but depends upon the quality of the seed.

Castor-oil is highly valued as a purgative. It is prepared in small quantities in almost every household. For this purpose, the castor seeds are sun-dried, broken, and boiled in water. After a time the oil separates and rises to the surface when it is skimmed into another vessel. Castor-oil was once commonly used as lamp oil, but now it has been practically superseded by kerosene oil.

The oil of the Nim or margosa tree (*Azadirachta indica*) is esteemed for its medicinal value. It is administered both externally and internally for nervous and other disorders. In spite of its disagreeable odour, it is used by the lower classes as hair oil, and in making unguents.

Other oils expressed in the State are *Iluppennai* or bassia oil (the oil of *Bassia longifolia*—the Mahua tree), used for temple illumination and adulterating ghee; *Punga ennai* or the oil of

*Pongamia glabra*—Indian Beech—used for medical and lighting purposes; and mustard oil, used as a liniment in cough and catarrh.

Though the State has thus plenty of oil-producing plants, no attempts have been made to make soap or candles, except *Savukkáram*, or country soap, which is obtained by boiling some cheap oil with Dhobies' earth, and solidifying the resulting compound in cocoanut shells. Oil cake is put to various uses. It is often used as manure. Gingelly cakes are used as fodder; and bassia cakes, as soap after an oil bath.

**Perfumery.**—Pudukkóttai has always enjoyed a reputation for scents, fine varieties of which were made in the past under court patronage by Brahmins and Mohammedans. Its *batties* (scented sticks) and *billais* (scented wafers) sell far and wide. The local perfumers also excel in making billai garlands glistening with beads and lace, and ornamented with figures of birds which sometimes fetch as much as Rs. 50 each. The recipes employed in making the perfumes are kept a close secret.

**Brick-making and Pottery.**—Reference has already been made to the fact that the soil being rich in red loam is eminently suited for brick-making. Flooring tiles and bricks of high quality are manufactured by the State P. W. D., and sold to the public when in excess of State requirements. Rough pottery is made by the *Kosavans* at Malaiyúr, Kosalákkudi, Tiruvéngavasal, Váráppúr and Sevalúr.

**Stone-work.**—The gneiss rocks of the State give occupation to considerable numbers of *kal-thatchans* or stone-masons. They quarry, dress and polish the stones. They also make articles of household use such as grinding stones, cattle troughs, mortars and pestles; and work as stone-masons. The more skilled among them sculpture gneiss and pot-stone figures of Gods.

**House-building.**—The steady expansion of the capital town, and the numerous works undertaken by the State and the Chettians afford a steady support to a numerous class of artisans employed more or less directly in house-building. Foremost

among them are the masons, who build on contract and who are constantly consulted as versed in the '*manai-sastram*' or Hindu science of architecture. There are brick-fields and lime-kilns all over the country, especially near the capital and the Chetty villages. House-building gives occupation to a large body of brick-layers, limeburners, and daily labourers, whose wages are steadily increasing.

**Manufacture of Musical instruments.**—Musical instruments such as the Veena, Thambura, Saranga, and Mrithangam, which were at one time made in the State earned a name for quality and finish. The industry is now practically defunct.

**Fine Arts and Music.**—The Rulers of the State have always been patrons of the arts, supporting in particular bards and poets who commemorated the exploits of the ruling family. Being situated near Tanjore, Pudukkottai offered a helping hand to the musicians who were left adrift on the downfall of the Tanjore dynasty. Veenai Subbukutti Aiyar, Sorabath Krishnaiyar, Desa Vadya Venkataramiyar, Sarantha Náicker, Nánnu and Chittu whose names are well-known in the musical world, found favour and patronage at the Pudukkottai court.

The court also encouraged artists, some of whose paintings adorn the Darbar Hall in the Old Palace.

A certain amount of carving in wood and ivory is produced within the State mainly for the adornment of temple cars, or *vahanams*, and door-frames. Chettiars sometimes spend hundreds of rupees on elaborate door-frames for their houses.

#### PUBLIC UTILITY CONCERNS.

(1) **Electricity.**—There are two electric supply corporations in the State, one of which is situated in the capital itself and caters for the town lighting and industrial load. The other, the Sri Brahmaydyambál Electric Supply Corporation Ltd., Rámachandrapuram, supplies the needs of a few rich Chetty villages such as Rámachandrapuram, Ráyavaram, Arimalam and Konápet.

(a) *The Pudukkottai Electric Supply Corporation Ltd.* was incorporated as a registered company on 1—3—1924. The scheme owed its early conception to the efforts of Mr. N. Vembu, M. A., A. M. I. E. E., a native of this State, who was then in Germany apprenticed to the A. E. G. Berlin.

The foundation stone of the Power House was laid on the 20th February by Rao Bahadur P. K. Kunhunni Menon, the then Dewan of the State. The technical details were supervised by Mr. Seshasayee of Messrs. Seshasayee & Bros., Electrical Engineers, Trichinopoly. The installation was opened on 26—4—1928 by Rao Bahadur Kunhunni Menon.

At first there were only 30 house connections and no motor load. For the first two or three years the corporation had to fight its way and was not able to declare a dividend. The Darbar came to its help with a loan of Rs. 20,000, and the Municipality with a sum of Rs. 15,000.

The Corporation has been able, thanks to the increasing loads, to declare satisfactory dividends for the last 4 years. The Darbar have converted their loan into shares, and have the right to appoint a Director.

There are three Diesel engines supplying Alternating Current at 400 volts, three phase, 50 cycles—2 engines of 95 and one of 160 Horse Power. With the increase in load, a 6600 volts High Tension Feeder supply system has recently been inaugurated.

As illustrating the growth of load, a few figures may be given.

| Year. | Units generated. | Gross income<br>Rs. | Total connected<br>load Motors. |
|-------|------------------|---------------------|---------------------------------|
| 1928  | 30,000           | 16,872              | ...                             |
| 1930  | 60,000           | 25,488              | 25                              |
| 1935  | 240,000          | 55,000              | 70                              |

The number of house connections has now risen to 400. The Municipality is taking a large amount of power for street lighting and also for the motor pumps in the Town Water-Works.

Three printing presses in the Town use motor drives. A flour mill and a coffee grinding mill are electrically driven. The New Palace and some other Government buildings have electric pumps which have also been installed by a few private persons. The two permanent cinemas in the capital also use electric energy.

(b) *The Sri Brahavidyámbal Electric Supply Corporation Ltd., Rámachandrapuram.*

A few rich Chettiar families in Rámachandrapuram, more familiarly known as Kadiápati, had installed private generating sets in their houses for lights and fans. A Limited Company was floated mainly due to the efforts of Dewan Bahadur T. N. Muthiah Chettiar and was registered on 25-7-1925. The foundation stone of the Power House was laid on 6-11-1925 by Dewan Bahadur T. N. Muthiah Chettiar. The first switching on of lights was done by Rajkumar Vijaya Raghunatha Dorai Raja, Regent of Pudukkottai on 4-3-1927.

In the year 1930, Konápet, 8 miles from the power station was supplied through a 6000 volts High Tension Feeder. Recently a further feeder at 6000 volts has been run to Arimalam, 8 miles distant on the eastern side.

There are two crude oil driven engine generator sets, each of 60 Horse Power supplying Alternating Current at 440 volts, 3 phase, 50 cycles. As part of the load is D. C. there are motor driven D. C. generators at a sub-station to supply the D. C. load at 110 volts. In 1935, 166 houses got energy from this power house. The unions at Rámachandrapuram, Ráyavaram, Konápet and Arimalam have electric lights. There are 15 motor driven pumps at various houses in these places.

Owing to insufficient demand for current, the corporation has been unable to declare a dividend so far.

These two corporations are inspected by the State Electrical Inspector.

(2) **Rice mills and decorticators.**—There are numerous power-driven mills all over the State for husking and polishing rice, eight of which are located in the capital itself. They are working busily from year's end to year's end, and in consequence a large number of poor people, especially women who formerly earned their livelihood by pounding rice, have been thrown out of employment. In the capital there are two flour and condiment mills, and one power-driven plant for grinding coffee seeds.

In centres of ground-nut cultivation such as Álangudi, decorticators have been installed.

(3) **Printing-Presses.**—There are six printing-presses in the Capital, of which the State Press is the largest. One of them is a flourishing co-operative concern. The others are privately owned and undertake job work and occasionally the printing and publication of books. The *Janamitran* and *Desaooliyan* presses print the two Tamil weekly journals of the same name which are published in the State.

*The State Press* was established at Tirugókarnam in 1861 and named the Sri Brihadamba Press after the tutelary Goddess of the State and was removed to the Public Offices in 1892. In 1880 it was considerably enlarged and improved. A State Gazette was first published in 1879 as a bi-monthly, which was converted into a monthly in July 1881, and is now issued on the first and third Wednesdays of every month for the promulgation of State Orders and the dissemination of official and non-official information.

All Government publications, such as the annual Administration Reports of the State, Law Reports, Proceedings of the Legislative Council, the Pudukkottai Code and the State Regulations, and all Departmental Forms for use in the offices of the State are printed in the State Press. It publishes the State *Panchángam* (the Tamil calendar) which is sold in large numbers not only in the State, but also in the Tamil districts of the

Madras Presidency, the Pudukkottai College Magazine,—a quarterly conducted by the staff and students of the local College, and the College Calendar. It also undertakes job work of all kinds. The State Press is the only one in the State at which Sanskrit printing is done both in the Tamil-Granta and Dévanāgarī types. An electric motor has taken the place of the old oil-engine, and there are now in the Press 17 machines including the cutting, ruling and gumming machines. Attached to the Press is a Bindery. The Press employs 53 men. It is now one of the prominent printing-houses in South India.

Printing and Stationery constitute a separate State department under a Superintendent who is under the direct control of the Darbar. In 1920, the Stamp Department was transferred to the charge of the Superintendent of Stationery and Printing, and all State Judicial and Non-judicial stamps and stamped papers are manufactured in the State Press.

The receipts under Stationery and Printing for Fasli 1345 were Rs. 4,239 and the expenditure Rs. 45,733.

**(4) Joint Stock Companies.**—The number of Companies registered in the State up to the end of April 1936 was 27. Two of them are the Electric Supply Corporations in the Capital and at Rāmachandrapuram. Another Electric Supply Corporation is being constituted at Ponnamarāvati. The following companies do banking business in the State.

1. The Chettinād Corporation and Bank Ltd.
2. M. C. T. M. Banking Corporation Ltd.
3. The Pudukkottai Trading and Banking Corporation.
4. The Pudukkottai Branch of The Hindu Karur Bank.
5. Dewan Bahadur Subbiah Chettiar's Trading and Banking Co.
6. Ména, Chéna, Ména, Ména, Bank.
7. Janópakāra Motor Service Company (Ponnamarāvati).
8. The Sun Bank Ltd.
9. The Modern Bank Ltd. (Pillamangalam—Alagāpuri).
10. The Branch of the Indo-Commercial Bank Ltd.
11. The Branch of the Travancore National Bank.

The following registered companies carry on industrial or trading business:—

1. The Pudukkottai Brick and Tile Manufactory.
2. Sri Murugan Company.
3. The Pudukkottai Trading and Banking Company.
4. Sambandam & Co.
5. Dewan Bahadur Subbiah Chettiar's Trading and Banking Company.
6. T. V. Sundaram Aiyangar & Sons.
7. South Indian Corporation Ltd.
8. The Pudukkottai Weaving Factory.
9. The Pudukkottai Match Factory.

**Trade and Markets.**—The products of the State, natural and industrial, leave no large surplus for export after meeting local demands. The country depends, on the contrary, on the surrounding districts for the supply of many necessities. While, therefore, the exports are inappreciable, the imports are considerable. A brisk internal trade is carried on between one part of the State and another.

**Exports:** The chief articles of export are gneiss, red and yellow ochre, jack fruit, black and red gram, ground-nut and yams. *Avaram* bark, acacia bark, nux vomica seed and mangoes are also exported. Ground-nut is sent to Tanjore and Trichinopoly to be consigned to Europe. Mangoes and jack fruit sell largely in the Chetti parts of the Rāmnad District. Gram is sold in Manappārai and Pattukkottai.

**Imports:** The principal articles of import are salt, paddy, straw, hardware, tobacco, timber, Calicut tiles and bricks, Cuddappah slabs, cotton and silk goods, petrol and kerosene oil. Bullocks and cows are imported from Manappārai and adjacent places in the Trichinopoly district; cocoanuts, keeths (plaited cocoanut leaves) and dried fish from Pattukkottai taluk of the Tanjore district, timber from Negapatam and plantain leaves, fruit and betel leaves from the adjoining Cauvery delta. Woven cloths for men and women are mostly obtained from Kumbakōnam, Salem, Madura, Conjeevaram and Bangalore; and, in addition, piece goods are purchased from importing houses at Madras.

Internal trade is largely carried on at the *shandies* or markets, which are both collecting and distributing centres. The most important weekly *shandy* of the kind and probably one of the biggest in the Southern districts, is held on Friday at the capital. The *shandy* covers a large area, with numerous sections, roofed and open, set apart for paddy, cattle, *navadán-yams* (cereals and pulses), fish, straw, and vegetables. Hundreds of carts may be seen on Friday mornings streaming into the town from north, south, east and west along the principal highways, and a very busy trade is kept up the livelong day. This large volume of business is due, among other reasons, to the fact that the capital stands between the supplying districts of Trichinopoly and Tanjore to the north, and the rich consuming Chetty villages to the south. The Karambakkudi market which is next in size exchanges its produce with those of the Pattukkóttai taluk. The markets at Virálimalai and Konnaiyúr are also considerable. Below is given a list of markets and market days:—

| Taluk     | Station.            | Market Day.             |
|-----------|---------------------|-------------------------|
| Alangudi  | Alangudi            | ... Thursday.           |
|           | Vadagádu            | ... Tuesday.            |
|           | Mullangurichi       | ... Monday.             |
|           | Maruthangoneviduthi | ... Sunday.             |
|           | Vettanviduthi       | ... Saturday (Private). |
|           | Varáppur            | ... Tuesday.            |
|           | Karambakkudi        | ... Wednesday.          |
| Tirumayam | Pudukkottai         | ... Friday.             |
|           | Konnaiyur           | ... Monday.             |
|           | Pudupatti           | ... Wednesday.          |
|           | Panangudi           | ... Tuesday.            |
|           | Émbal               | ... Sunday.             |
|           | Konápet             | ... Tuesday.            |
|           | Melatháníyam        | ... Sunday.             |
|           | Ráyavaram           | ... Wednesday.          |
|           | Kulipirai           | ... Thursday.           |
|           | Viráchilai          | ... Sunday.             |
|           | Kílanilai           | ... Thursday.           |

| Taluk.          | Station.       | Market Day.   |
|-----------------|----------------|---------------|
| Tirumayam—cont. | Kummangudi     | ... Saturday. |
|                 | Rángiyam       | ... Saturday. |
|                 | Válaramanikkam | ... Sunday.   |
|                 | Irumbánádu     | ... Thursday. |
|                 | Nagarappatti   | ... Thursday. |
|                 | Arimalam       | ... Monday.   |
|                 | Tirumayam      | ... Saturday. |
|                 | Ponnamarávati  | ... Saturday. |
| Kolattur        | Kíranúr        | ... Monday.   |
|                 | Kudumíamalai   | ... Tuesday.  |
|                 | Kodumbálur     | ... Sunday.   |
|                 | Perambur       | ... Tuesday.  |
|                 | Virálimalai    | ... Monday.   |
|                 | Killukottai    | ... Thursday. |
|                 | Puliyur        | ... Saturday. |
|                 | Amavásal       | ... Sunday.   |

**Weights and Measures.**—Since many of the inscriptions copied in the State relate to gifts of one kind or another described in some detail, a scrutiny of these records of the past reveals a bewildering multiplicity of weights and measures formerly current in the country. Some of these old world names have long been obsolete, but others are still familiar. The term *padi*, which is now so common, is discovered to be of comparatively recent origin. The measures of capacity that were current from the tenth century onwards were as follows:—

|                    |                                                                    |
|--------------------|--------------------------------------------------------------------|
| 1 Śevīḍu           | = a small measure containing 360 grains of Paddy.                  |
| 5 Śevīḍus          | = 1 Ālákku (ollock) dry or liquid measure = $\frac{1}{2}$ measure. |
| 2 Ālakkus          | = 1 Uḷakku = $\frac{1}{4}$ measure.                                |
| 2 Uḷakkus          | = 1 Uri = $\frac{1}{2}$ measure.                                   |
| 2 Uris             | = 1 Náḷi = 1 measure = 1 Paḍi.                                     |
| 8 Náḷis or 8 Paḍis | = 1 Kuṟuṇi or Marakkál = modern Kalam r.                           |
| 2 Kuṟuṇis or       |                                                                    |
| Marakkáls          | = 1 Padakku.                                                       |
| 2 Padakkus         | = 1 Túṇi.                                                          |
| 3 Túṇis            | = 1 Kalam (also said to be equivalent to 4 Marakkáls).             |

[Part II, S. I. I. Vol. II, (page 48), and E. I. XXIII, Part III, No. 17, page 105). (Except Śevīḍu, all the other names are current)].

In an inscription of Sri Vallabha Déva of 1366 A. D., mention is made of the measure *kóttai* which is now said to be 1 marakkáls. In the Sāka—Samvat 1424, a marakkál called *uramban* (=4 Nālis) was in use in the Kadalisvara temple at Tirukalambūr. There were also numerous other measures named differently and current in different places, for example, *Rajakésari*, *Adavallán*, etc. Sometimes they were named after the mark of standardization, e. g., *sulakkál*—the measure stamped with the *sulam* or trident, and used in Siva temples. Sometimes they were named after the metal of which they were made, e. g., *eppukkál* or copper measure. We do not know whether *kovilkál* was identical with *sulakkál*, but the name suggests that it was used in *kovil* or temple transactions. Similarly, *kadamaikkál* must have been used in levying *kadamai* (tax); while *úr* (town) *ál* and *Náttu* (country) *kál* probably denoted measures current in town and country respectively. Measures, it would appear, were also named after persons, probably eminent in their own time, e. g. *Rajakésari*, *Ponmálakaipillai-Sanganeri-marakkál*, *Tiruvásaltirandán-kál*, *Virapari-pálamarakkál*, *Terravai-randan-kal*, etc. The practice of naming measures after persons was continued down to recent times. The indigenous measure called *Pallavan padi* is named after the Pallava kings, and *Harris padi* which was used till recently was named after a Collector of Tanjore.

The present grain measures are:—

|                   |                      |
|-------------------|----------------------|
| 4 Padis           | =1 Marakkál.         |
| 12 Marakkáls      | =1 Kalam.            |
| 5 Kalams          | =1 Podi (pack-load). |
| 50 Padis (Madras) | =1 Muttai.           |

The Imperial measure known as *Pattanam* or Madras *padi*, and the local *padi* called *Pudukkóttai padi*, *sinna padi* or *Pallavan padi* are used side by side. The former is  $1\frac{2}{3}$  times the latter. Ghee (Liquid), oil, and curds are also measured by these standards. Ghee is sold by the weight in the bazaar, although in transactions with the peasantry it is invariably

measured. Milk is rarely weighed, though the expression 'seer' is used sometimes in connection with it. It is measured out with a vessel, which is supported to contain 1 seer by weight of milk. In measuring oil, larger measures are also employed e. g., *ádam* (=14½ Madras measures) and *podí* (=10 ádams). Kerosene oil, is measured by bottle and tin, and arrack by gallon and dram.

**Linear measures.**—The standard of linear measure seems to have varied from place to place as may be inferred from such terms as *Mattiyúr-níla alavú kól* (Mattiyur land-measuring rod) *Tirumeyyam kól* (Tirumayam rod), *Ádanúr-kádu alanta kól* (Ádanúr rod for measuring forest), *Sembáttúr-kádamai-irukkam kól* (Sembáttur rod for taxation), etc. The length of the rods are illustrated by the following table. The dates and places mentioned in the table are those of the inscriptions from which the information has been derived:—

| A. D.       |                |                                |
|-------------|----------------|--------------------------------|
| 1216        | Kunnandār kōil | ... 9 ft. rod.                 |
| 1222 & 1271 | Kudumiāmalai   | ... 16 ft. rod.                |
| 1227 & 1290 | Pēraiýúr       | ... 18 ft. rod and 22 ft. rod. |
| 1254 & 1261 | Oliyamangalam  | ... 16 ft. rod.                |
| 1262        | Mailapatti     | ... 18 ft. rod.                |
| 1311        | Maravāmadurai  | ... 16 ft. rod.                |
| 1313        | Perumānādu     | ... 16 ft. rod.                |
| 1322        | Pinnangudi     | ... 16 ft. rod.                |
| 1340        | Tirumayam      | ... 12 ft. rod.                |
| 1369        | Mēlār          | ... 12 ft. rod.                |
| 1841        | Mirattunilai   | ... 24 ft. rod.                |

In the inscriptions of Māravarman Sundara Pāndya I frequent reference is made to a measure called *kól kuditāngi* which though unidentifiable now was well-recognised in the first half of the 13th century. A Kudumiāmalai inscription dated 1267 A. D. mentions a *kaittadi* (Hand stick, short stick) whose dimensions are uncertain.

Two kinds of *kóls* (rods) are now recognised among the peasantry, a *kól* of 16 human feet in the eastern half of the State, and one of 14 ft. in the western. Though terms such as 'mile,' 'yard' (Tamil, *gajam*) and 'foot' (Tamil, *adi*) have passed into

the vernacular, the English linear measure of distance is not universally known. Short lengths are expressed in terms of the following table:—

|               |                                                         |
|---------------|---------------------------------------------------------|
| 8 Torai       | = 1 Virakkadai.                                         |
| 12 Virakkadai | = 1 Sān (span).                                         |
| 2 Sāns        | = 1 Muḷam (cubit).                                      |
| 2 Muḷams      | = 1 Gajam (yard).                                       |
| 2 Gajams      | = 1 Bāham (fathom) (S. I. I. Vol. II, Part V, Page 10). |

*Bāham*, in the above table, represents the length between the tips of the two outstretched arms. Greater lengths, especially distances covered by journeys are expressed in terms of *nāli* or the Indian hour of 24 minutes. Thus an English mile is *mukāl-nāli vali* or distance traversed in three-fourths of an Indian hour. A *kādam* is 10 *nāli vali* or distance covered in 10 *nālis* or 4 hours. Distances are sometimes indicated roughly by such terms as *kūppidu dūram* (distance within ear shot).

**Square measures.**—In former times the usual units of land measurement were *mā*, *kāni*, *muntirikai*, and their sub-multiples such as *kil muntirikai*, etc. They naturally varied with the standard rod of various localities. *Mā* usually represented 256 *kulis*, though in one of the inscriptions at Tiru-gókarnam ascribed to one Māra Varman Vira-Pandya, a *mā* is said to be 512 *kulis*.\* In those days, lands were measured with so much care "that even such a small fraction as  $\frac{1}{102400}$  of a *vēli*† (=1 *kil-muntirikai*) was recorded in the documents. In one of the inscriptions of Irumbānādu temple, a certain land which was endowed to the temple, is said to have consisted of 83 small plots—some measuring so small a fraction as  $\frac{1}{320}$  of a *vēli*. In an inscription of an unidentified Jatavarman Sundara Pāndya, mention is made of a grant of  $\frac{3}{320}$  of a *vēli* of land by the temple authorities of Ādanūr.‡

\* Kuli is variously defined as 12 sq. ft. of land measure, or a land measure varying in different places from 144 square feet to 576 square feet [Tamil Lexicon].

† *Vēli*-modern equivalent 6.74 acres.

‡ *Mā*, *kāni*, *muntiri*, etc., are fractions ( $mā = \frac{1}{256}$ ,  $kāni = \frac{1}{512}$ ,  $muntiri = \frac{1}{1024}$ ) of a bigger standard square (probably the *vēli*). See inscriptions Nos. 89 and 90.

Even to-day, when lands have been measured by acres and cents, the old names continue to be used, of which the following is a table:—

|                        |                                                                                                |
|------------------------|------------------------------------------------------------------------------------------------|
| 100 Kulis (33.7 cents) | = 1 Mā (33.7 cents).                                                                           |
| 20 Mās or 2,000 kulis  | = 1 Vēli (6.74 acres).                                                                         |
| 50 Kulis               | = 1 Āl Nadukai (as much as could be trans-planted by one man = 16.85 cents).                   |
| 1,000 Kulis            | = 1 Āl Sēvidam (unit of feudal tenure) (337 cents = 3.37 acres or $\frac{1}{2}$ <i>vēli</i> ). |
| 500 Kulis              | = 1 Kurukkam (168.5 cents or $\frac{1}{4}$ <i>vēli</i> ).                                      |

A *kuli* is generally a square *kōl* of 14 feet. The term *pangu* is rarely used.

**Measurement of time.**—Time was roughly calculated by observing the lengths of shadows, and noting the position of the sun and the stars. The village watchman in charge of sluices who has to irrigate fields by the hour, calculates by shadows at day and stars at night. In olden times a floating *nālikai vaṭṭil* or clepsydra was used, i. e., a perforated vessel which was regulated so as to sink in a fixed time as the water entered it. Sun-dials (*nālikai vaṭṭam*) were also in use. Time is roughly denoted by such expressions as *Velli mulaikirathu* (the east has brightened), *Uchchikkālam* (the sun is at *Uchchi* or Zenith), *Nisi* (Mid-night), etc. Subjoined is the table of time measurement:—

|             |                           |
|-------------|---------------------------|
| 60 Vinādis  | = 1 Nālikai (24 minutes). |
| 2½ Nālikais | = 1 hour.                 |
| 3¾ Nālis    | = 1 Muhūrtam (1½ hours).  |
| 2 Muhūrtams | = 1 Jāmam (3 hours).      |
| 60 Nālikais | = 1 day (24 hours).       |

**Commercial weights.**—All solids except grain and salt are weighed according to the following table:—

|           |            |
|-----------|------------|
| 3 Tolas   | = 1 Palam. |
| 8 Palams  | = 1 Seer.  |
| 5 Seers   | = 1 Viss.  |
| 8 Visses  | = 1 Maund. |
| 26½ Seers | = 1 Tulām. |

An indigenous steelyard called *Tulākkōl* is sometimes used to weigh yams and other vegetables.

**Goldsmith's weights.**—The Goldsmith's weights are:—

|                                             |                       |
|---------------------------------------------|-----------------------|
| 32 Kundu ( <i>Abrus precatorius</i> ) seeds | = 1 Virāhanidai.      |
| 8 Panavidais                                | = 1 Virāhanidai.      |
| 10 Virāhanidais                             | = 1 Palam (3 tolas).  |
| 8 Palams                                    | = 1 Seer or 24 tolas. |

Precious stones are weighed according to the following table:—

|             |                  |
|-------------|------------------|
| 10 Manjadis | = 1 Virāhanidai. |
| 17½ Carats  | = 1 Virāhanidai. |
| 20 Radis    | = 1 Virāhanidai. |
| 1½ Kālanjis | = 1 Virāhanidai. |

The older system of weights for precious metals was as follows:—

|           |                                                   |
|-----------|---------------------------------------------------|
| 1 Kunri   | = 2 Grains.                                       |
| 1 Manjadi | = 2 Kunris (4 grains).                            |
| 1 Kālanju | = 20 Manjadis (S. I. I. Vol. II, Part I, page 8). |

**Coins.**—In the earliest Chóla inscriptions most of the gifts of money are expressed in terms of *tulai pon* (bored gold) identifiable by a punch hole at the centre, which was a sort of hall-mark of the genuineness or fineness of the gold used. Since the weights of the coins varied considerably with the locality, the weights were always mentioned as well as the number. The following names of coins are met with in the inscriptions:—*tiram palankásu*, *pudukkásu*, *Irásī-panam*, *Varāhan-panam*, *Pancha-salákaiachchiu*, *Vira Pándyankásu*, *Kuligai-panam*, *Senpaka-kulikai panam*, *Válál-vali-tirandán-kulisai panam*, *Sólankásu*, *Aráyirakatti-panam*, *Sirri-rási-panam*, *Sakkara-panam*, *Madirai Sakkara-pon*, *Káli-pon* and *Tirugókarnam-minnalpanam*.

A word about the first of these names. The ancient coins which were supposed to be the equivalent of a drachma called in Tamil *diram*, *diramam* and *diramám*,\* were largely in circulation

\* Tamil inscriptions give direct evidence on the point when they state that the Roman denarius and drachma had been in use in Southern India. "All these debased coins follow the weight standard of their Sassanian originals, which represented the Attic drachma of 67.5 grains, and in the inscriptions they are actually called 'drammas'" (*δραμα* or *δραμω* in Tamil)—Brown: 'The coins in India.'

in the 12th and 13th centuries. One of the inscriptions of Kulótunga I refers to an arrangement for contribution to the Kuduniámalai temple in *tiramam*.

British Indian coins are now in use in the State. The only vernacular term for a coin current locally in the State and surrounding districts is *panam* which means  $\frac{1}{8}$  of a rupee. A small coin called the Amman kásu is minted and issued by the State. Formerly twenty kásús made an anna. The Amman kásu though issued as current coin, was not freely accepted as legal tender. But now, in pursuance of a Government order issued recently, the value of the kásu has been raised from  $\frac{1}{20}$  of an anna to  $\frac{1}{12}$  of an anna (equal to a pie), and the kásu has become legal tender and is even accepted by the British Post Offices in the State in the place of the 'pie.' It bears on one side the name 'Vijaya' in Telugu, and on the other side the figure of the Goddess at Tirugókarnam. These coins are issued every year during Navarátri for distribution to Brahmins.

## CHAPTER VIII.

## MEANS OF COMMUNICATION.

**Introductory.**—In that great classic *Silappadikāram*, mention is made of a road from Madura to Woriyur on which lay Kodumbālūr, now an insignificant hamlet of Kolattūr Taluk, but once apparently a large fortified town with more than one important temple. In subsequent times, Pudukkóttai lay on the way of the pilgrim bound to Rámésvaram from the North. Consequently, the trunk roads from Tanjore and Trichinopoly on the one side, and those leading to Madura and Rámésvaram on the other are the oldest, as they are still the most important, in the State. The numerous chattrams and water *pandāls* on these roads testify to their former importance.

**Travelling in the Past.**—When the old road *ooliem* or corvee (now abolished) was enforced, some care was bestowed on roads, though most of them were what we should now call fair-weather roads, passable, no doubt, in dry weather, in spite of ruts and holes, but almost impassable during the rains. There were practically no bridges or culverts across the rivers or streams which are torrents during and after very heavy rain but sandy wastes at other times. Under such conditions travelling was slow and tedious. It was generally performed in short stages of about 10 to 20 miles a day, undertaken at nights, or in the cool hours of the morning and evening. A journey from Pudukkóttai to Trichinopoly, for instance, involved three or four stages. It was broken at Rengammálchatram, Ammáchatram, Nallūr and Máttūr where the wayfarer could find food and lodging at the chattrams (rest-houses) maintained by the State or by private charity.

The inconveniences resulting from overturned carts and broken axles were less serious than the perils arising from robbers who infested the principal highways. There were

the notorious places such as *Ottaiyál* (on the Tanjore Road), and *Tháli Aruppá puli* (on the Trichinopoly Road, so called from the large number of *thālis* or wedding necklaces wrenched from female travellers) where highway robbery was frequently committed. For mutual protection the carts in which the travellers journeyed were driven one behind the other in a long train, and the drivers armed themselves with stout sticks.

Since the State rivers are intermittent and dry for most of the year, there is no water-borne traffic of any kind. Formerly goods were generally conveyed in country carts, on pack-bullocks, or by headloads. A large proportion of the commodities brought to the markets for sale came in headloads, and here and there by the roadside one may see resting-stones called *sumaihāngi kallu*, formed of two or more upright stones supporting others laid horizontally on to which the headload was shifted for a while to ease the carrier of his or her burden.

The conditions of passenger traffic improved towards the close of the last century. The first improvement were the metalling, widening and proper maintenance of the principal roads, especially those leading to Trichinopoly, Tanjore, and Madura, opening Police stations, and organising road patrols. Meanwhile, private enterprise introduced services of light spring vehicles known as '*tapālvandis*' (post-carts) or *julkas* built to carry four or five passengers which ran regularly along the highways, completing the journey to the principal outlying towns in a few hours by maintaining suitable relays of horses at convenient stages. The poorer classes found a cheap conveyance in the carts carrying goods traffic on these roads, in which on payment of a few annas they were carried as far as the carts themselves went. It was about the year 1910 that arrangements were first made to run a motor car between Trichinopoly and Pudukkóttai. This was followed by other cars running to Tanjore and Arantāngi and back.

Motor buses now ply between the following places:—

1. Pudukkóttai and Trichinopoly via Kíranúr.
2. Pudukkóttai—Annávasal—Iluppúr—Virálimalai—Manappárai—Trichinopoly.
3. Pudukkóttai and Tanjore.
4. Pudukkóttai and Arantáangi.
5. Pudukkóttai and Karambakkudi via Álangudi.
6. Pudukkóttai and Karambakkudi via Malayúr.
7. Pudukkóttai and Vadakádu via Álangudi.
8. Pudukkóttai and Káraikkudi via Kónápet.
9. Pudukkóttai and Káraikkudi via Tirumayam.
10. Pudukkóttai—Kónápet—P. Alagápur.
11. Pudukkóttai—Annávasal—Kíranúr—Andakkulam.
12. Pudukkóttai and Yémbal via Arimalam.
13. Pudukkóttai and Arimalam via Rámachandrapuram and Ráyavaram.
14. Pudukkóttai and Káraikkudi via Arimalam, Kílánilai and Kandanúr.
15. Pudukkóttai and Ponnamarávatí via Kulipirai.
16. Pudukkóttai and Ponnamarávatí via Káraiýúr.

There are about 90 buses, and a number of taxicabs plying on these roads.

**Roads and their extension.**—In the Olugu survey of 1813 some 19 roads are mentioned including those connecting the town with Kudumiámalai, Virálimalai, Tanjore, Kíranúr, Tiruppattúr, and Madura. They seem to have fallen into decay by 1854, but to have been repaired by 1856 when Mr. R. D. Parker, the Political Agent at Madura wrote,—“An improvement in the roads of this Territory is very marked. That from the Boundary of Madura to Pudukkóttai is in excellent order, as is also its continuation to the Tanjore Frontier.” But in subsequent years the communications were neglected, so that Mr. Pennington, writing in 1875, while drawing attention to the broad roads, substantial bridges, and ‘fine avenues,’ also regretted that the bridges were “only monuments of departed glory no longer of any use to the traveller.” But “owing to the critical state of the finances” of the period, nothing was done for some years to improve matters.

The last twenty years of the last century, however, saw marked progress in road making and maintenance. The three Trunk roads leading to Trichinopoly, Tanjore, and Madura were the first to receive attention. They were provided with bridges and culverts, and otherwise made thoroughly “traversable in all seasons.” An agreement was entered into by which the British section of the Trichinopoly Road (about 8 miles beyond Máttúr at the Frontier) came to be maintained by the State, the Trichinopoly District authorities defraying the expenses. This arrangement ceased in 1901-02, when traffic had become specially heavy owing to the location at the British terminus of a Camp for the detention of Boer prisoners of war. ‘Mile’ coolies were always stationed along the roads to give immediate attention to patch repairs as necessity arose. From 1895 onwards wells were sunk by the roadside to supply water for repairs; and fruit-bearing avenue trees, the produce of which, it was hoped, would form a substantial contribution towards the cost of maintaining the roads, were planted.

The general scheme of roads is worth attention. As the reader already knows, the State is a purely inland one. The nearest point on the coast is about 12 miles from the State boundary. It is thus surrounded on all sides by British Territory. Three District headquarters, viz., Trichinopoly, Tanjore, and Madura lie at distances ranging from 30 to 50 miles. Before 1929, two lines of the South Indian Railway ran outside and not far from the State, the main line on the north, and the Arantáangi Branch on the east; nine Railway stations lay within more or less easy reach; and since no railway then passed through the State the accepted policy was to link the capital with these stations by means of roads radiating from the capital. There were also two important roads that did not lead to any Railway station, those from Pudukkóttai to Ponnamarávatí in the south-west and Yémbal in the south-east corner of the State.

A glance at the State map will show how from the capital which lies almost in the centre of the State, roads radiate in all directions while these are connected by numerous cross-roads. There are feeder roads to all the eight Railway Stations within the State.

The following statement compares the length of roads in the State with that in the adjoining British districts absolutely and in relation to the respective areas:—

| District.           | Area in square miles. | Length of roads.       |             |        | Mileage per 100 square miles of area. |             |        | Remarks.             |
|---------------------|-----------------------|------------------------|-------------|--------|---------------------------------------|-------------|--------|----------------------|
|                     |                       | Metalled or gravelled. | Unmetalled. | Total. | Metalled or gravelled.                | Unmetalled. | Total. |                      |
| 1. Pudukkóttai ...  | 1,179                 | 485                    | 70          | 555    | 41.1                                  | 6.0         | 47.1   | Figures for 1934—35. |
| 2. Tanjore ...      | 3,742                 | 399                    | 985         | 1,384  | 10.7                                  | 26.3        | 37.0   |                      |
| 3. Rámnád ...       | 4,819                 | 637                    | 203         | 840    | 13.2                                  | 4.2         | 17.4   |                      |
| 4. Trichinopoly ... | 4,314                 | 946                    | 344         | 1,290  | 21.9                                  | 8.0         | 29.9   |                      |
| 5. Madura ...       | 4,912                 | 880                    | 439         | 1,319  | 17.9                                  | 9.0         | 26.9   |                      |

It will be observed from the above table that the mileage of metalled or gravelled roads that is, of motorable roads per 100 square miles in the State is more than double the corresponding figure in any of these districts except Trichinopoly and almost double the figure for that District while the figure for all classes of roads is very much higher than in any of the districts. Apart from this, since the soil is generally gravelly or sandy, and the subsoil frequently rocky even motor cars and, still more easily, bullock carts can traverse many hundreds of miles of cart-tracks, on the maintenance of which no expense is incurred, in all parts of the State, in practically all weathers. In spite of these incontestable facts there is a constant clamour for more regular roads and for expenditure on cart-tracks which can only be described as unreasonable.

The expenditure on roads was Rs. 1,77,780 in fasli 1344 and Rs. 1,09,831 in fasli 1345. A subvention of Rs. 17,615 was received in fasli 1345 from the Road Development Fund of the Government of India, and is being applied to the improvement of some of the more important roads in the State.

The following is a list of the roads in the State—

| Mileage. |           | No. | Name of Road.                                         |
|----------|-----------|-----|-------------------------------------------------------|
| Miles.   | Furlongs. |     |                                                       |
| 24       | 2         | 1.  | Trichinopoly Road.                                    |
| 20       | 4         | 2.  | Būdālūr Road.                                         |
| 17       | 7         | 3.  | Tanjore Road.                                         |
| 23       | 6         | 4.  | Pudukkóttai—Álangudi—Karambakkudi Road.               |
| 2        | 0         |     | (a) Tiruvarangulam on Road No. 4 to Pūvarasakudi.     |
| 10       | 3         | 5.  | Arantāngi Road.                                       |
| 4        | 0         |     | (a) Pūvarasakudi on Road No. 5 to Road No. 6.         |
| 28       | 3         | 6.  | Yēmbal Road.                                          |
| 3        | 0         |     | (a) Thānjūr Road.                                     |
|          |           |     | (b) Road from Vālarāmānikkam to Arantāngi.            |
| 18       | 4         | 7.  | Madura Road via Pillamangalam.                        |
| 21       | 2         | 8.  | Namanasamudram—Vēndampatti Road.                      |
| 2        | 0         |     | (a) Road from No. 8 to Pēraiyūr.                      |
| 3        | 0         |     | (b) Road from No. 8 to Kunnakudipatti.                |
| 1        | 6         |     | (c) Nachāndūpatti on Road No. 8 to Road No. 29.       |
| 1        | 0         |     | (d) Road from No. 8 to Malayakōil.                    |
|          |           |     | (e) Road from No. 8 to Olagampatti.                   |
| 30       | 3         | 9.  | Manappāraī Road.                                      |
|          |           |     | (a) Road from Usilampatti on Road No. 9 to Madura.    |
| 27       | 7         | 10. | South Kolattūr Road.                                  |
| 0        | 6         |     | (a) Sittannavāsai Road.                               |
|          |           |     | (b) Trichy to Madura through Virālimalai and Virālūr. |
| 13       | 4         | 11. | Illuppūr—Trichinopoly Road.                           |
| 15       | 0         | 12. | Kīranūr—Ádanakkóttai Road.                            |
| 15       | 3         | 13. | Vadavālam—Puduppatti Road.                            |
| 12       | 0         | 14. | Ádanakkóttai—Álangudi Road.                           |
| 10       | 1         | 15. | Álangudi—Arimalam Road.                               |
| 11       | 0         | 16. | Arimalam—Tirumayam Road.                              |

| Mileage. |           | No. | Name of Road.                                                |
|----------|-----------|-----|--------------------------------------------------------------|
| Miles.   | Furlongs. |     |                                                              |
| 9        | 3         | 17. | Malakkudipatti—Kónāpet—Nemathāmpatti—Tirumayam Road.         |
| 12       | 6         | 18. | Perumānādu—Konnaiyūr Road.                                   |
| 1        | 0         |     | (a) Kumaramalai Road.                                        |
| 8        | 4         | 19. | Annāvasal—Kolattūr Road.                                     |
| 15       | 6         | 20. | Virālimalai—Kalamāvur Road.                                  |
| 11       | 7         | 21. | Kāraiūr—Ōliamangalam Road.                                   |
| 1        | 0         |     | (a) Maravāmadurai Road.                                      |
| 2        | 0         |     | (b) Kilathāniyam Road.                                       |
| 12       | 2         | 22. | Kiranūr—Kilukōttai Road.                                     |
| 4        | 3         | 23. | Vellanūr—Puthāmbūr Road.                                     |
| 1        | 5         | 24. | Tiruvēngaivāsal Road.                                        |
| 5        | 3         | 25. | Nārttāmalai—Uppiliākkudi Road.                               |
| 4        | 0         | 26. | Perungalūr—Vārappūr Road.                                    |
| 11       | 1         | 27. | Manippallam Road.                                            |
| 9        | 1         | 28. | Vengadakulam Road.                                           |
| 5        | 0         | 29. | Pilivalam—Virāchilai Road.                                   |
| 4        | 0         |     | (a) Road from Tirumayam to Road No. 29 through Latchmipuram. |
| 2        | 0         |     | (b) Virāchilai—Pañayapatti.                                  |
| 4        | 7         | 30. | Pilivalam—Sengirai Road.                                     |
| 6        | 7         | 31. | Nedūngudi Road (Puduppatti—Tirumayam).                       |
| 0        | 6         |     | (a) Road from Agavayal (Puduppatti) towards Arantāngi.       |
| 5        | 7         | 32. | Arimalam—Kothamangalam Road.                                 |
| 2        | 1         | 33. | Vēndampatti—Vārpēt Road.                                     |
| 4        | 0         | 34. | Vēndampatti—Tirukkalamhūr Road.                              |
| 2        | 3         | 35. | Ponnamarāvati—Pūlāngurichi Road.                             |
| 1        | 4         | 36. | Ponnamarāvati—Kattayāndipatti Road.                          |
| 2        | 1         | 37. | Vēguppatti Road.                                             |
| 2        | 1         | 38. | Ālavayal Road.                                               |
| 3        | 0         | 39. | Alagāpuri Road.                                              |
| 8        | 4         | 40. | Karambakkudi—Raghunāthapuram Road.                           |
|          |           |     | (a) Maruthānkōviduthi on Road No. 40 to Pattukkōttai.        |
| 9        | 1         | 41. | Kōttaikkādu Road.                                            |
| 3        | 5         | 42. | Puduvāyal Road.                                              |
| 1        | 3         | 43. | Pallathūr Road.                                              |
| 4        | 2         | 44. | Naivāsalpatti Road.                                          |

| Mileage. |           | No. | Name of Road.                                                              |
|----------|-----------|-----|----------------------------------------------------------------------------|
| Miles.   | Furlongs. |     |                                                                            |
| 3        | 8         | 45. | Panayappatti—Rāngiam Road.                                                 |
|          |           |     | (a) Road from Rāngiam to Pūlānkurichi through Mudalipatti, Tirukkālakkudi. |
| 2        | 0         |     | (b) Road from Rāngiam to Kurivikondānpatti.                                |
| 4        | 5         | 46. | Annāvasal—Kudumiamalai Road.                                               |
| 6        | 4         | 47. | Virālimalai—Rasālipatti Road.                                              |
| 8        | 6         | 48. | Ālangudi—Vadagādu Road.                                                    |
| 1        | 0         | 49. | Sūranviduthi Road.                                                         |
| 1        | 4         | 50. | Maruppini Road.                                                            |
| 2        | 6         | 51. | Puliyūr—Kannankudi Road.                                                   |
|          |           | 52. | Road from Odappaviduthi to Tanjore via Kilānkādu.                          |
|          |           | 53. | Branch Road called Karambaviduthi Road.                                    |
| 6        | 0         | 54. | Road from No. 1 Trichinopoly Road to Nānguppatti via Odukkūr.              |
| 0        | 1         | 55. | Road from No. 3 Tanjore Road to Chinnīachātram.                            |
| 1        | 0         | 56. | Road from No. 7 Madura Road to Mēlūr.                                      |
| 2        | 0         | 57. | Road from No. 7 Madura Road to Tholayānūr.                                 |
| 1        | 0         | 58. | Road from No. 8 Namanasanudram—Vēndampatti Road to Kōttūr.                 |
| 2        | 0         | 59. | Road from No. 13 Vadavālam—Puduppatti Road to Chettiyāpatti.               |

**Upkeep of Roads.**—It is generally speaking easy to make and maintain roads in the State. Gneiss or laterite metal or gravel are never far distant. Spreading of materials apart from mere patch work can only be undertaken during or after wet weather.

#### List of important bridges in the State.

| No. | Name.                                        | Situation.               | Approximate cost. | Remarks.                                                                                               |
|-----|----------------------------------------------|--------------------------|-------------------|--------------------------------------------------------------------------------------------------------|
| 1   | The Vellār Bridge on Tirumayam Road.         | 5th mile on Road No. 7.  | Rs. 60,000        | A Girder Bridge of 9 spans of 30 ft. each and 2 of 25 ft. each. Opened by Mrs. Burn in September 1922. |
| 2   | The Vellār Bridge on Alangudi—Arimalam Road. | 9th mile on Road No. 15. | 40,000            | (Under construction) A Girder Bridge of 11 spans of 34 ft. each.                                       |
| 3   | The Pāmbār Bridge on Tirumayam Road.         | 12th mile on Road No. 7. | ...               | .....                                                                                                  |

| No. | Name.                                                                      | Situation.                | Approximate cost. | Remarks.                                                                                                                                                  |
|-----|----------------------------------------------------------------------------|---------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |                                                                            |                           | Rs.               |                                                                                                                                                           |
| 4   | The Pámbár Bridge on Nedungudi Road near Kílánilai Fort.                   | 19th mile on Road No. 31. | 41,000            | A masonry arched Bridge of 5 spans of 36 ft. each.                                                                                                        |
| 5   | "The Márhánda Bridge"—over the Pámbár on Yémbal Road near Válará-mánikkam. | 19th mile on Road No. 6.  | 22,000            | A Girder Bridge of 7 spans of 34 ft. each. Opened by Sir A. Tottenham on February 4, 1936.                                                                |
| 6   | The Kundár Bridge on Tirumayam Road.                                       | 3rd mile on Road No. 7.   | ...               | .....                                                                                                                                                     |
| 7   | The Kundár Bridge on Yémbal Road.                                          | 3rd mile on Road No. 6.   | 6,000             | A masonry arched bridge of 3 spans of 24 ft. each.                                                                                                        |
| 8   | The Vellár causeway on Yémbal Road.                                        | 4th mile on Road No. 6.   | 69,000            | The total length of the causeway is 480 ft. with a road width of 15 ft. and 4 undervents of 6 ft. span each. Opened by Mrs. Holdsworth on March 27, 1933. |
| 9   | Bridge across the Nerinjikkudi river on Konnaiyur Road.                    | 13th mile on Road No. 18. | 29,000            | A Girder Bridge of 5 spans of 30 ft. each. Opened by Mr. S. Burn.                                                                                         |
| 10  | The Manimukthar Bridge near Yenádi on the Perumánádu—Konnaiyúr Road.       | 25th mile on Road No. 18. | 5,000             | A Girder Bridge of 2 spans of 15 ft. and 2 of 6 ft. each.                                                                                                 |
| 11  | "The Tottenham Bridge" over the Agniár on Búdálur Road.                    | 12th mile on Road No. 2.  | 17,000            | A Girder Bridge of 5 spans of 34 ft. each. Opened by Sir A. Tottenham on January 8, 1935.                                                                 |
| 12  | The Agniár Bridge on Tanjore Road.                                         | 11th mile on Road No. 3.  | ...               | An arched bridge of 7 spans of 30 ft. each.                                                                                                               |
| 13  | The Agniár Bridge on Karambakkudi Road.                                    | 12th mile on Road No. 4.  | 63,000            | A Girder Bridge of 3 spans of 60 ft. each. Opened by Rao Bahadur P. K. Kunhunni Menon in April 1925.                                                      |
| 14  | The Ambuliyár Bridge on Alangudi Road.                                     | 12th mile on Road No. 4.  | 10,500            | A skew Girder Bridge of 3 spans of 28 ft. each. Opened by Mrs. Holdsworth in December, 1933.                                                              |
| 15  | The Nariár Bridge on Alangudi-Karambakkudi Road.                           | 18th mile on Road No. 4.  | 5,000             | A skew Girder Bridge of 27 ft. span. Opened by Sir A. Tottenham, on March 4, 1936.                                                                        |

| No. | Name.                                                                | Situation.                | Approximate cost. | Remarks.                                                                                                                                            |
|-----|----------------------------------------------------------------------|---------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
|     |                                                                      |                           | Rs.               |                                                                                                                                                     |
| 16  | The Thodakkár Bridge on Manappárai Road.                             | 26th mile on Road No. 9.  | 4,760             | A Girder Bridge of 30 ft. span. Opened by Sir A. Tottenham, on January 10, 1934.                                                                    |
| 17  | The Pérámbur Scour Sluice and Bridge on Virálimalai-Kalamá-vúr Road. | 7th mile on Road No. 20.  | 18,500            | A masonry arched Bridge of 3 vents of 18 ft. span each with 6 scour vents of $7\frac{1}{2} \times 6'$ . Opened by Mrs. Holdsworth on March 7, 1933. |
| 18  | The Pérámbur calingula Bridge.                                       | Do.                       | 5,500             | A Girder Bridge of 3 spans of $23\frac{1}{2}$ ft. each. Opened by Mrs. Holdsworth on March 7, 1933.                                                 |
| 19  | The Nariár Bridge on Karambakkudi Road.                              | 23rd mile on Road No. 4.  | 9,200             | A Girder Bridge of 2 spans of 32 ft. each, 2 of $10\frac{1}{2}$ ft. each and one of 16 ft. Opened by Mrs. Holdsworth on March 4, 1933.              |
| 20  | The Kóraiýár Bridge near Rájagiri.                                   | 24th mile on Road No. 10. | 15,000            | A masonry arched bridge of 3 spans of 30 ft. each.                                                                                                  |

**The Railway\*.**—The idea of a Railway for Pudukkóttai was entertained so early as 1875 when His Highness the then Raja expressed the opinion that, as the country afforded "the best route to Rámésvaram from the north, a line from Trichinopoly to Rámésvaram would be very popular." In 1886, the question was revived, and a preliminary survey was made with the intention of building a line from Trichinopoly to Pudukkóttai at State cost. Ten years later it was felt that the Railway must be carried even beyond Pudukkóttai as far as Kánādukāthan, and a fresh survey was ordered. Next year the scheme became more ambitious, and a line was proposed as far as Thondi on the eastern coast. The Agent and the Chief Engineer of the South Indian Railway inspected the proposed route, an Assistant Traffic Manager reported favourably on

\* Much of the information under this head was very kindly furnished by the Agent of the South Indian Railway.

traffic prospects, and arrangements were made to issue a prospectus. For the next three years, that is, till 1901, the question was shelved and nothing was done except to open a Traffic Return Station at Tirunayain. A light or road Railway as far as Pudukkóttai town was then considered, and it was proposed to encourage private enterprise if no other course be open.

By this time the Madura-Pámban line had been opened, but it was felt to be an unnecessarily devious route for through traffic from Ceylon to Madras and the North. A proposal was consequently made to shorten it by connecting some station on the Pámban section with Tanjore through Pudukkóttai. The State proposed to pay for the portion of the line running within its territory, and arranged to form a syndicate since its surplus funds were "hardly sufficient" to meet the expenditure. But a deadlock soon ensued since the Tanjore District Board, seeing that the proposed line passed mainly through Pudukkóttai territory and the districts of Madura and Rámnád, and would not develop any of its own taluks, brought forward a counter proposal to connect Arantangi with Rámnád by a line which would for a short distance run through the south-east and rather unimportant corner of the State across the existing road to Yémbal. On top of all these came the Government of India's proposal to construct at their own cost a line for strategic purposes from Tanjore or Trichinopoly via Pudukkóttai to connect with the Pámban line; and the whole matter came once again to a standstill awaiting the pronouncement of the Railway commission which sat in Madras in February 1903.

The conclusions of the Railway commission were in favour of a line through Pudukkóttai. It said "from a consideration of the evidence in regard to the needs of the Districts lying south of Trichinopoly, it had no hesitation in recommending as the southernmost section of the required line an alignment from

Ramesvaram *via* Rámnád, more or less to Trichinopoly," and Government were willing to consider proposals for a line on "much the same alignment as the existing metalled road from Trichinopoly to Pudukkóttai."

Ten more years passed; and in 1914 the question was again re-opened. After protracted negotiations with Government, the Railway Board, and the South Indian Railway authorities, it was decided to construct a metre gauge line on rebate branch line terms from Trichinopoly to Pudukkóttai. The construction of the line was however prevented by the difficulty of procuring rails and girders owing to the Great War.

At the instance of the Railway Board, Mr. J. Izat, State Railway Engineer, made an investigation into the Railway requirements of Southern India and recommended the opening of two chord lines one from Trichinopoly Jn. to Maniyáchi Jn. via Káraikkudi and Mánámadura, and another from Arantangi to Káraikkudi. The Railway Board, in reviewing his recommendations in July 1923, observed that a Railway from Arantangi to Maniyáchi via Káraikkudi and Mánámadurai besides achieving the object underlying Mr. Izat's proposal, would be far less expensive, and subsequently sanctioned an Engineering Survey of this line. Early in February 1924, the Managing Director of the S. I. Railway, at a meeting of the Railway Board, undertook to re-examine the traffic prospects of a Trichinopoly-Pudukkóttai-Káraikkudi line, obviously with the intention of eventually linking Trichinopoly via Pudukkóttai with the proposed Arantangi-Káraikkudi-Mánámadura-Maniyáchi Railway. A Traffic Survey was accordingly made in May 1924. The proposed Railway was aligned to pass through Sembattu, Nallúr, Kíranúr, Nárttámalai, Pudukkóttai, Tirunayain, Káñadukáthan, Pallathúr, Kóttaiyúr and Káraikkudi. It was finally decided that the Trichinopoly-Mánámadura scheme should have precedence over the others.

Field work on the Trichinopoly—Kàraikkudi Railway Survey was started at the end of August 1925 and was completed at the end of March 1926. The distance traversed by the Railway from Trichinopoly to Mānāmādura is as follows:—

1. Trichinopoly Taluk. From mile 0'00 to mile 5'32.
2. Pudukkóttai State.
  - Kolattūr taluk „ 5'32 to „ 29'10.
  - Ālangudi taluk „ 29'10 to „ 34'82.
  - Tirumayam taluk „ 34'82 to „ 45'61.
3. Rāmnād District „ 45'61 to „ 95'22.

The line is of the Metre Gauge, but it could without difficulty be converted to Broad Gauge. The ruling gradient is 1 in 200 or 0·5 per cent compensated. The sharpest curve is one of 4° or 1,432 feet radius, near Pudukkóttai station.

The line leaves Trichinopoly Junction in a south-westerly direction and runs parallel to the Madura main line for about  $\frac{3}{4}$  mile. It then turns due South till clear of the Danger Zone of the Rifle Range, when it curves to the south-east and runs straight for about 4 miles, until it approaches the Trichinopoly—Pudukkóttai main road near mile 7. Sembattu station is at mile 4. From mile 7 the line follows the general direction of the Pudukkóttai main road and keeps fairly close to it all the way to Pudukkóttai. Kumāramangalam, the first station within the State limits is at mile 8 $\frac{1}{4}$ , Tondaimān Nallūr, at mile 13 $\frac{1}{2}$ , Kīranūr, at mile 17 $\frac{3}{4}$ , Nārttāmalai, at mile 22 $\frac{1}{4}$ , Vellanūr, at mile 25 $\frac{3}{4}$ , Pudukkóttai, at mile 32 $\frac{3}{4}$ , Namanasamudram, at mile 36 $\frac{1}{2}$  and Tirumayam, at mile 42 $\frac{1}{2}$ , after which the line runs in a southerly direction to Kàraikkudi.

The link between Trichinopoly and Pudukkóttai thus forms part of the new through main line from Madras to the south which has shortened the distance between Trichinopoly and Ceylon by 31 $\frac{1}{2}$  miles. The railway has been constructed with flat grades and easy curves for the running of fast trains, and is equipped with the latest type of permanent way. The work of construction was started in December 1927, and the line took 16 months to build.

The Trichinopoly—Pudukkóttai section was opened for traffic on April 17, 1929, and the Pudukkóttai—Mānāmādura section on July 1, 1930.

Two important through trains, the Ceylon Boat Express and the Fast Passenger to Dhanushkōdi run through Pudukkóttai, and through carriages are run on the connecting trains of this section and are attached to the Trivandrum Express trains at Trichinopoly.

The following are the outward traffic figures for the stations within the Pudukkóttai Territory for the year 1934—35.

| Station.             | No. of passengers. | Passenger earnings including parcels. | Weight in maunds. | Goods earnings including live-stock. |
|----------------------|--------------------|---------------------------------------|-------------------|--------------------------------------|
|                      |                    | Rs.                                   |                   | Rs.                                  |
| Kumāramangalam ...   | 10,302             | 2,299                                 | 42                | 15                                   |
| Tondaimān Nallūr ... | 9,805              | 2,995                                 | 2,736             | 680                                  |
| Kīranūr ...          | 28,877             | 12,066                                | 557               | 196                                  |
| Nārttāmalai ...      | 16,996             | 5,532                                 | 62                | 14                                   |
| Vellanūr ...         | 7,238              | 1,978                                 | 4                 | 1                                    |
| Pudukkóttai ...      | 1,85,446           | 1,59,724                              | 75,519            | 18,429                               |
| Namanasamudram ...   | 24,538             | 7,791                                 | 1,544             | 578                                  |
| Tirumayam ...        | 80,350             | 40,376                                | 11,740            | 2,701                                |

**Post Offices.**—In 1838, the State opened a Post Office in the capital, and in 1879, sub-post offices in the Taluk headquarters. The work of these Post Offices was confined to the transmission of letters, packets and parcels. In May 1866, the British Government opened an experimental Post Office in the capital; but the measure had not the support of the then Raja who considered it as “throwing disgrace” upon the State and as “calculated to lower him in public estimation.” When the Political Agent pressed him to reconsider this view, the Raja replied that “there existed no necessity for establishing a British Post Office at the cost of the British Government and that nothing should be done that would impair the rights and privileges till then enjoyed by the State.” Thereupon the British Government abolished the experimental Post Office in

December 1866. In June 1873, another attempt was made to open a British Post Office in the capital, but with no better success. Sir Sashia Sāstriār, however, succeeded in prevailing upon Rājā Rāmachandra Tondaimān Bahadūr to permit the opening of a British Post Office. On April 1, 1884, the Rājā cheerfully consented to the establishment in the capital of a combined British Post and Telegraph Office; and the people of Pudukkóttai enjoyed for the first time the advantages of the Money Order, Insurance, Value Payable Post, Savings Bank and other services of the British Postal system. In one of his letters to Sir Sashia Sāstriār, Sir Henry Stokes observed:—  
 "I was exceedingly glad to learn that you are getting so civilised in Pudukota as to have a post office. You are really getting on!" In 1893, Sir Sashia, who was then Dewan-Regent, opened negotiations with the Madras Government for the amalgamation of the State Postal department with the British Postal department, and on their successful termination passed a Regulation in 1894 amalgamating them and handed over the State Post Offices to the control of the Imperial Postal system.

The Post Offices in the State are now under the immediate control of the Superintendent, Trichinopoly Division. There is no Head Post Office in the State; a list of the offices now working in the State is given below. All the sub-offices (except that at the Pudukkóttai Public Offices) are combined Post and Telegraph offices. There are no separate Telegraph Offices in the State.

## SUB-OFFICES.

1. Pudukkóttai (Pudukotah).
2. Pudukotah Public Offices.
3. Alangudi.
4. Arimalam.
5. Karambakkudi.
6. Kizhūr.
7. Rēnāpet.
8. Kulipirai.
9. Nachāndupatti.

10. Ponnamarāvati.
11. Rāmachandrapuram.
12. Rāyāvaram.
13. Tirunayam.

## BRANCH OFFICES.

1. Kadukkākādu.
2. Kolavóipatti.
3. Venkatakulam.
4. Kūānilai.
5. Kūānilakóttai.
6. Thānjur-Tirunayam.
7. Puliyūr.
8. Nūpalani.
9. Kāraiūr.
10. Kuruvikendānpatti.
11. Rāngām.
12. Virālimalai.
13. Panāyapatti.
14. Virāchilai.
15. Alavayal.
16. Koppānāpatti.
17. Mēlasivalūni.
18. Nagarapatti.
19. Vēgupatti.
20. Annavāsai.
21. Kadumīāmalai.
22. Perungalūr.
23. Pūvarasakudi.
24. Tirugōkanam.
25. Tiruvarankulam.

Air mails are despatched from Pudukkóttai and most of the other Post Offices in the State on Sundays and Wednesdays, and are received for delivery on Sundays and Thursdays. These mails are carried by rail to Madras and from there by the aeroplanes of Messrs. Tata Sons Ltd. to Karachi where they are transferred to the aeroplanes of the Transcontinental and Imperial Airways. The ordinary inward Foreign mails are delivered at Pudukkóttai on Sundays, and the outward Foreign mails are despatched on Thursdays.

**Tolls and Toll-Gates.**—The following is a list of the town and frontier gates in the State, at which tolls are collected by contractors to whom the right is leased out annually by the State authorities. The Revenue under this head was Rs. 1,48,189, Rs. 1,30,024, Rs. 1,23,261 and Rs. 1,53,625 respectively for the four faslis 1342 to 1345.

## TOWN GATES.

1. Tanjore Gate (at Sangilikundu urani).
2. Trichinopoly Gate (near Karupparkóvil).
3. Madura Road Gate (on the Kundár).
4. Annavásal Road Gate (at Tiruvappúr).
5. & 6. Alangudi Road Gates.
7. Kadayakkudi Road Gate.

## FRONTIER GATES.

1. Máttúr.
2. Valavampatti.
3. Thlthánviduthi.
4. Munugudipatti.
5. Agavayal.
6. Aramanaipatti.
7. Kónápet.
8. Pillamangalam.
9. Alagápur.
10. Kattayándipatti.
11. Sengampatti.
12. Ponnusingáyipatti.
13. Rájagiri.
14. Vittamapatti.
15. Annavásal (Mukkannámalaipatti Road).
16. Vengárapatti.
17. Rasálipatti.
18. Puduvayal—Pallathúr Gates (two Gates, one at the junction of the Puduvayal and Pallathúr Roads and the other at mile 23/3 on the Pallathúr Road).

**Accommodation for travellers and Travellers' Bungalows.**—There is a fine Residency or guest-house in the capital for the use of the Agent to the Governor-General when he visits the State and of other State guests. It was much

improved before Their Excellencies the Viceroy Lord Willingdon and Lady Willingdon visited Pudukkóttai in December 1933. Near the Public Offices are two Guest-houses and a Travellers' Bungalow which may be occupied on the Darbar's permission. They are furnished, and food, Indian or European, is provided.

The rest houses at the following places provide furnished accommodation for travellers, but not food.

Adanakkóttai.

Nárttámalai.

Mirattunilai.

There are several Vattam cutcherries, which afford primitive accommodation for camping officers and others.

**Choultries.**—There were formerly 21 choultries distributed along the important roads. Of these 11 were State institutions. The largest of them is the Sirkar choultry at the capital. It has a spacious shed in which hundreds of Brahmins are fed free during Dussarah. In addition to the choultries a large number of water *pandals* are opened in the hot weather at which the wayfarer can halt, and refresh himself. In consequence of the opening of the railway, and the introduction of motor bus services, the need for choultries (chattrams) is no longer felt, and the State chattrams have all been closed, except the Town chattram. (See chapter on Devasthanam).

## CHAPTER IX.

## PUBLIC HEALTH.

## SECTION I.—INFECTIOUS AND EPIDEMIC DISEASES.

**Cholera.**—Outbreaks of cholera are no longer so frequent nor so severe as formerly. It may occur either in the hot or in the cold weather but is generally associated with the cold weather when the rains wash human excreta and other filth into the drinking-water ponds. Its origin is often due to imported cases from Trichinopoly and other places, and hence it most commonly occurs in the Kolattūr taluk. Sometimes the infection is traced to pilgrims returning from crowded festivals such as the *Swargavāsai Ekādasi* at Srirangam, and the *Kārthigai Dīpam* at Tiruvannāmalai, or the local Māriamman festival at Nārttāmalai. That the backward classes contribute a larger number of victims than others, is, no doubt, due to their insanitary homes, and habits and in particular to their indifference to the cleanliness of their surroundings and preference for drinking the water of *uranis* (ponds) which is almost inevitably polluted rather than that of wells when the latter have been provided. Mortality is increased by the indifference and folly of the victims who do not seek timely and proper medical aid while their family will even try to conceal it from some irrational dread of official interference.

How much the country suffered in the past from cholera cannot be ascertained with certainty, a few facts are given below. Mr. Clarke, reporting on the State in 1859, referred to a 'great loss' from cholera in that year. In 1866-7, cholera and small-pox carried on their ravages to a 'great extent.' In March 1871, the outbreak was severe. 1883-4 saw an unusual recrudescence. When it entered the State Jail, panic prevailed, and the convicts had to be removed to a temporary building to the south of the town. Both the capital and the interior were affected in 1887-8, when out of 636 reported attacks, 402 ended fatally.

In certain years particular localities were severely affected. Kolattūr, as already observed, has often suffered in this way. Tiruvappūr was affected in 1889-90, and Annavāsai and Nedungudi in 1895.

In 1891-2, the disease raged all over the State and claimed 889 victims. The attack of December 1897 necessitated the opening of cholera camps, the observation and quarantining of pilgrims returning from the *mahāmakham* festival at Kumbakōnam, and the passing of an Epidemic Diseases Regulation.

In 1899 the disease prevailed from November to June next, and the loss of life was considerable. 951 deaths occurred in 1907, 964 in 1908, and 1,154 in 1914-5. Between 1924 and 1928 there were 4,180 fatal cases.

The Darbar have always taken expeditious steps to stamp out the disease at its first appearance. When an outbreak is reported, special attention is paid to the preservation of drinking water from pollution, and medical stores are hurried to the infected locality in charge of duly qualified medical men. In former times, a usual method of disinfection in towns of which the efficacy may well be doubted, was to burn large quantities of tarred wood at the street corners.

Scarcity of water, on account of severe drought, in the years 1924 to 1928 and again in 1934-35 was among the causes that contributed to the spread of this disease.

Before 1931, there were no means of scientific diagnosis such as are now afforded by the Bacteriological Section of the Town Hospital, where the microscopic examination of culture enables the presence or absence of Cholera vibrios to be determined. As a result, it may be presumed, of the opening of this section, and of other factors such as, intensive propaganda, the sinking of numerous drinking wells in the villages, prompt treatment of patients, disinfection of affected localities and mass inoculation with Anti-Cholera Vaccine,—“Bili-Vaccine” there

were only stray cases of Cholera in the State between 1931 and 1934, and the mortality was much lower than on the previous outbreaks.

In 1935, however, there were 77 deaths from Cholera. There was scarcity of drinking water in many villages; and the Darbar sanctioned the sinking of drinking water wells in all parts of the State. In fasli 1344, 291 wells were ordered to be sunk and 120 existing wells were either deepened or improved. The actual expenditure incurred in the fasli on such works was Rs. 18,388. In fasli 1345, 230 new wells were sunk and 78 repaired. 75 wells were in progress of sinking. In addition, where springs could be found in river or tank beds, shallow pools called *Oothus* were dug. In fasli 1345, 21 bore wells were sunk, and 18 drinking water *uranis* were repaired. The total expenditure in fasli 1345 was Rs. 1,25,409.

**Small-pox.**—This is usually a hot-weather disease, though not unknown in the rainy months. The traditional practice of hanging a bunch of margosa leaves over the door of an infected house does much indirectly to prevent its propagation since it warns outsiders to avoid all intercourse with the affected household.

Severe outbreaks of small-pox occurred in 1866-7, 1867-8, 1874-5, 1876-7, 1884-5, 1889-90 and 1891-2. There were 420 fatal cases in 1905-6 and 559 in 1907-8. Between 1922 and 1928, 978 deaths were reported. Between 1931 and 1934, there were 1,863 deaths. It would appear that the disease has become endemic in this part of South India, frequently taking an epidemic turn.

**Vaccination.**—Vaccination was introduced in 1812 at the suggestion of Sir William Blackburne. Raja Vijaya Raghunàtha Tondaimàn and his brother were the first subjects, and to their example and wisdom, the inhabitants are now indebted for a "blessing which will preserve them and their children from a loathsome and fatal disease." In March 1867, a vaccinating

staff was trained and organised by the British Deputy Superintendent of Vaccination at Tanjore. By 1875, the movement had come to stay and had made considerable progress. In that year three Vaccinators were at work; people had "no serious objection to the operation"; and a proposal, though premature, was set on foot to make it compulsory for infants. The persistent recurrence of small-pox in the succeeding years drew attention to the value of vaccination as a preventive measure, and in 1880, the State went to the length of offering a special *batta* or bonus to all who submitted to it.

It would appear that inoculation was from arm to arm till 1892, after which the objections to the method were realised and lanolin lymph was imported from Bangalore. Three years later, it was resolved to open a calf-depôt, and an officer was deputed to Bangalore to learn to prepare lymph. In 1910, a vaccine depôt was built "on the model of the Guindy Institute." Here all the lanolin paste required for the State is now prepared with seed-vaccine procured as necessary from Madras, Bangalore and Belgaum.

The progress of vaccination has been slow but steady. The usual obstacles have been fear of innovation, general ignorance and backwardness, the indifference and apathy, and in some instances, the hostility, open or covert of the masses. In 1898, for instance, the calf-depôt remained closed for some months because people thought that it represented an attempt to introduce anti-plague-inoculation. But no compulsion was introduced for a long time as it was feared that it might do more harm than good. On the other hand, it was hoped that the beneficent results of a number of successful vaccinations would have their educative value, and open the eyes of the people to the efficacy of the treatment. Year after year, the Revenue officers were enjoined to give special attention to vaccination. They were required to educate the people, besides checking the work of the Vaccinators and reporting on unprotected subjects and areas.

In spite however of all the good intentions of the State, progress was disappointing. Vaccination was consequently made compulsory in the town in 1898-9. Ten years later, compulsion was extended to 67 villages; and in October 1911, to the whole State.

The effects of Primary vaccination in infancy have been found to disappear after about seven years. Re-vaccination is therefore carried out extensively in both affected and threatened areas. In fasli 1345, 10,967 persons were re-vaccinated, and it is gratifying that not one of them contracted the disease. A Regulation providing for compulsory re-vaccination was passed in fasli 1345. On the whole the control of this disease may be said to be satisfactory since the population are becoming fairly well-protected by continued vaccination, and by intensive vaccination, a threatened outbreak in 1935-36 was effectively checked.

**Vaccination Return (consolidated)—Fasli 1344-1345.**

| Name of vaccine taluk. | Fasli 1345.           |                  |                           |                          | Fasli 1344.               |                          |
|------------------------|-----------------------|------------------|---------------------------|--------------------------|---------------------------|--------------------------|
|                        | Primary vacci-nation. | Re-vacci-nation. | Total number vacci-nated. | Total success-ful cases. | Total number vacci-nated. | Total success-ful cases. |
| Alangudi taluk ...     | 3,626                 | 3,055            | 6,681                     | 5,661                    | 7,926                     | 6,402                    |
| Tirumayam taluk ...    | 4,101                 | 3,722            | 7,823                     | 6,280                    | 6,841                     | 5,122                    |
| Kolattūr taluk ...     | 4,332                 | 2,496            | 6,828                     | 5,570                    | 6,907                     | 5,983                    |
| Town Depôt ...         | 781                   | 1,694            | 2,475                     | 1,496                    | 2,725                     | 1,471                    |
| Grand Total ...        | 12,840                | 10,967           | 23,807                    | 19,007                   | 24,399                    | 18,978                   |

The vaccinating staff which had a strength of only three in 1875, was increased to nine Vaccinators, two probationers and one Inspector in 1883. At present there is a Health Inspector assisted by the Vaccine Depôt Superintendent and 10 Vaccinators.

**Guinea-worm.**—Not long ago, Pudukkóttai town enjoyed unenvied notoriety as the principal home in Southern India, of the Guinea-worm (கொட்டிச்செவ்வெ). This is a disgusting disease that makes its appearance in the hot months. The premonitory symptom is violent itching all over the body followed by the appearance of a small blister generally in the leg, though sometimes in the arm, or in the abdomen. In a few days the blister distends and bursts, revealing a good sized worm projecting out of a clearly visible orifice in a succulent part of the tissue.

The indigenous treatment is to fasten the worm to a rag round which it is daily coiled till the full length is thus drawn out, the affected part being cleansed and dressed every day with castor-oil. The worm is enticed out of the body by dipping the ailing limb in cold water to which it evinces considerable partiality, but these efforts are often frustrated by the rapidity with which it shrinks back when taken out of the water.

Woe to the ill-fated sufferer who, in his attempts to extract the worm, happens to break it. The vent in the tissue soon closes and all looks suspiciously well for a few days when another swelling forms in an adjacent part, accompanied by symptomatic fever. The dead worm acts as an irritant foreign body and sets up an abscess, and serious inflammation results. Excision becomes difficult as the worm often lies very deep in the tissue. The usual method is to poultice with boiled cow-dung or *eruk-kalai*, the leaf of *Calotropis gigantea*, till the abscess opens of its own accord or under the surgeon's knife.

Where the worm is intact, the disease runs its course from a fortnight to a month, but should it break, it may last for six months. Attacks confined to fleshy regions rarely result in injury, but where bony parts or joints are concerned, repeated annual attacks on the same limb may lower its vitality and even cripple it.

Sir A. Sashiah Sastriar once described guinea-worm as a disease which "spares neither age, nor sex, nor caste, nor profession, and which continues to baffle the efforts of medical men." But the disease no longer appears so mysterious. It is due to a highly developed filaria called *Dracunculus medinensis*. The adult female—the male is rarely known to cause the disease—is about 40 inches long with a well developed mouth, œsophagus, intestine, and ovary. The fondness of the worm for water is due to the instinctive desire of the female to discharge her embryos into water which is their habitat in the larval state. On entering the water the larvæ grow for a few weeks in the bodies of intermediate hosts called *cyclops*—a tiny fresh water crustacean. If this water is drunk, the cyclops enter the stomach where they immediately perish in the acid of the gastric juice liberating the guinea-worm larvæ which passing through the intestines lodge in the tissues. In about a year the females become adult, are fertilised by the males in the connecting tissue about the mesentery and inject an irritant fluid into the subcutaneous tissue which causes the itching sensation and blister referred to above. When the blister opens, the parent gets an opportunity of discharging the contents of its ovary into water.

The etiology of the disease would therefore appear to be that some sufferer from guinea-worm bathes or washes in a tank the water of which is thus infected and when it is drunk, the larvæ enter the body of the drinker with the help of the cyclops. The prevention of the disease, therefore, lies either in not using the same tank for washing and drinking, in any case an obvious precaution, or in extirpating the cyclops by a thorough cleansing of the tank itself.

There are three periods on record, viz., 1869-71, 1881-3 and 1890-1 when guinea-worm was prevalent in epidemic form. In 1882, hardly a household escaped; in 1883, there was a still worse attack and in 1891, there were 110 cases. That the town is now free from the disease is no doubt due to the thorough measures taken to improve its sanitation in the eighties of the last

century. The attacks of 1869-71 were so serious that the Government of Madras thought it necessary in their Order dated April 29, 1872, to advise the thorough cleansing of the drinking water tanks and wells. This programme was not carried out however until ten years later under the vigorous administration of Sir A. Sashiah Sastriar. The silt of all the drinking water tanks in the town and their feeding channels was removed, and precautions were taken to protect them from pollution. The attention subsequently paid to the conservancy of drinking water tanks has practically stamped out the disease. Recently however, there have been signs of its re-appearance particularly in Annavâsal, and the Health authorities are taking the necessary preventive precautions.

**Hook-worm.**—This is caused by a small worm *Ankylostoma Duodenale* which inhabits the intestines of man, sometimes in many hundreds. The female lays a large number of microscopic eggs which do not hatch within the host, but are expelled with the bowel discharges. Deposited on porous loamy soil, the eggs hatch after an incubation period of about 18 hours into tiny "wrigglers." These larvæ attach themselves to the exposed skin, very often to the soles of the bare feet, of the passer-by, bore through the skin, enter the blood stream, pass by way of the heart to the lungs, ascend to the throat, are swallowed and at last reach the intestines where they reside for years and gripping the intestinal walls with their teeth nourish themselves and thrive at the expense of the victim, whose vitality they sap. The parasite is dislodged by the use of germicides. Thymol was used till recently, but the germicides now used in the Town Hospital are carbon tetrachloride and oil of Chenopodium. (Goose-foot) Reinfestation can be prevented by not exposing the soles and by the use of footwear. The provision of sanitary latrines is of very great importance. The Department have not yet made a Hook-worm Survey of the State and are now treating cases mainly on their clinical symptoms. The disease

is widely prevalent among people who have returned from the Tea estates in Ceylon and have settled in Alangudi and Karambakkudi.

**Fever.**—In all returns relating to health and vital statistics prepared by the village officials, fever figures largely among the causes of death. This is due, as the Madras Census Report of 1911 observes, to the adaptation to European terminology of the traditional classification of all maladies as “hot” and “cold,” and to the fact that the *vaidyan* under whose ‘expert’ advice, the returns are prepared brings a number of ailments under “the all-embracing classification of fever,” which, it must be admitted, is a “fairly regular concomitant; if not immediate cause of death in the east.” No specific fever is prevalent. There are no malarious places in the State. Enteric or Typhoid fever is rare, and when it occurs the attack is generally mild. Rheumatism is common but usually of the subacute type. Enlarged spleen also occurs. Influenza of a more or less severe type has been frequent. Its first appearance was in 1890, when, to use the language of the Administration Report, ‘making the circuit of the world including India,’ it ‘extended to Pudukkottai also.’ In 1892, the attack recurred in a milder form. The third epidemic was in the summer of 1918, when it was called Bombay or Basra fever, since it was believed to have been imported from Mesopotamia through Bombay.

**Other diseases.**—Among diseases of the digestive system other than cholera, dysentery prevails largely in its chronic and acute forms. Medical opinion inclines to the belief that anæmia may often be due ultimately to dysentery. Another cause of this widespread disease is no doubt the use of surface water stored in tanks for drinking. The disease next in importance is diarrhœa. Tuberculosis of the lungs occurs but rarely. The cases treated here are mostly of the bone and intestinal types. Skin diseases are common, especially itch and ringworm. According to the census of 1931, there were 185 lepers in the State, 144 of whom

were men and 41 women. “It is possible,” writes the Census Superintendent, “that our figures, collected in a comparatively smaller area, are less inaccurate than those of our neighbours, but even here the sex proportions among the afflicted seem to leave no room for doubt that there has been some appreciable concealment among women sufferers.” 139 patients were treated in the General Hospital in 1935–36 for syphilis.

Other Infirmities (in 1931).

|            |     |     |     |
|------------|-----|-----|-----|
| Insane     | ... | ... | 153 |
| Deaf-mutes | ... | ... | 400 |
| Blind      | ... | ... | 341 |

The number of insane persons is unfortunately increasing. There were only 54 insane in 1881; but the number rose to 81 within 30 years, and to 153 within the next twenty years. The number of deaf-mutes has doubled since 1881.

The medical inspection of school children has disclosed the fact that a large number have defective vision. Sensory organs do not receive the care that they deserve.

SECTION II.—MEDICAL RELIEF.

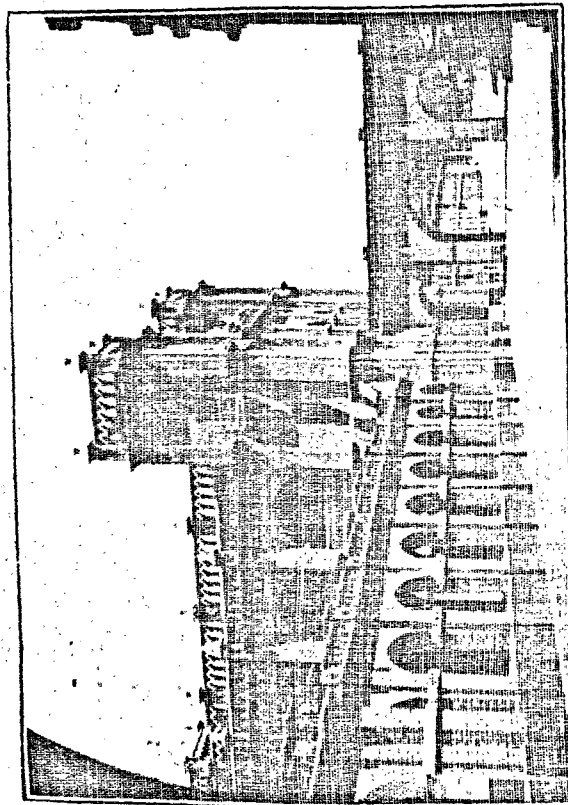
**General.**—Prior to the opening of medical institutions on the European system, the health of the population was committed to the care of ‘*vaidyans*’ skilled in the indigenous healing art. In the villages, barbers practised as physicians and Surgeons, and their women as midwives. The State has always employed a number of these *vaidyans* and there is a State Ayurvedic dispensary in the capital.

Medical relief is at present given by the State in 14 institutions. H. H. The Raja’s Hospital and H. H. The Rani’s Hospital for Women and Children are situated in the capital. H. H. The Raja’s Ayurvedic dispensary is located in the Old Palace, and an Allopathic dispensary, at Tirugókarnam. The others are rural dispensaries. There is an aided dispensary at Avayâpatti. There are some noteworthy endowments. The late Regent of the State, Râjakumâr Vijaya Râghunâtha Durai Râja has endowed a sum of Rs. 4,000 for the maintenance of a bed in the

General Hospital. Mr. M. G. Ramachandra Rao, the present Medical Officer of the State, has defrayed the entire cost of a Children's Ward, 'the Nanjunda Rao Ward,' as it is called, with three beds, and has further endowed Rs. 3,000 to meet the entire dieting charges of the children treated in the Ward. Mr. S. M. S. Chinniah Chettiar of Panayapatti has presented to the State a dispensary at Panayapatti with an endowment of Rs. 10,000. Mr. V. E. Letchumanan Chettiar of Valayapatti has provided for an in-patient ward of four beds for the Ponnamaravati dispensary, and Mr. A. R. Arunachalam Chettiar of Véndampatti has endowed Rs. 1,000, the interest of which defrays part of the dieting charges of the poor in-patients of this ward. The Radiological section of the General Hospital is largely the gift of Dewán Bahadúr M. R. Subbiah Chettiar.

**H. H. The Raja's Hospital.**—This was opened on October 14, 1851, under the name 'Raja's Free Hospital,' and an inscription on the site of the old Hospital building tells how it was built in loving memory of John Blackburne by "his affectionate nephew Rajah Rámachandra Tondaimán Bahadúr." At first it was financed from a charity fund called the Benares Chatram Fund, housed in a small building close to its present site, and staffed with native physicians and surgeons. Not only was the treatment free, but arrangements were also made to feed a limited number of in-patients. The 'dressers,' as the subordinate staff were then called, were occasionally sent to the villages to administer relief. That the institution met a real want may be inferred from the popularity that it enjoyed. In 1865-6,—in its 14th year, 4,050 patients 'not confined to the town only' were treated. The daily attendance varied from 70 to 80 in the next year. Ten years later, that is, in the year of Mr. Pennington's Report, 7,894 were treated.

About the year 1871, Dr. Brooking of Tanjore trained a staff for the Hospital, and had the institution placed under the supervision of the Surgeon-general of the Indian Medical Department.



In 1883, it was removed to its present spacious building. An operation room was added in 1906 at the suggestion of Dr. Van Allen of the Albert Victoria Hospital, Madura, who was officially connected with it from 1905 to 1907. In 1913-4, a ward of 12 beds was constructed for the exclusive use of Adi-Dravidas. In 1914-5, a resident House-Surgeon of high professional qualification was appointed to be in charge of the in-patients assisted by a staff of qualified nurses.

The improvements of the last ten years are touched upon below under the different sections.

1. *Out-patients section.*—The number of out-patients treated in the Hospital during the years 1915-16, 1925-26 and 1935-36 was:—

| Year.   | Number of patients treated. |
|---------|-----------------------------|
| 1915-16 | 36,691                      |
| 1925-26 | 38,955                      |
| 1935-36 | 65,961                      |

The figures indicate the growing popularity of this institution.

2. *The In-patients' Wards.*—There are 70 beds in the different in-patients' wards. The number of in-patients treated during fasli 1345 (1935-36) was 1,889 with a daily average of 93.55. These figures include 82 patients belonging to the State Police and Military forces. Of the 1,889 in-patients treated, only 9 died and 1,611 were cured.

There were 11 patients in this fasli in the Vijaya Raghunàtha Bed and 124 in the Nanjunda Rao Children's Ward. The average cost of dicting an in-patient ranges from Re. 0—2—6 to Re. 0—3—0, but this does not include the cost of food supplied daily from the Government choultry in the Town to the Brahmin and caste non-Brahmin in-patients.

3. *The Operation Theatres.*—There are now two spacious and well-equipped operation theatres, one of which is intended for septic operations. The number of operations performed in this Hospital in fasli 1345 was 1322, 572 on out-patients and 750 on in-patients, (345 under chloroform).

#### 4. *The Pathological and Bacteriological Section.*—

This section was opened in 1930. The work of this section is chiefly microscopical and cultural examination. Pathological conditions occurring in the in-patient and out-patient departments are examined by the Pathologist whose reports, are of use in the diagnosis and treatment of the diseases. Microscopical work consists of examination of urine, blood, and blood-smears, sputum and faeces, and serological examination of blood in cases of Typhoid and Syphilis. Microbiological tests and investigation of bacillary diseases by cultural methods are also carried out. The lymph prepared by the vaccine depôt is tested before it is despatched to the Vaccinators. During fasli 1345 serological examination of blood by different tests was made in 330 cases. The number of blood-smear examinations was 397; examinations of faeces, 687; of urine, 1,295; and of sputum, 102. Blood counts for determining the percentage of hæmoglobin were made in 90 cases. Examination of Leprosy cases by stain smears of nasal mucus and skin clip was made in 68 cases. 48 cases related to cultural and microscopical examination for Cholera *Vibrios*. Urethral and vaginal discharges for the detection of *gonococci* were examined by stain smears in 48 cases. Microtome sections for the diagnosis of benign and malignant tumours were cut in 4 cases.

This section is the State centre for anti-rabic treatment. Anti-rabic vaccine is got from the Pasteur Institute, Coonoor. 18 cases of rabid dog bite were successfully treated in fasli 1345, and 24 in fasli 1344.

In fasli 1345, 22 cases of Leprosy were treated in the General Hospital. The Chief Medical Officer made a Leprosy survey in the villages of Melàthur and Sikkippatti and treated all the sufferers with injections. To induce Leprosy patients to submit to injection the Darbar paid every patient from these two villages four annas for every injection; the total amount thus paid amounted to Rs. 141—8—0. The treatment has proved satisfactory. The Chief Medical Officer proposes to make a detailed leprosy survey of the whole of the Alangudi Tahuk.

5. *The Radiological and Electro-therapy Section.*—As has already been stated above, the initial cost of this section was mainly contributed by Dewân Bahadûr M. R. Subbiah Chettiar. It was designed by Captain Barnard, Director of the Barnard Institute of Radiology, Madras, and equipped under his guidance. H. E. the Viceroy, Lord Willingdon, laid the foundation stone of the building on December 13, 1933, and H. H. the Raja opened it on November 13, 1935. It measures 100 feet by 36 feet and consists of two sections, one for Radiology and the other for Electro-therapy. The flooring of the Radiological laboratory is entirely of wood as an insulation from electric shocks, and the bricks of the walls are impregnated with Barium salts to prevent the harmful X-rays from penetrating them. The Electro-therapy appliances are housed in another large and well-ventilated hall. The Victor Kx4 X-ray plant is very powerful and of the latest pattern and was supplied by the General Electrical Corporation. With the XP4 X-ray tube, it is as efficient a plant as any in South India. There is a second X-ray tube conveniently mounted on a table so as to be useful for screening purposes. The Electro-therapy section is equipped for Radiant heat baths, ultra-violet ray exposures, Diathermy, electric massage, and electric baths and with "universal exerciser."

The total number of patients treated from December 1935 to the end of June 1936 was 2,025, of whom 1,629 were out-patients and 396 in-patients. 124 were X-rayed, 91 were screened, and the remaining 1,810 were given Electric treatment.

The section has proved its efficacy in the treatment of cases of skin trouble, malnutrition, painful muscles, tendons, and paralysis.

6. *The Ear, Nose and Throat Section.*—This was opened in February 1936. Up to the end of June 1936, 3,070 cases were handled by the specialist in charge. 23 minor and 26 major operations of ear, nose and throat were performed. This section is equipped with apparatus of the latest type and promises to be very useful.

7. *The Dental Section.*—This section was opened in 1934 and is becoming increasingly popular. In fasli 1345, as many as 3,854 cases were treated.

8. *The Animal Vaccine Depot.*—This forms a separate section under the charge of a Superintendent. It prepares and supplies to vaccinators all the lymph required for vaccination in the State. The Seed Vaccine is now got from Belgaum, and with it calves locally purchased are inoculated. Every fortnight the lymph is extracted from them to be sent out as Glycerine lymph. Vaccine is only issued after examination in the Pathological and Bacteriological Laboratory. 28,179 grains of paste were prepared and 18,650 grains issued in fasli 1345.

*General:*—On March 29, 1899, Sir A. Sashia Sastriar, wrote in the Hospital visitor's book—"The Hospital bids fair to prove one of the best Hospitals outside Madras in the Madras Presidency." In the same year, Sir Arthur Havelock, then Governor of Madras, remarked that "the building is admirably planned and is maintained in excellent order... The organisation seems to be highly satisfactory." Since 1899 the Hospital has steadily developed and is now acknowledged to be one of the premier institutions in South India. With the opening of an Ophthalmic Section—a Sub-assistant Surgeon has been sent to the Minto Ophthalmic Hospital at Bangalore to be trained—its equipment will be complete. Whether regard be had to the design of the buildings, the accommodation, the equipment, or the staff, the Hospital is an institution of which Pudukkóttai may be proud. On the occasion of the Viceregal visit in December 1934, Her Excellency Lady Willingdon paid the following gratifying tribute:—

"I had a most interesting visit to this hospital and was very much struck with it. Such charming airy wards and so well kept. It was delightful to go round with the Medical Officer as he knows all about every case in his hospital and would explain all the difficult cases to me. I congratulate Pudukkottai on having such a hospital.

"(Sd.) MARIE WILLINGDON."

**H. H. The Rani's Women & Children's Hospital.**—This institution was opened as a Dispensary in the Old College buildings on November 9, 1900, and placed in charge of a duly qualified Lady Apothecary. In 1910, it was resolved to convert it into a Hospital for women, and buildings were erected in the heart of the town to accommodate it.

It continued to be a Dispensary however till fasli 1329 (1919-20). A qualified Lady Doctor was appointed in 1920, and it became the Rani's Hospital for women and children. The staff now consists of a Lady Doctor and a resident Sub-Assistant Surgeon with five nurses and three compounders.

The Hospital began with two wards accommodating 6 patients each, and a central block with 12 beds, four of which were reserved for children. The maternity ward had six beds. There are now four wards for all general diseases including maternity cases, with 52 beds in all. The total number of in-patients treated in fasli 1345 was 1,616 with a daily average of 63.5, while 24,439 out-patients were treated with a daily average of 182. 547 major surgical operations were performed of which 50 were done under chloroform. 473 cases were admitted into the lying-in-ward of which 374 were cases of normal labour, 70 of abnormal labour and 25 of abortion or miscarriage. Maternity aid was given in 208 cases in the Town by the Hospital staff. The total expenditure on the Hospital for fasli 1345 was Rs. 22,880.

**Dispensaries.**—There are twelve rural Dispensaries, and thus having regard to its area and population, the State is well served in this respect (see comparative statement on page 265 below), especially when it is remembered that the State is also exceptionally well-provided with roads. Each dispensary is in charge of a Sub-Assistant Surgeon assisted by a qualified staff. The following statements give statistics of medical relief rendered in the various medical institutions of the State.

| No. | Name of the Institution.                | Total No. treated. | British sub-jcts. | Daily average. | Sexes. |        |           | Classes. |                    |                       |                 |                 | Expenditure. |
|-----|-----------------------------------------|--------------------|-------------------|----------------|--------|--------|-----------|----------|--------------------|-----------------------|-----------------|-----------------|--------------|
|     |                                         |                    |                   |                | Men.   | Women. | Children. | Hindus.  | Muham-<br>madians. | Other Euro-<br>peans. | Euro-<br>peans. | Para-<br>sians. |              |
|     |                                         |                    |                   |                |        |        |           |          |                    |                       |                 |                 | Rs. A. P.    |
| 1   | Town General Hospital, Pudukkottai.     | 65,951             | ...               | 557.30         | 31,158 | 17,950 | 16,843    | 59,090   | 3,639              | 2,509                 | 3               | ...             | 61,187-12-2  |
| 2   | Dispensary at Kolatur                   | 13,060             | 21                | 64.43          | 7,214  | 2,554  | 3,892     | 10,595   | 1,908              | 1,097                 | ...             | ...             | 2,958-12-6   |
| 3   | " Perungalur                            | 12,138             | 355               | 43.63          | 6,621  | 2,182  | 3,395     | 10,826   | 265                | 1,107                 | ...             | ...             | 2,305-15-11  |
| 4   | " Karambakkudi                          | 13,024             | 3,507             | 63.78          | 5,606  | 3,289  | 4,129     | 6,941    | 3,194              | 2,880                 | ...             | ...             | 2,898-2-1    |
| 5   | " Alangudi                              | 15,707             | 188               | 81.19          | 7,475  | 3,004  | 5,228     | 13,098   | 1,553              | 1,456                 | ...             | ...             | 2,093-12-6   |
| 6   | " Kilanilai                             | 7,650              | 76                | 57.78          | 3,522  | 1,820  | 2,308     | 7,423    | 92                 | 185                   | ...             | ...             | 2,627-6-9    |
| 7   | " Tirunayam                             | 11,834             | 1,797             | 97.93          | 5,823  | 2,596  | 3,415     | 10,398   | 919                | 487                   | ...             | ...             | 3,147 11-0   |
| 8   | " Ponnamaravathi.                       | 19,890             | 58                | 98.15          | 9,063  | 5,031  | 5,706     | 19,073   | 629                | 189                   | ...             | ...             | 3,129-4-5    |
| 9   | " Viralmalai                            | 12,232             | 96                | 48.71          | 6,927  | 2,280  | 3,026     | 11,231   | 153                | 345                   | ...             | ...             | 2,197-14-10  |
| 10  | " Annaisal                              | 14,567             | 633               | 71.12          | 6,788  | 2,653  | 4,146     | 8,414    | 4,493              | 1,680                 | ...             | ...             | 2,208-1-3    |
| 11  | " Tirugokarnam                          | 18,056             | ...               | 122.83         | 8,324  | 6,651  | 4,130     | 17,622   | 127                | 347                   | ...             | ...             | 3,708-14-10  |
| 12  | " Panayapatti                           | 9,352              | 37                | 63.04          | 4,255  | 2,690  | 2,207     | 8,558    | 107                | 327                   | ...             | ...             | 2,5819 4-3   |
| 13  | Rural dispensary at Avayipatti.         | 4,009              | ...               | 20.48          | 2,218  | 1,155  | 636       | 2,672    | 72                 | 1,265                 | ...             | ...             | 956-0-0      |
| 14  | H. H. The Rani's Hospital, Pudukkottai. | 24,439             | ...               | 182.0          | ...    | 14,348 | 10,091    | 23,170   | 673                | 597                   | ...             | ...             | 22,890-8-2   |
| 15  | Ayurvedic dispensary at "               | 24,303             | ...               | 146.53         | 11,869 | 5,958  | 6,486     | 22,898   | 1,216              | 189                   | ...             | ...             | 2,993-6-5    |

Total expenditure for all institutions Rs. 1,17,310-2-1.

## PUDUKKÓTTAI STATE

[CHAP.

## Statement showing the number of in-patients treated in the hospitals during fasli 1345.

| Name of the institution.  | Total number treated. | Daily average. |
|---------------------------|-----------------------|----------------|
| Town General Hospital     | 1,942                 | 91.69          |
| Ponnamaravathi Dispensary | 137                   | 2.95           |
| H. H. the Rani's Hospital | 1,616                 | 63.5           |

## Statement comparing the extent of Medical Relief afforded by the State with that afforded in the adjoining British Districts.

| No. | Districts and the State. | Total area in square miles. | Total population according to the census of 1931. | No. of Medical institutions. | Average area served by an institution. | Average population served by an institution. | Remarks.                                                                   |
|-----|--------------------------|-----------------------------|---------------------------------------------------|------------------------------|----------------------------------------|----------------------------------------------|----------------------------------------------------------------------------|
| (1) | (2)                      | (3)                         | (4)                                               | (5)                          | (6)                                    | (7)                                          | (8)                                                                        |
| 1   | Pudukkottai              | 1,379                       | 4,00,694                                          | 15                           | 78.60                                  | 26,713                                       | * Including the Ayurvedic Dispensary and the Aided Dispensary, Avayapatti. |
| 2   | Trichinopoly             | 4,914                       | 11,93,245                                         | 20                           | 216.70                                 | 95,662                                       |                                                                            |
| 3   | Tanjore                  | 3,742                       | 23,85,920                                         | 53                           | 71.96                                  | 45,883                                       |                                                                            |
| 4   | Madurai                  | 4,912                       | 21,95,747                                         | 35                           | 130.24                                 | 62,736                                       |                                                                            |
| 5   | Ramanid                  | 4,810                       | 18,83,955                                         | 37                           | 120.24                                 | 49,701                                       |                                                                            |

N. B.—There are 435 subsidized rural dispensaries in the Madras Presidency but the number of such institutions in each district is not given in the Report. So the subsidized rural dispensaries have not been included in column 5 of this statement.

Density of Population in { The Pudukkottai State ... 310 per square mile.  
The Tanjore District ... 538 per square mile.

**Administration.**—The department now consists of a Chief Medical and Sanitary Officer who is the Administrative head of the whole department, one Resident Medical Officer in charge of the General Hospital, one Radiologist, 17 Sub-Assistant Surgeons including the Lady Sub-Assistant Surgeon attached to the General Hospital and one Dentist. The Lady Doctor and a Resident Lady Sub-Assistant Surgeon are in charge of the Rani's Hospital. The Ayurvedic dispensary is under the charge of a qualified physician trained in the Sri Venkataramana Dispensary, Mylapore.

**Financial.**—The total expenditure of the Medical Department in fasli 1345 was Rs. 1,23,386. The cost of maintaining the Hospitals and Dispensaries was Rs. 1,14,316. The total cost of medicines and surgical instruments purchased during fasli 1345 for the General Hospital exceeded Rs. 23,000. The expenditure of the Vaccination department was Rs. 4,058, and that of the Public Health department Rs. 1,730. The cost of maintaining the Veterinary Hospital in the Town was Rs. 3,280.

#### SECTION III.—VITAL STATISTICS.

No vital statistics were collected till 1876. Statistics were first compiled only for the town, and afterwards for the whole State. Though the registration of births and deaths is now compulsory, the figures are more or less unreliable except those for the Municipality, the blame for which must be laid at the door of the village officer who, 'amid the toils of keeping accounts and collecting *mamuls*, pays scant heed to what he and his friends consider the idle curiosity of an eccentric *darbar*.\* The following table gives the vital statistics for the last twenty years.

#### VITAL STATISTICS I.

| Fasli.         | Births. | Deaths. |
|----------------|---------|---------|
| 1326 (1916-17) | 7,551   | 7,202   |
| 1327 (1917-18) | 7,805   | 7,715   |
| 1328 (1918-19) | 8,591   | 12,310  |
| 1329 (1919-20) | 8,548   | 8,923   |
| 1330 (1920-21) | 8,905   | 7,809   |
| 1331 (1921-22) | 8,511   | 6,464   |
| 1332 (1922-23) | 8,897   | 7,573   |
| 1333 (1923-24) | 9,294   | 7,287   |
| 1334 (1924-25) | 8,687   | 8,864   |
| 1335 (1925-26) | 7,926   | 8,286   |
| 1336 (1926-27) | 7,669   | 9,256   |
| 1337 (1927-28) | 6,859   | 8,192   |
| 1338 (1928-29) | 6,821   | 8,042   |
| 1339 (1929-30) | 6,409   | 5,955   |
| 1340 (1930-31) | 5,816   | 5,696   |
| 1341 (1931-32) | 5,809   | 5,281   |
| 1342 (1932-33) | 7,204   | 4,851   |
| 1343 (1933-34) | 7,041   | 5,945   |
| 1344 (1934-35) | 6,726   | 6,542   |
| 1345 (1935-36) | 7,617   | 6,602   |

\* Madras Census Report for 1911—Part I.

#### VITAL STATISTICS II.

| Fasli. | Number of deaths from |            |         |                          |                   | Total. |
|--------|-----------------------|------------|---------|--------------------------|-------------------|--------|
|        | Cholera.              | Small-pox. | Fevers. | Dysentery and Diarrhoea. | All other causes. |        |
| 1326   | nil                   | 300        | ...     | ...                      | ...               | 7,022  |
| 1327   | 501                   | 209        | ...     | ...                      | ...               | 7,715  |
| 1328   | 466                   | 656        | 4,974   | ...                      | ...               | 12,310 |
| 1329   | 503                   | 718        | 1,390   | ...                      | ...               | 8,923  |
| 1330   | 75                    | 149        | 1,256   | ...                      | ...               | 7,809  |
| 1331   | 95                    | 61         | ...     | ...                      | ...               | 6,464  |
| 1332   | 9                     | 300        | 974     | ...                      | ...               | 7,573  |
| 1333   | 87                    | 112        | 828     | 341                      | 5,919             | 7,287  |
| 1334   | 1,480                 | 119        | 870     | 314                      | 6,081             | 8,864  |
| 1335   | 545                   | 291        | 805     | 276                      | 6,969             | 8,286  |
| 1336   | 1,065                 | 156        | 761     | 473                      | 6,811             | 9,256  |
| 1337   | 351                   | 47         | 631     | 361                      | 6,502             | 8,192  |
| 1338   | 651                   | 47         | 677     | 337                      | 6,330             | 8,042  |
| 1339   | 86                    | 3          | 633     | 257                      | 4,986             | 5,955  |
| 1340   | 97                    | 6          | 743     | 268                      | 4,582             | 5,696  |
| 1341   | 10                    | 207        | 624     | 321                      | 4,119             | 5,281  |
| 1342   | 1                     | 434        | 658     | 139                      | 3,619             | 4,851  |
| 1343   | nil                   | 168        | 933     | 246                      | 4,598             | 5,945  |
| 1344   | 124                   | 245        | 906     | 311                      | 4,956             | 6,542  |
| 1345   | nil                   | 41         | 786     | 394                      | 5,381             | 6,602  |

#### SECTION IV.—PUBLIC HEALTH ORGANISATION AND ADMINISTRATION.

The Public Health Organisation for the State is in a real sense the outgrowth of the Medical Department. At first this Department which consisted almost entirely of the staff of H. H. The Raja's Hospital mainly ministered to the medical officials and needs of the residents of the Town. In 1894 the Chief Medical Officer in charge of the Raja's Hospital was designated the Chief Medical and Sanitary Officer and was charged with the supervision of medical service in the Taluks and in the Town municipality, as well as of public health activities in the interior. The supervision of rural sanitation which had hitherto been a function of the Tahsildars was transferred in 1902-1903 to the rural Sub-Assistant Surgeons. The Inspector of Vaccination was made an ex-officio Sanitary Inspector.

A Village Sanitation Regulation was passed in 1909-10. There are at present a touring Health Inspector and a staff of Vaccinators to assist the Chief Medical and Sanitary Officer.

**Health Education.**—The Health Department has now a complete magic-lantern outfit with a number of lantern slides. In Fasli 1345 the Chief Medical Officer visited 34 villages and the Health Inspector, 275. They gave 40 magic-lantern lectures and 275 discourses on health subjects, especially the preventive measures to be taken against small-pox, cholera, hook-worm and guinea-worm and anti-rabic treatment. Suggestions for the improvement of sanitation in villages were also given.

The Department has been making special and elaborate sanitary arrangements during the Māriamman festivals at Nārttāmalai and Konnaiyur, and the Easter festival at Avūr. A number of trenched latrines are constructed at these centres during the festivals. Drinking water sources are chlorinated. The Health Inspector visits food and aerated-water-stalls to ensure the purity of the articles sold. Advantage is taken of these festivals to do useful health propaganda work, and the precautionary measures taken by the Health staff serve as practical demonstrations to the people. The annual inspection of pupils in schools and in the College has now become a regular feature of the work of the medical staff. The Chief Medical Officer examines all the students of the local College, the Resident Medical Officer, all the boys of the C. S. M. High School and the Lady Doctor, all the girls of the Rani's High School. The sub-assistant surgeons of the Town and the Mofussil dispensaries examine the pupils of the rural elementary schools. The results of the medical examination are communicated to the parents through the heads of the institutions. The defects most commonly noted are malnutrition, bad teeth, and defective eye sight. The Health Inspector delivers health lectures in the college and at meetings of the teachers' associations; and this has helped to secure the co-operation of the teachers in the general campaign against disease and insanitation.

#### SECTION V.—VETERINARY HOSPITAL.

A Veterinary hospital was started in the capital town in Fasli 1318 (1908-09). It has a qualified veterinary surgeon who is under the administrative control of the Chief Medical and Sanitary officer. The hospital has accommodation in its wards for 4 horses and 10 cattle.

A touring veterinary assistant surgeon was appointed in fasli 1332 (1922-23), and placed under the control of the Dewan Peishkar. In fasli 1339 (1929-30), when Rinderpest broke out in the State, an anti-rinderpest campaign was started and anti-rinderpest serum for inoculation was got from the Muktesar serum institute. In Fasli 1340 the Darbar introduced Regulation No. 1 of 1931 on the lines of the Madras Cattle Diseases Act, for the prevention of the spread of cattle diseases in the State. But since Hospital pounds have not been instituted it has so far remained a dead-letter. In the same fasli, the Veterinary Surgeon in charge of the town Veterinary Hospital was deputed to undergo postgraduate training in the Madras Veterinary College in Pathology, Bacteriology, Parasitology and Immunology. The touring Veterinary assistant was sent later to the Madras Veterinary College to undergo practical training in the simultaneous method of serum inoculation against Rinderpest. This method of treatment has now been introduced in the State, and the serum and virus are got from the Civil Veterinary Department, Madras. The disease is now almost non-existent. In fasli 1343, the Darbar increased the number of touring Veterinary assistants to three—one for each taluk. One touring Veterinary assistant surgeon has been trained in apiculture.

For the past three years Blackquarter has been prevalent in many villages in Alangudi and Kolattūr taluks. The spread of the disease is being checked by *serum* and *filtrate aggrassin* or *bacterin* inoculation on a large scale in the villages. The serum and other biological products, formerly got from the Muktesar Institute, are now got from the Bangalore serum

Institute. Castration of scrub bulls, i.e., bulls unfit for stud purposes, is done both in the town Hospital and by the touring Veterinary assistants. In addition to inoculation and castration, the touring Veterinary assistants treat general diseases of cattle.

The health of the livestock of the town dairy-farm is under the supervision of the surgeon in charge of the Veterinary Hospital. The animals in the Palace Stables are also under his care. In addition to his duties in the Veterinary Hospital, the town Veterinary Surgeon certifies and passes sheep for slaughter in the Municipal Sheep Slaughter House. In fasli 1344, 510 animals were rejected as unfit for human consumption.

In fasli 1345, 1,412 animals, of which 75 were equines, 1,157 bovines and 180 of other species, were treated in the Town Veterinary Hospital as out-patients. About 86 animals were treated as in-patients for various diseases. The daily average number of out-patients in the Hospital was 42.97, and that of in-patients 3.76. The number of operations performed in the Hospital during the fasli was 207, of which 64 were castrations of bovines.

The following statistics illustrate the work of the touring veterinary surgeons in the State in fasli 1345.

| Veterinary Assistant. | Number of animals treated. | Number of animals inoculated. | Number of castrations done. |
|-----------------------|----------------------------|-------------------------------|-----------------------------|
| Alangudi Taluk        | 1,121                      | 1,615                         | 596                         |
| Kolattúr Taluk        | 193                        | 37                            | 43                          |
| Tirumayam Taluk       | 538                        | 542                           | 120                         |
| Total for Taluks      | 1,852                      | 2,194                         | 759                         |

There were no cases of contagious or infectious diseases except of foot and mouth disease which is prevalent in many parts of the State at the time of writing.