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The Indian Geographical Journal

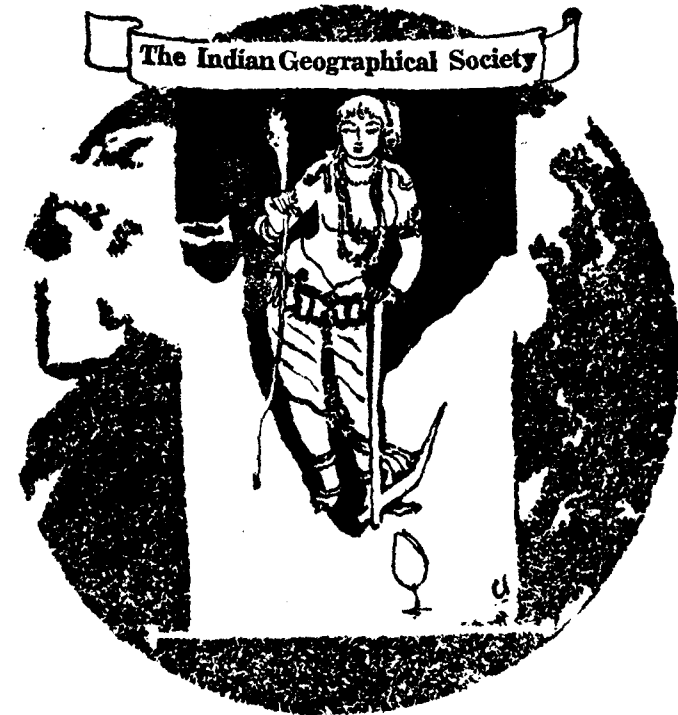
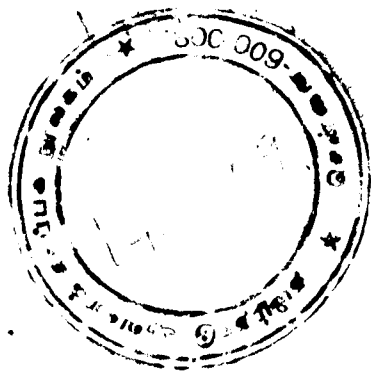
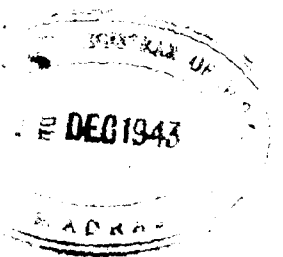
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THE JOURNAL OF THE MADRAS GEOGRAPHICAL ASSOCIATION.

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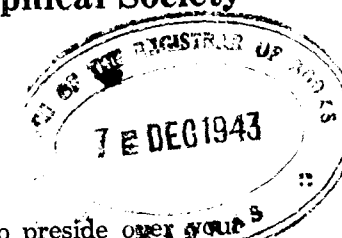
APRIL—JUNE 1943

No. 2

Presidential Address to the Annual Conference of the Indian Geographical Society 1943

By

A. SWAMINATHA IYER.



I feel honoured by your kind invitation to preside ~~over you~~ at this conference this year. With no pretensions to expert knowledge in the field of Geography, I realise the limitations of a layman having to address specialists like you, and it is not without considerable misgiving that I have undertaken this responsible task.

As a study of the relationship between man and his environment, between man and his natural surroundings, and the expression of man's conduct and behaviour with reference to the climate and the country in which he lives, Geography occupies and must occupy a very prominent place in any scheme of cultural development. If we understand Geography in this wider aspect, we can envisage Geography as the epitome, so to say, of human endeavour and human culture. It both controls and explains human evolution and expression, building upon data furnished by every other science, Natural sciences like Physics, Chemistry or Biology, or Human sciences like Sociology, Economics or Politics, and in this sense Geography may be viewed as a Cosmopolitan Science. With the training and predilections of a Revenue Officer whose work had largely lain in the rural parts and association with the village people, you would

naturally expect me to make an attempt at presenting some aspects of India's rural problems, considered from the point of view of an amateur Geographer. If in the observations I have the privilege of addressing to you I have succeeded in presenting a picture in reasonable perspective without undue sacrifice either of material or of vividness of impression regarding essential facts, I shall feel myself more than satisfied.

We are meeting at a time when the free nations of the world are struggling against brutal aggression in order to defend and safeguard the very foundations of society, culture and civilisation. Ruthless destruction of human life with weapons invented by Science is going on. Godlessness reigns supreme and religion does not control the passions of man. The warring nations of the world are dealing destruction with such fury and ferocity that the end will be mutual annihilation, perhaps by bacteriological warfare. The victor and the vanquished alike will share the same dire fate. The tragedy which is being enacted before our very eyes in the world to-day makes one despair of the future of Humanity. We seem to be caught in the machinery which is overpowering us and we are too weak to aspire to and realise those eternal verities of Love and Truth which have helped to sustain civilisation. "Is there a way of escape from this chaos and confusion," one asks in despair. With the disappearance of higher human values, man degenerates into a brute and becomes callous and thoroughly contemptuous of life, his own as well as others. Viewing the problems of war and peace in their varied Geographical and political aspects, one would indeed be bold if he could prophecy that the next armistice any more than the previous one can usher in an era of world peace, so long as Governments continue to work on their old lines and base their hopes of peace upon their own favourite economic and territorial schemes. The price of liberty and of international law and order is effective co-operation with mutual help for the common good, motivated by *Yagna* and *Dharma* (sacrifice and duty). May the better minds of men inspired by a synthesis of the universal and national ethics evolve a political principle that will find expression in the formation of a body charged with the duty of safeguarding Society from all aggression.

However much her integrity may be assailed from certain quarters, India from the point of view of physical features,

is a natural Geographical unit. The best service that the British have done to India is to preserve and consolidate this physical unity by providing a common system of laws and a strong centralised administration. Thus to the physical and cultural unity which India had enjoyed previously, has been added political unity—Mr. L. S. Amery, Secretary of State for India speaking with the authority of His Majesty's Government asserted that the "Ideal undoubtedly remains—a united all-India including the States as well as British India". If India is a geographical and political unit, it follows that Indians are a nation. Nationalism grows with and round a country, as a circle round its centre. Just as the soul of an individual unfolds and expresses itself in and through a physical vehicle, the body, even so, the soul of a people also must express itself through a country which it can claim as its own. A common Father-land or Mother-land is a pre-requisite to all national development. Round that living nucleus will naturally gather all other elements of strength and excellence which go to make up a nation. The contribution of India to political thought is and will be the deification of the mother-land which is based on a sound Geographical concept.

An old Sanskrit verse says:—

“जननी जन्म भूमिश्च स्वर्गादपि गरीयसी ।”

meaning the mother and motherland are greater than Heaven itself and so the worship of the country forms part and parcel of the Hindu Religion. Mother India is worshipped as a deity and the *Bhu Suktha* speaks of the physical and visible form of Mother India in the *Riks* beginning with मेदिनी देवी etc. The *Virata Deha* of Mother India comprehends the whole of *Bharatha Varsha* from the Himalayas to Cape Comorin, the Indian ocean with its two arms, the Arabian Sea and the Bay of Bengal washing and worshipping *Medini Devi*, visualised as *Kumari*. In one prayer the country is invoked as the land of the seven sacred rivers, Ganga, Yamuna, Saraswathi etc. In another, the country is described as the land of the seven sacred mountains forming as it were the ribs and backbone of the Great Mother. Yet another prayer addressed to Mother India speaks of the seven sacred cities Ayodhya, Madhura, Maya, etc. All these prayers have a Geographical setting. The Hindus are enjoined to visit these holy places;

to be able to do so they have practically to go over the whole of India and visualise her as their common sacred Mother land. The Geographical limits of the sacred land of Bharatha Varsha seem to have been fixed long long ago, as numerous references in ancient sanskrit writings testify. Sri Ramachandra who travelled on foot during his 14 years of exile, addressing Vali after he had been mortally wounded by him said. "This land abounding in hills and woods belong to Ishvakus" (See Valmiki's Ramayana-Kishkinda Kanda, Sarga (81). Sri Sankaracharya purposely planted the four principal mutts at the four cardinal points of the Indian continent—Jyothir Mutt at Badrikedari up in the North, Govardhan Mutt at Puri at the Easternmost point, Sarada Mutt at an extreme West and the Sringeri Mutt in the far South, so that by visiting these Mutts the pilgrim would have traversed every inch of this vast country.

In India's vast area of 1.8 million square miles we have the most varied physical and climatic conditions and vegetation. Not inappropriately has a well-known writer described India "as the epitome of the whole earth". India is what is known as a monsoon region where the rain comes when it is most needed. This explains the reason for the dense population of monsoon regions. But these are also particularly liable to famines. Since they are closely dependent on agriculture, the prosperity of the whole country depends upon a short season of abundant rain in summer, and when that rain is scanty or delayed, ruin ensues. The South-West monsoon is of greater economic importance than any other seasonal wind owing to the rainfall it brings to India and but for it, large populous areas would become deserts. Nor would it bring such prosperity to Northern India, were it not for the co-operation of the great rivers which flow from mountains covered with perpetual snow and which enable a fifth of all the cultivated land of India to be irrigated. Even as India is an "epitome of the whole earth," the Madras Presidency can be said to be the epitome of India. Here we have a very wide range of conditions which make it possible to grow more or less every variety of crops. Depending on both the monsoons,—the annual rainfall varying from 300 to 20 inches or less,—the agricultural problems of the Presidency cover a wide range. As the mountains are not all high to give abundant rain throughout the dry season, artificial irrigation has to be resorted to, to mature the crops and to ensure the success

of cultivation. Irrigation is one of the strongest agencies for promoting prudence and care in the use of water. This will be found to be reflected in the desire of the people to submit to the will of the majority in the storage and distribution of water. The spirit of corporate existence and co-operation is consequently fostered, without which progress will be impossible.

The study of the Agricultural Geography of the Carnatic in which the district of North Arcot where we are meeting is situated, is a study of the basis of practically all life in the region. The people of the Carnatic are tillers of the soil and on the return it gives them, they must eke out their meagre livelihood. They have both to feed and clothe themselves on what they get out of the land. Probably there is no other country in the world where the people are dependent so much on the land they cultivate. Perhaps also there is no other region in the world where the climatic factor enters so largely into every aspect of life which is based on agriculture, which again is dependent on the monsoon rainfall this is the pivot upon which life swings in the Carnatic. Any variation in this pivot, however slight, means a consequent variation in the whole rural economy of the region. It is not so much the amount of rainfall, but the character of the rainfall, that is, both the nature and the distribution that counts. It will thus be seen that irrigation has a particular significance in this region, in view of the rainfall conditions which may be scanty and ill-distributed. Irrigation is an attempt to stabilise rainfall conditions, either by supplying water for cultivation when rain does not fall, or by supplementing the rainfall in the rainy season when it is insufficient, or when a long break occurs. The methods of irrigation also reflect the Geographical conditions of the region. Irrigation is by canals and tanks (artificial reservoirs) and by wells giving access to the subterranean supply or to the waters of rivers which running deep below the general level of the ground have to be lifted vertically before they can be made to flow into the fields. Irrigation practised in the Carnatic as above, means so much to the agriculture of the region. It helps the successful raising of a crop by ensuring it sufficient water which can be supplied as and when required. Further, by virtually extending the rainy season, it permits of the cultivation of longer maturing crops, which in many cases are superior to the quick maturing varieties of the same crop. Thus the life of the Carnatic peasantry is dependent on the rains

and on irrigation. The main factor underlying the rural economy of the Carnatic is food availability and there is definite concentration of the people in the food producing areas along river valleys, deltas and other fertile tracts which are primarily rice producing areas.

The typical village in this region consists of the village houses, tanks and wells, around which are the irrigated fields. Beyond these are the unirrigated lands growing dry crops by the aid of seasonal rains and further beyond is the waste. Geographically viewed, the Indian Village—this is particularly so with reference to the Carnatic Village—is the natural Geographical development of the system of agriculture pursued. The regularity of the seasonal monsoons which is so important in the agricultural economy of this country has naturally fostered a belief in the continuity of existence. It may be worthy of note that throughout the period of India's history, the lot of the people in their seven lakhs of villages has gone on almost unchanged in spite of the numerous invasions, and unaffected by the gains or losses of their rulers. This is undoubtedly due to the Indian village system, a unique institution which is rightly claimed as India's greatest contribution to world civilisation. There are numerous references in the classical literature of India, the Ramayana for instance, to the village system. In the Institutes of Manu, in Kautilya's Artha Sastra, in the Sukraniti—and these by no means are the only authorities—we have copious details with regard to the village system and its relation with a central authority. It will be surprising to know how democratic was the system and how circumscribed was the authority of the Kings. A great writer on Indian Village institutions has stated that "the Villages were completely self-governing and were practically free from central control. The Gramini (headman) and the other village officials were appointed by the community and were accountable to them". As Professor Nilakanta Sastri pointed out sometime ago, although the machinery of modern democracy with all its complexities was not found in ancient India, yet a study of Indian History and Indian culture showed that the type of life that democracy stood for, was found in abundance in the elements of Indian tradition. Various causes have contributed to the decay of the old village system. The East India Company laid the axe when they took away from the villagers, the right to elect their officials, the latter being answerable to those departmentally placed above them, instead of to the village

community. The substitution of the tax in kind by payment in cash was another potent cause. It is unnecessary to pursue the subject further here. Suffice it to say that the old Indian village was an orderly and self-sufficient community, with its staff of menials and artisans under the authority of the Headman whose office was generally hereditary. Not inaptly has a great authority described the Indian villages as "Those little republics". It is worthy of note that Mr. L. S. Amery speaking sometime ago in London on the subject of Rural Self-governing Bodies in India, expressed the opinion and the hope—presumably based on an unbiased study of Indian History and traditions—that the knowledge in self-government learnt from self-government inculcated in the villages would help the whole of India to govern itself. It is significant coming from such a source and will be much appreciated.

A very important part of the old village life was the free labour given by the community for common purposes. Roads, temples, tanks, wells, water-courses, public buildings were constructed by co-operative labour. The Report of the Indian Irrigation commission (1901-3)—(See Part I, Page 8), has stated that in the Madras Presidency the water channels constructed by village labour irrigate "collectively an area equal to that irrigated by all the larger works constructed by the British Government". The Madras Kudi-maramat Regulation has attempted to keep alive this ancient custom but not with conspicuous success. In those days wars were confined to the Kings and their armies. One often comes across descriptions by British Travellers of how the peasants continued their avocations, even when a battle was being fought within range of their eye-sight. Following the ancient rule that Kings should settle their quarrels among themselves, Indian Chiefs were loathe to destroy the lives of those who were not engaged in actual fight. No chief desired to destroy the wealth-producers, as on them the prosperity of Kings depended. Thus through the ages the vitality of India's life has been in her villages. The problem of the village is and should be the most important political and social issue in this country. By the restoration of the village to its former prosperous state, the inner life of the villagers themselves, could be moved and stirred to healthy endeavour. The Government and Public bodies have no doubt been making commendable efforts to improve village life and rural conditions generally. If the task had been approached in a Geographical spirit more satisfactory results could have been achieved. Taking

the agricultural research worker for example, it will be noticed that his main aim is to evolve a variety which would give increased monetary return. The result can be obtained either by an improvement in the yield or in quality. Of the two factors, better yield per acre is the more important, and even the most illiterate cultivator understands this. It is often extremely difficult to obtain the real value of any improvement in quality which no trade agency will pay for, unless there is competition for the product and unless a large quantity of the product is forthcoming in the market. Further, the needs of the market may change quickly, while the evolution of an improved type is a slow process. Fashion also may bring about a radical change which cannot be foreseen. And where marketing facilities are still undeveloped, the tangible benefit of increased quantity will always conquer the almost intangible advantage of improved quality. Naturally the agricultural research worker will have to make yield his first consideration, while at the same time striving to improve the quality. In addition to yield and quality, an improved variety should possess, a third characteristic, namely, the power of adaptation to a wide range of agricultural conditions. This is a geographical fact and failure to pay adequate attention to this aspect of the agricultural problem has often ended in costly failures and disasters. Modern trade and manufacture demand a uniform product as experience shows that multiplication of varieties actually diminishes the market value of the tract. This again is a geographical fact, the significance of which has not been adequately appreciated by the agricultural research worker.

There is an intimate relationship between rainfall and population. These two groups of facts provide the fundamental factors of the infinitely varied play of causes and effects which ends in covering the surface of the globe with peoples with different characteristics. As in the case of man, so also in the case of his domestic animals, one can notice the variation due to the influence of climate and rainfall and the influence of soil. From the geographical point of view, the geography of plants is still more significant than the geography of animals. Plants do not move; they are fixed on the ground and cannot adjust themselves to extremes of temperature or isolation, while animals can easily escape by a change of place. The distribution of cultivation therefore lends itself to geographical analysis to a degree much more striking than the distribution of domestic animals as plants form organic groups which reflect the strong influence of the environments in which

they live. These and certain other aspects of the agricultural problem considered from the point of view of a geographer, I should like to deal with, but I am afraid I have exceeded the limits I set to myself. I shall however endeavour to deal with one aspect of the agricultural problem before I conclude, namely the relationship of agriculture to forestry.

If the fact is borne in mind how vitally important an abundant and never failing supply of water is to a predominantly agricultural country like ours, we can well appreciate the frequent invocations to the deities of rain—Indra and Varuna—in the early Vedic Hymns. The Ganges, the Jumna, the Narmada, the Godavari and the Kaveri, which have been held sacred for ages, are doubtless venerated for their influence on the rural economy of the country. In a tropical country like India shady trees like the banyan or *Nyagrodha* the *figus religiosa*, and the *margosa* are necessary for the workman and his cattle to rest during the heat of the day and the people are enjoined to plant and preserve them as a religious and meritorious act. Consequently they are also the much venerated *stala Vrikshas* in Hindu shrines. Our country must have reached the stage of settled agricultural life long long ago, but this could not have been attained without fighting the wild animals and the much dreaded snakes. The conception of Lord Shiva (Pasupati—the Lord of the Cattle) clad with the skins of the elephant, and the tiger, the sacred bull as his *vahana*, the eternal *Ganga* (water for irrigation) in his thickly grown *jata*, symbolic of thick forest growth, and the garland of snakes, himself seated in Mount Kailas, the high Himalayan peak, all this is evidence of the antiquity of India's civilisation based on the worship of mother earth, (Medini Devi), the giver of food for the sustenance of her teeming millions.

The beneficial effects of forests, of thickly clad hill sides on the agricultural economy of India will thus become apparent. The extension and the consolidation of the Indian Empire and increase in population have resulted in the rapid denudation of the hill sides and forest areas, and the present war has considerably accentuated the situation, the effects of which are bound to be very serious. The wealth and power of a country are bound up with the soil and its continued prosperity depends upon an adequate supply of water and thickly clad hill sides and forests. An old saying has it "When forests go, fishes and games go, crops go, flocks go, fertility departs—then the old-age phantom appears stealthily one after

another, floods, drought, famine and pestilence". In the first public expression of the forest policy of the Government of India in 1894, it was laid down that the sole object with which the state forests are administered is the public benefit. In the Government of India Resolution, the forests of India were classified under four main heads, the first of which comprised "forests the preservation of which is essential on climatic or physical grounds". While there is no intention on my part of criticising this exposition of Governments' forest policy, it must be admitted that there is not sufficient insistence in it on the geographical aspects of forestry, namely, the beneficial mechanical influence of the forest, and the consideration of forestry in its more indirect connection with agriculture, all of which come within the purview of what can be conveniently described as forest geography. It is unfortunate that in a country whose welfare so much depends on agriculture, practically no sustained research and investigation has been made in respect of the mechanical influences of forests and we have to accept the proofs adduced by scientists in other countries, e.g. France. Their researches prove beyond doubt that mountain forests exercise a most favourable influence on the absorption of the rainfall by the soil and that when such forests exist in a hot climate where physical evaporation is excessive, their influence is all the more beneficial, showing that forests are a source of protection to man and to the works which are necessary for his livelihood. Nature in placing the forests provides both the remedy as well as the danger, for the forests fight the active forces of water with the living forces of vegetation. Thus the broad fact emerges that on the presence of the mountain and hill forests depends the prosperity of cultivation and of the people below. Of certain other aspects of forests, for example, their hygienic importance and their aesthetic and cultural value, especially the latter, I am not dealing in this address. But in another place and on another occasion, I hope to do so. India's noblest and highest thoughts emanated from the forests and the forest *ashramas*. Truly has it been said that India's civilisation is forest civilisation. Personally it will be an elevating digression if I dealt on the aspect of forestry but the topic is not strictly geographical.

Here I must conclude. I thank you for the courtesy you have shown me in patiently listening to my address. You have a varied and interesting programme to go through and I wish the present session of the conference all success.

Proceedings of the Twelfth Conference held at Vellore on May 10th, 1943

The twelfth annual conference of the Indian Geographical Society was held in the Voorhees College, Vellore, on the 10th May 1943, along with the Provincial Educational Conference. Only one day's session was held on the 10th from 2 to 5 p.m.

In the unavoidable absence of the President-elect Mr. Arcot Swaminatha Iyer, Mr. M. S. Sabhesan, President of the South Indian Teachers' Union was formally installed in the Chair.

After prayer, the following condolence resolution on the demise of the late Mr. N. Subrahmanyam, Secretary and Founder of the Society was moved from the chair:—

"This Conference expresses its deep sense of sorrow at the sudden demise of the late Mr. N. Subrahmanyam, Founder and Secretary of the Madras Geographical Association, lately converted into the Indian Geographical Society."

"This conference authorises the Secretary of the Indian Geographical Society to convey to the members of the bereaved family the above resolution."

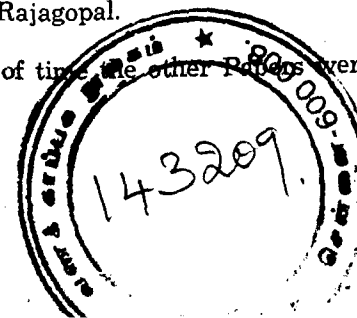
The President in his introductory remarks paid a glorious tribute to the services of the late Mr. Subrahmanyam to the Society in particular and to the cause of Geography in general.

The Presidential Address of Mr. A. Swaminatha Iyer was then read by Mr. T. P. Venkatachari.

Then the following Papers were read and discussed:—

1. "Cheyyar Basin" by Mr. A. Sundaresa Iyer.
2. "Climate of N. A. District" by Mr. K. Ramamurthy.
3. "Communication lines and Nodal Centres in N. A. District" by Mr. M. P. Rajagopal.

For want of time the other Papers were taken as read.



The conference then passed the following general resolutions:—

1. "This Conference places on record the grateful acknowledgement of the Indian Geographical Society for the help and support received from the members and well wishers of the former Madras Geographical Association in the conversion of the Association into an All India Geographical Society, and the Journal of the Madras Geographical Association into the Indian Geographical Journal from Jan. 1942 and Jan. 1941, respectively".

2. This conference welcomes the salutary step taken by the S. S. L. C. Board, Madras, in response to our resolution passed at the tenth Geographical Conference held at Ambasamudram in May 1940, for showing the marks in History and Geography of candidates at the Public Examination separately in the S.S.L.C. books.

After a vote of thanks to the chair and to those who attended, the conference came to a close.

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Place Names in North Arcot District

By

RAO BAHADUR C. M. RAMACHANDRA CHETTIYAR,

Name of the District.—The very name N. Arcot indicates that there is a S. Arcot and that both of them formed once upon a time a single administrative division. The composition of the district is not due to any historical incident or growth nor to any geographical setting but it is only an outcome of a convenient administrative purpose. The district was once upon a time a part of Thondaimandalam which included N. Arcot, S. Arcot, Chingleput and a portion of Chittoor. In the early days it was ruled by Pallavas and then by the Cholas. Later on Vijayanagar and its Governors fortified its famous forts. During the Muhammadan occupation of the Deccan, South India was added to it and this district fell into their hands. After the death of Aurangzeb and during the decline of the Moghul Empire, Deccan came into the hands of a political adventurer who originated the line of the Nizams. He appointed a deputy of his to govern the Southern province known as Karnatic in those times, perhaps in memory of the prior Empire of Karnataka which had its capital at Vijayanagar. This deputy had his head-quarters at the Fort of Arcot. Hence he was known as Nawab of Arcot and the surrounding territory became known as the province or Subba of Arcot. Soon after the decline of the dynasty of the Nawabs, the town of Arcot lost its glory and Vellore which was once prominent during the days of Vijayanagar, became once more the capital of the district. But all the same the district continued to be called Arcot even though its headquarters ceased to be the capital. The word Arcot is commonly derived from the compound word Aru Kadu (அருகாடு) indicating six forests and is even interpreted into a Sanskrit equivalent Shadaranyam meaning six forests. But this interpretation seems to be the result of pure imagination of a few pandits who begin to give Sanskrit origin for every town and temple. But the correct meaning of the word Arcot can be traced to the ancient Sangam literature where the

word is spelt as அர்க்காடு meaning a forest of Ar or Athi plants. This interpretation is the proper interpretation as evidenced from Pura Nanuru.

Features of the District.—If we glance at the map of N. Arcot District we find that the district is intercepted by a huge hilly range known as Javadhi hills at its centre. Towards the east there are 6 taluks Arkonam, Wallajah, Cheyar, Wandiwash, Polur and Tiruvannamalai, which are of low level and which are full of numerous small irrigation tanks. This low tract of country is towards the east of the hilly range of the Javadhis which occupy the major portions of Vellore, Polur and Chengam taluks. This tract forms a watershed from which a number of small streams emerge towards the low land. Towards the west of this watershed we find another level tract which forms the western half of the taluk of Tiruppathur and which really forms a portion of the plain of Salem. Along the northern boundary of the district we find a rich, fertile but a narrow valley not much above the sea level, in which the river Palar runs with its white sandy waterless bed. In such a tract it is quite natural to find the names of places suggesting the nature of the soil which makes the territory.

Names of Physical features: Rivers and Valleys.—The very names of hills and valleys, rivers, lakes and tanks, ups and downs and plains are very interesting and denote what sort of a country we traverse in this historical tract. The entire district is made up of two big valleys, those of the Palar and of the Cheyar. Both these rivers have been mentioned in ancient Tamil literature. The Palar has been sanctified by the glorious pen of the historical poet Sekkilar. He describes it as a river full of white milky sand but yet as one which would yield glorious crop at the work of the cultivator to whose industry crystal water would flow as the sand is excavated. The river Cheyar is described by even older poets as old as those of Sangam age. It is the river which flows in the tract of the hilly chief Nannan who had his fort at Naviramalai (Polur Taluk) as mentioned in Pura Nanuru. As contrasted with the white sand of the milky river Palar, Cheyar had a red bed hence called செவ்வாறு, red river. It is also interpreted as one allied with the God Muruga, Che meaning a child. The river Cheyar becomes a tributary of Palar and joins it a little east of this district.

Rivulets and torrents.—There are innumerable small rivers and torrents which rise from the Javadhi hills and flow on all sides and reach the Palar and Cheyar. There are a few other rivers and torrents coming from the northern range of Chittoor hills which join the former river. Many of these torrents have ordinary names available in the Tamil language but there are a few others which have been heightened with high sounding Sanskrit names. The following examples will testify the statement:—Kattar, Padavettu Aru, Tellar, Malattar, Ponnaiaru, Turinji Ar, Pamban Ar are a few Tamil names while Kavundanya Nadhi, Nagavadi, Mahendravadi Nadhi, Punyatheertha Nadhi and Kamandala Nadhi are Sanskrit names. Certainly on an enquiry we get a few puranic stories being associated with the latter names.

Tanks.—There are a large number of small tanks scattered throughout the length and breadth of the eastern plain. Most of them get water during the winter season and become dry during summer. They are fed by small channels from the mountain torrents. Considerable wet cultivation is done on the strip of lands which adjoin these tanks. At the same time there are a handful of noteworthy tanks which are somewhat big in extent. The most famous among them are Kaveripakkam tank and Mamandur tank. Both of them owe their names to the villages near which they are situated.

Hills.—The names of hills give an interesting study. The older names are of pure Tamil origin. Thenmalai is a very ancient name and it is given to the hilly tract towards the south of the Javadhi hills and just north of Chengam. Research shows that Naviramalai in this range is the hill which was associated with the Sangam chief known as Nannan. The other names of Tamilian origin are Periya Malai, Kambath Malai etc. There are few hills known as Kailasagiri, Elagiri etc. which have the termination of 'giri' and it is quite natural that these names are of a more recent origin. Still more recent are the names which have Muhammadan suffixes. Kailasaghar, Karnatak Ghar, Satghar. They have come into existence during the days of the Nawab's occupation.

Kunam.—One curious nomenclature is current in the eastern tracts. Names with a suffix of 'Kunam' are numerous in this tract. Kunam is a corruption of the word 'Kunram' which means a small hill. Examples are found in the names of Polkunam, Nedun-

gunam, Vengunam, Sengunam and Arkonam. The last name is a corruption of the word Arai Kundram which means a rocky hill. The famous lonely hill of Tiruvannamalai has the ancient name of Annamalai which means high hill.

Valleys.—The tract having ranges of hills is naturally intercepted with a number of valleys and dales. The names of Kanambadi Kanavoy, Padavettu Kanavoy, Chengam Kanavoy, Singarathotta Kanavoy have become famous even in history. It was through Chengam valley that Hyder forced his armies towards Madras during the Mysore wars. Hence we could generalise that even geographical features give an interesting study in place names.

Names of Taluks.—Now coming to the names of taluks into which the district is divided we have another interesting study. Most of the taluks have been named after their head-quarters except that of Cheyar which is named after its principal river and not after its capital town Tiruvathiyur. The name Velur has the distinguished appellation Raya Velur to distinguish it from other Velurs in its having been built under the orders of the Raya of Vijayanagar. Gudiyattam owes its name by its being once a colonised town, the ancient name being Kudi-yetra-nallur. Tirupathur is a corruption of the word Tirupetrur as found from inscriptions in the temple now found in the Fort. The correct name of the word Chengam is Chengam Ma or Chengai Ma as found in inscriptions of the temple. They mean the animal which has a red eye or the elephant which has the red tusk. It could be noted in this connection that the skeleton of the elephant which is now kept in the Madras Museum was brought from the village Chengam some years ago. As already stated the name Tiruvannamalai denotes the high sacred hill. It is one of the 5 Bhutha sthalams of the Saivite world. It is also known as Arunachalam meaning red hill or hill of flame. Polur derived its name from the hill nearby. Wandiwash is the corruption of the word Wanda Vasi. Wallajahpet is the town established by Nawab Wallajah, another name of Muhammad Ali of Arcot. The meaning of Arkonam has already been mentioned before. At the centre of several of these taluks there is a Jagir known as Arni Jagir. Arani means a place which is beautified by a river. (Aru Ani). The river which beautifies this place is known as Kamandala Nadhi and is a tributary to Cheyar. The above explanations give an interesting account of the nomenclature of taluks in this district.

Village names and analysis.—An analysis of the names of villages is a very interesting study. Such a study gives us an incentive into the origin of the village, short history and the nature of its environments. Every name of a village is generally divided into two component parts which we may call for convenience a suffix and a prefix. The suffixes are generally common nouns denoting the nature of the place concerned. The prefixes will generally be proper names either connected with the person who started or founded the village or the name of a particular object with which the place is associated. For e.g. in the name 'Satham-bakkam', the prefix 'Sathan' is the name of a person who was responsible for the foundation of the village and 'pakkam' is the suffix which denotes that it is a village, and in the name 'Santavasal,' the prefix 'Santai' denotes that it is a market place and the suffix 'vasal' denotes that it is an entrance. In this way most of the place names could be easily analysed. The prefixes will always denote the origin of the place and the suffixes the nature of the place.

ANALYSIS OF NAMES IN 4 TALUKS.

ARKONAM TALUK.

<i>Suffix.</i>			<i>Frequency.</i>
Ur	ஊர்	(village)	35
Pakkam	பாக்கம்	do.	21
Puram	புரம்	do.	7
Pattu	பட்டு	do.	5
Kuppam	குப்பம்	do.	4
Padi	பாடி	do.	4
Varam	வரம்	do.	4
Mangalam	மங்கலம்	do.	4
Puthur	புத்தூர்	do.	3
Cheri	சேரி	do.	3
Vadi	வாடி	do.	3
Tharai, Vai	தரை, வாய்	do.	3
Valam	வலம்	do.	1
Thandalam	தண்டலம்	do.	1
Pettai	பேட்டை	do.	1
Gunam	குணம்	(hill)	1
Kal	கல்	(rock)	1

Vanam	வனம்	(forest)	1
Veethi	வீதி	(street)	1
Pulam	புலம்	(field)	1
Thangal	தாங்கல்	(mound)	1
Palli	பள்ளி	(village)	1
Palayam	பாளையம்	do.	1
Mandai	மந்தை	(herd)	1
Kal	கால்	(channel)	1
Kulam	குளம்	(tank)	1

GUDIYATTAM TALUK.

Suffix.			Frequency.
Ur	ஊர்	village	30
Kuppam	குப்பம்	do.	25
Pattu	பட்டு	do.	18
Palli	பள்ளி	do.	16
Puram	புரம்	do.	8
Thangal	தாங்கல்	(mound)	6
Samudram	சமுத்திரம்	ocean	6
Padi	பாடி	village	4
Eri	ஏரி	tank	4
Pettai	பேட்டை	(village)	4
Mangalam	மங்கலம்	do.	4
Kundram	குன்றம்	(hill)	4
Palayam	பாளையம்	(village)	3
Medu	மேடு	(mound)	3
Patti	பட்டி	(village)	3
Pakkam	பாக்கம்	do.	3
Karai	கரை	(bank)	3
Giri	கிரி	(hill)	2
Kudi	குடி	(habitation)	2
Pattadai	பட்டடை	smithery	2
Cheruvu	செருவு	tank	2
Nagaram	நகரம்	city	2
Eswaram	ஈசுவரம்	temple	2
Kal	கல்	rock	2
Kadu	காடு	forest	2
Cheri	சேரி	part of a village	2
Kal	கால்	channel	2

TIRUVANNAMALAI TALUK.

Suffix.			Frequency.
Ur	ஊர்	(village)	70
Pattu	பட்டு		52
Endal	எந்தல்	(high gland)	30
Padi	பாடி	do.	28
Vadi	வாடி	do.	11
Poondi	பூண்டி	do.	10
Kuppam	குப்பம்	do.	9
Pakkam	பாக்கம்	do.	9
Patti	பட்டி	do.	8
Palayam	பாளையம்	do.	7
Gunam	குணம்	(hill)	7
Mangalam	மங்கலம்	do.	7
Eri	ஏரி	(lake)	7
Thangal	தாங்கல்	do.	7
Adi	அடி	(base)	6
Puram	புரம்	do.	5
Malai, Agaram. Kal	மலை	do.	4
Pettai	பேட்டை	do.	4
Poondi	பூண்டி	do.	4
Karai	கரை	(bank)	4
Natham	நாதம்	do.	3
Samudram	சமுத்திரம்	do.	3
Kuttai	குட்டை	do.	3
Odai	ஒடை	do.	3
Kulam	குளம்	do.	3
Poochi	பூச்சி	do.	3
Kudi	குடி	do.	2

1 in each.

Pallam	பள்ளம்	Varam	வரம்
Kanni	கண்ணி	Punjai	புஞ்சை
Revu	ரேவு	Thurai	துறை
Anai	அணை	Ootru	ஒற்று
Ottu	ஒட்டு	Tharai	தரை
Kurukkai	குருக்கல்	Mugam	முகம்
Manthai	மந்தை	Kal	கல்
Madu	மடு	Valam	வலம்

WANDIWASH TALUK.

Suffix.		Frequency.
Ur	உர்	50
Mangalam	மங்கலம்	15
Pattu	பட்டு	11
Pakkam	பாக்கம்	10
Puram	புரம்	10
Padi	பாடி	8
Kunam	குணம்	7
Kuppam	குப்பம்	5
Pundi	புண்டு	5
Eri	ஏரி	4
Vadi	வாடி	4
Anai	அணை	3
Vedu	வெடு	3
Agaram	அகரம்	2

1 in each.

Endal	Pathi
Todu	Senai
Kadu	Palayam
Thangal	Vai
Valam	Pallam
Samudram	Talai
Kottai	Karai
Varam	Aru
Patti	Kudi
Medu	Mandai
Cheri	

Inferences drawn.—From the abovesaid analysis it will be seen that in Arkonam taluk, the names Ur, Pakkam, Puram, Pattu and Kuppam—are very prominent; in Gudiyattam, Ur, Kuppam, Pattu, Palli, Puram, Thangal and Samudrum are very prominent, whereas in Tiruvannamalai taluk, Ur, Pattu, Endal, Padi, Vadi, Poondi, Kuppam, Pakkam, Palayam, Kunam etc., are prominent and in Wandiwash taluk, Ur, Mangalam, Pattu, Pakkam, Puram, Padi, Kunam, Kuppam, Pundi and Eri are prominent. Many of the

names like Ur, Pakkam, Puram, Kuppam, Patti etc., denote the same meaning viz., the village. The peculiar name of Tiruvannamalai Taluk is Endal. It means a high ground or mound. This word has been corrupted into Andal in most of the names. It may be noted that this word is of common occurrence in Tinnevely district. Another word of similar meaning which is also in vogue is Thangal. Another peculiar word is Kunam which is only a corruption of the word Kunram. The occurrence of these names clearly show that there are a number of small ups and downs in the taluks of Tiruvannamalai and Wandiwash. We have to note that those villages which are erected on high ground go by the names of Endal, Thangal and Kunam etc. It is also to be noted that the names denoting water courses and rivers are less. For instance the suffixes like Eri, Kal, Samudram, Ootru, Kuttai etc., are very few when compared with the other districts. But as we go to the eastern plains these names are more in number since there are a good number of water courses.

A few prefixes.—Now coming to the prefixes it could be pointed out that proper names are very few in this district. On the other hand common nouns, like the names of plants, physical features etc., are very common. The following are a few eg. Mambakkam, Nellipattu, Nathampalli, Nochimalai etc. The prefix **Sem** (red) is very common as in eg. Senpakkam, Sempalli, Sengundram, Sengadu, Sennur, Sevur etc. It suggests the nature of the soil of the land, viz., red.

A few examples suggesting origins.—The names which denote trade and commerce are somewhat rare in this district. The following are some of the examples. Paruthipattu. Arumparutti. Santa-vasal, Tengaipattadai, Chekkadi, Pudukadai.

Political incidents are preserved in the names like Kacheri-mangalam, Padavedu (camp). &c.

Agricultural features are preserved in the names of Melpulam, Anialai, Aranitottam. Kannalamandai.

Historical.—Historical incidents are not preserved in many names. But the existence of Mussalman names reminds the rule of the Nawabs which flourished about 1½ centuries ago. For instance Anavaradabad, Mashar, Melpashar in Tiruvannamalai taluk.

Bavaravuthan Pattadai, Lebbaimankuppam and Mordana in Gudiyattam taluk. Anvarthikaupetti in Arkonam taluk Alliyabad, Mansarabad, Abdullapuram, Allapuram, Muhammadpuram and Wallajahpet in other taluks are some of the Mussalman names of this district. Ranipet is the name given by the Nawab of Arcot to the town of that name in memory of the Queen of Desingh Rajah who committed sathi as an instance of heroic act of chastity. Nowlakh is the name of the garden given by the Nawab wherein he planted nine lakhs of fruit trees on the bank of the Palar. The remnants of it still exist. Ambur, Arcot, Wandiwash, Kailasagiri, Vellore, Chengam, Tiruvannamalai have come down as famous names in the history of S. India during Mysore and Karnatic wars but no traces of wars are found in those peaceful places, which once were scenes of furious battles.

Language.—There are very few Telugu names in this district. The only suffixes of Telugu origin are Cheruvu (tank) in Damalcheruvu and revu (ford) in Bandirevu.

Names of pure Tamil origin with a historical back ground are: Ala Pirandan (title of a Pallava chief) Seeyamangalam (Pallava origin) Kuvalai (lotus flower) Anaipiranthan (born as a male) Nallam pillai pettan (one who begot a good child) Virudu Vanginan (one got a title) Erikutti (corroded by lake) Minnal (lightning) Kuranganilmuttan (Kurangu—monkey, Anil—Squirrel, muttam—pig) Pallikonda—(sleeping deity). Poygai (tank) &c.

Religion.—On the religious side also examples are very few. Huge temples which are found in Tanjore Dt. are rare here. The only big temple is that of Tiruvannamalai with its huge cathedral towers. It is one of the 5 famous places having been dedicated to Agni (fire). It was sung by Saiva saints and is the birth place of Arunagirinathar the famous author of Tiruppugazh. The other places which were sanctified by the Saivite Saints are Tiruvalam, Tiruvattiyur, Tirupanangadu, Magaral, Takkolam, Tirumalperu and Kuranganilmuttam. Besides the abovesaid temples the only other important Siva temple is Virinchipuram but it has not been sanctified by songs though it has a Puranam by Ellappa Navalar. Vaishnavite temples are still rarer. The only temple of note is Sholinghur—mentioned by name only in Prabhandam as Katigai. It is situated in the North eastern corner of the District. The other temple of some importance is Pallikondai,

but it has not been sanctified by songs. Hence we find that religion has not played a prominent part in this district.

Individual examples.—The origin of a few individual places are given hereunder as they have some peculiar anecdotes behind them. Besides Ranipet and Wallajah which are connected with Muhammadan culture, the other places are Virinchipuram, Sholinghur &c.

Virinjipuram is named after Virinji a name of Brahma. The temple is a huge one, the deity's name being Marghasahaya, the protector of wayfarers.

Sholinghur is derived from Shola-singa-puram by Vaishnavites and Shola-linga-puram by Saivites. It is called Kadigai or Ghatikachalam in sacred lore. In the hills are found the temples of Yoga Narasimha and Yoga Anjaneya. At the town there is a Siva temple.

Tiruvalam is on the river Ponnai and has an old temple. It is called Tikkalivallam in the inscriptions.

Takkolam being a few very old temples. One of them is on the bank of a rivulet. A spring flows out of the mouth of a stone bull. Hence it is known as Ural in Saiva literature.

Tirumalperu corrupted as Tirumalpur—has an old temple where Tirumal (Vishnu) is said to have done penance towards Siva to get the sacred disc.

Tiruvottur now called as Tiruvettipuram is another sacred place where St. Sambandar is said to have performed the miracle of converting a barren palm tree into a fruitbearing one.

Tellar is an ancient place where a battle has taken place during the Pallavas as mentioned in ancient Tamil literature. The King's name is Tellaru Erinda Nandi Pottaraiyan. (Nandi Kalambakam and Iraiyanar Agaporul).

Madimangalam understood by some as Mahadevamangalam. It was really built by a queen known as Rajanarayana Mahadevi and hence the correct name is Mahadevimangalam.

Pallava memories.—Another noteworthy feature in this district is the existence of a large number of rock cut cave temples. Most of them have been excavated by the Pallavas.

1. *Mahendravadi*.—3 miles from Sholinghur railway station according to the inscription in it, the King Gunapara dug the cave called Mahendravisnugraha in the city of Mahendra on the bank of the tank Mahendra. (p. 153 Vol. IV Ep. Ind.). The origin of the name is clear. It was excavated by Mahendra Varman in the 6th century.
2. *Siamangalam*.—One mile south of Desur, Wandiwash taluk. It is a corruption of Simhamangalam called Simha-Vishnu Chadirvethamangalam after the father of Mahendravarman.
3. *Aramamalai*.—West of Maiyampattu in Gudiyattam taluk. Connected with Nandivarman Pallavamalla of Udayendiram plates. Udayendiram is nearby.
4. *Panchapandava Malai* at Kathivadi. 4 miles south-west of Arcot. The connection with Pandavas is a latter usage.
5. *Kuranganilmuttam* (Cheyar Taluk).—Near the village of Pallavaram. Belongs to the period of Mahendra.
6. *Mamandur*.—Eastern limit of this district and near Conjeevaram. Inscriptions of the times of Mahendra.
7. *Narasapalayam* near Mamandur. Similar style.
8. *Thirakkol* near Desur.—Village occupied by Jains.
9. *Tellar* (Wandiwash Taluk).—5 miles of south of Desur. Rajasimha style.
10. *Tirumalai*.—Contains Jain temple. Jain culture was prominent in this district. Even now Jains are found at Arni etc., villages.

The Todas—The Aborigines of the Nilgiri Hills¹

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Introduction.—The Todas are an exceptionally interesting, aboriginal, pastoral tribe of South India living on the slopes of the Nilgiri Hills, the 'tropical Switzerland'. Their life illustrates very clearly "how man's whole destiny has been shaped by the long, slow relentless influence of the Geographical environment". The Ghonds of the Vindhias, the Bhils of Rajaputana, the Agariyars of the Central Provinces and the Santhols of Chota Nagpur are some of the other hill tribes found scattered on the hills and in the forests of India,—Natures' Museum. Some of these are agricultural, some artisan, but the Todas are strictly and purely pastoral.

Nomenclature.—The word Toda is the anglicised form of Thothar or Thothuwar (தோதர், தோதுவர்) by which name, this community is known. Perhaps thothuwar is an altered form of the word Yathawar (யாதவர்) the well known pastoral community of the Hindu epics, whose hero-chief was Lord Krishna.² The sanskrit word, (दायिष) meaning 'he milks', by dropping the 'ig' sound in the middle, might have become, in Tamil, Thothi, thotar or thothuwar.

Ethnology.—Rev. Sherring in his 'Hindu Tribes and Castes' says, "All persons who have carefully investigated the question are agreed that the Todas are the earliest known inhabitants of these hills. They are certain that these Todas have resided on these

1. Based on a broadcast talk in Tamil given by the writer on 1-2-1943 at the A.I.R., Trichinopoly.

2. Such altered forms of original names are not uncommon, for example, Sinhalese-Ceylonese; Angels-Angles-English; Sindhu-Hindu-Indu; Japan-Nippon.

hills for many ages and that all the other tribes now found there have migrated to these hills subsequently. Indeed, this tribe claims proprietorship of the soil over them by right of prior occupancy; and endeavours to enforce the payment of tribute from the other tribes for permission to dwell in its neighbourhood. Although the Todas may be regarded in one sense as the aborigines of the Nilgiris, yet signs of an earlier race are abundant. Numerous 'Cairns' are scattered about the summit of these hills of which the Todas know nothing. Captain James Ochterlony, a pioneer of coffee plantations on the Nilgiris, who in 1847 made a minute examination of some of them (cairns) says that the pick-axe of the destroying explorer was already there. The Todas permit these cairns to be opened up and destroyed without any interference on their part, which they certainly would not do, were they conscious of any historical connection with them." Dr. Rivers thinks that the Todas might have migrated from Malabar, because there still exists among them, in some parts, polyandry. "Such statistics of physical measurement as are available reveal a certain resemblance between the Todas, the Nayars and the Nambudris of Malabar". Perhaps, the Todas originally lived in the Tamil Districts. They might have gone to and settled on the Nilgiris, either driven away by the new settlers or unwilling to live and mix with them as neighbours. Their language and customs lend support to this view. But the Todas claim Aryan ancestry. During death ceremonies, their priest reads from a palm-leaf book certain verses whose language seems to have some resemblance to Pali—the spoken form of Sanskrit of the Buddhistic period. From their tall fine personality and aquiline noses, quite different and distinct from the Dravidian type of aborigines of India it may be inferred that ethnologically the Todas are probably of Aryan origin.

Abode.—The Nilgiri plateau, the abode of the Todas, is the meeting place of the Western and the Eastern Ghats, with an average altitude of about 6,500 feet above the sea. It consists largely of open grassy downs dotted with wooded sholas or glades, in the vicinity of which are found the Toda settlements "the sites chosen are generally picturesque, usually on an open space of grass almost completely embosomed in it and extending in gentle slopes covered with richest turf, which the grazing of their cattle and the consequent manuring maintains in the finest order". Near these settlements flows the Pykara river, held very sacred by the Todas.

They neither bathe in it nor drink its water; do not even touch it unless they have to ford it. They then walk through, and on reaching its opposite bank bow their heads to it as a mark of respect. The mean temperature of this region ranges roughly between 53.5°F and 59.6°F; the average rainfall from the S.W. Monsoon is between 100" in the 'Nadu Vattam' area and 50" in the Ooty area. Some times in the early mornings, during the cold weather, the valleys and hollows of the hills are covered with hoar-frost.

In an area of about 80 sq. miles between the Pykara and Ootacamund known as 'Todar Nad'—their reservation,—the Todas are now found living their natural primitive life. A few of them have now settled near the Government Botanical gardens in Ooty and near Coonoor; a few of them are found in the tea and coffee plantations. These have taken up, of course partially, to new ways of living, having come into contact with the progressive peoples of those parts and are not, therefore, typical representatives of the Todas.

The Todas, living in the interior, are extremely reserved, conservative and uncommunicative. Visitors have felt it difficult to observe their life at close quarters or to gather detailed and complete information regarding them. But the Todas form 'an exceptionally interesting community' for study from many points of view. Their fine dignified and imposing personality, peaceful nature, courage and physical strength, average common sense and intelligence, simple primitive life, the many resemblances between their practices and those of Hindus around them and down below in the plains, their general unwillingness to take to modern life and knowledge, and their slow but steady decline in population have drawn the attention and sympathy of a number of visitors, since the beginning of the last century. They are typical children of the soil. Their physique, dwellings, character, manners and customs give us the impression that they have allowed themselves through the centuries, to be moulded solely and completely by their physical and natural environments, far from the madding crowd, far from the ever-changing stormy life and thought currents of the outer world.

Mands.—The toda settlements are called 'mads' or 'mands'—மேடுகள் மந்தகள் meaning in Tamil, elevated or central sites. Each settlement has 3 or 4 low-arched huts resembling hay-cocks in

shape, built entirely of split bamboos, rattan and thatch—all found in their immediate neighbourhood. No brick or mortar is used for the simple reason that these are not easily available to them. These huts are admirably contrived to keep out rain and cold. They have no windows or other outlet for light, air or smoke, except for a very small and narrow opening just near the ground, for them to creep into or out, on all fours. The huts are kept very neat and tidy; entry into them with shoes or boots on, is strictly forbidden. One has to wash his feet before he goes into a Toda hut; strangers are seldom allowed into it.

Dairy house.—Of the huts found in a Toda mand the most important is the dairy house, otherwise known as the 'Dairy Temple.' This hut is built by the Todas themselves. The dairy house is held very sacred, the approaches to which are kept very clean and uncontaminated. This is in sole charge of the dairy man, who is also known as the dairy priest or Palol (பாலேசுவரன்). Only at appointed times and along the specified paths the women folk of the mand go to these dairy houses to receive buttermilk, others are never allowed to approach it. The dairy house has two apartments separated by a wooden partition. One of them is used for storing milk, butter and ghee in Chatties (mud vessels) and for keeping dairy apparatus and the other as a residence for the 'pálo' and his assistant—a young lad of 8 or 10. The palol is chosen when quite young, and continues to be in charge of the dairy house for a number of years. During this period the 'palol' leads a strictly celibate life like a recluse, having no intercourse with the outside world, confining himself completely to the dairy house and the work connected with it. His needs and wants are attended to by his mand. His duties are simply to milk the buffaloes and perform the labours of the dairy. The calling of the dairy man is, in the opinion of the Todas, the holiest that a man can perform. The very expressions, the dairy temple' and the dairy priest' suggest that these are held very important and sacred. Living in a fairly cold region, not taking flesh or fish, or using any warm clothing like wool or skin, and having no diet rich in fat that is so essential for keeping up the warmth of the body, the Todas have to depend entirely on milk and its products. They have, therefore, to preserve these very carefully, neatly and under the best of hygienic conditions. Hence, it is, that as Hindus, they have attached a certain amount of sanctity to the dairy house and to the man in charge of it.

Dwelling huts.—The other huts in the mand are used as dwelling houses. They too resemble the dairy house in warmth, neatness and general cleanliness. These houses unlike the dairy houses are built by the Kotas, who form the artisan community of these hills. Inside, there is a raised platform or pial 2 or 3 feet high, the sleeping place of the inmates; opposite to it, is a fire place and another small platform on which utensils, black chattis, bamboo measures, a few brass plates or dishes are kept. One of these huts is set apart for sheltering the young calves at night. Their buffaloes, large-horned, semi-domesticated, bison-like animals, spend the night in a pen close by.

The Todas do not live in villages as we do. They have no regular streets. Like the 'farm houses' in the centre of the dry lands in Tamil Districts, or "illams" (இலம்) of Malabar are their mands situated in the middle of their grazing ground. There are, at present, about 150 mands; and these have been for revenue purposes grouped under 12 villages by the British Government.

Dress and appearance.—The Todas never use wool or skin as they consider it sacrilegious. Both men and women wrap their bodies with a long, thick, white, cotton blanket, sometimes decorated with embroidery worked by Toda women. This blanket is called 'putkuli' (புதுகலி) meaning in Tamil a cloth thrown round the body to cover it. The Todas apply rancid butter to their dress so that it becomes almost water-proof and emits a peculiar 'butter smell' recognisable even after a long time. Some Toda men put on a turban in the fashion of the Badagas. As a sign of respect to elders and superiors they take off the turban and allow their right arm to remain bare. The women, in the Indian fashion, have the hair parted in the middle, and so arrange it, with buttering and twisting, that it hangs in loose curls on either side of the forehead right down to the shoulders. The Toda women use silver ornaments, besides cowries and shells, either as necklaces or waist bands. They are 'tattooed' when they reach puberty, and branded on the anklet and thumb at about the fifth month of pregnancy. At the age of 12—the age when the Toda boy begins to milk the buffaloes—he is branded on the right shoulder under the belief that it would enable him to milk the buffaloes with ease and without fatigue. The principal thing that distinguishes the Toda from the other hill tribes is his hairiness which is attributed by the Todas

to their taking a good deal of milk and butter. It may be however nature's adjustment to help them keep their bodies warm. Men grow flowing beards and ~~men~~ ^{men} never cut the hair, save on funeral occasions. "Tattooing" is not prevalent among men, nor wearing of ornaments. They are some what copper-coloured in complexion, their women being fairer than men and generally very handsome. "Many Todas have a Jewish expression of countenance, but in carriage and dignity they are more like the Romans," says Sherring. The typical Toda is tall, stalwart and well-built, capable of walking long distances without any tiresomeness and also very clever in managing the wild herds of buffaloes. It is said that the very piercing look of a Toda would scare away any wild animal that may, perchance, stray into his domain.

Food.—The Todas are strictly vegetarian in diet; never touch flesh, fish or egg. They scornfully deny the use of aphrodisiacs. Their traditional and main food consists of milk, never heated, butter and ghee; and this is supplemented by Korali—a grain containing much fat, growing only in those parts rice, thinai, samai, honey, country jaggery, fruits and vegetables available in the neighbourhood. The routine Toda dietary consists of rice boiled in water or milk, or rice and jaggery boiled in milk similar to the 'pongal' of the Tamil Districts, and also broth or curry of vegetables. They occasionally take ~~also~~ ^{also} ~~boiled~~ ^{boiled} in milk to give them strength. They are strict teetotallers.

Language.—The Todas speak a kind of Tamil dialect and easily understand the Tamil spoken in South India. The Rev. Dr. Caldwell in the appendix to his work on the Dravidian Languages has shown that the language of the Todas is essentially Dravidian and is more nearly allied to Tamil than to any other dialect. Some of the Todas knew a smattering of Malayalam also. The Todas have had no special alphabets; have no books of their own. Efforts were taken towards the education of the Todas. Miss Ling invented a special alphabet for them consisting of dots and dashes; books were printed, one or two special schools were established. But the Todas did not show any enthusiasm for education and the special schools had to be closed down. Col. Marshall in his amusing volume "A Phrenologist among the Todas" has some interesting remarks to make. Says he, "The Toda talking voice is peculiar, particularly that of women. Whilst on the part of men, it is strik-

ingly grave and sedate, spoken almost 'Sotto Voce', the women's voice, on the contrary, is rather high appearing to come altogether from the region at the back of the ear. In both sexes, but particularly with the female, the sound of the voice is some what musical and refined, though fatiguing to hear owing to its monotonous tone".

Religion.—"In the remote past, more than in the present, man was in the grip of his environment which determined his mode of life, his outlook and even his religion". The Todas continue to observe many of the primitive customs and practices of the Hindus. They believe in the existence of an invisible and supreme spirit and in a future state, though they seem to regard it as one of some what mundane character, in as much as buffaloes and abundance of milk are to be the portion of the faithful.

They also worship natural objects like the Sun, the Moon, the River, as the *Celts* in ancient England did, and as the Hindus, even today, continue to do. On rising in the morning the men salute the Sun and in the evening they salute the lamp as soon as it is lit. They have seven small sacred buildings which are the abode of their principal priests, who are regarded as very holy personages. In addition every mand has its own priest. Ranga-swamy is held in great veneration by all these hill tribes and is worshipped on the Rangaswamy peak, "the only emblems of deity on it being a few rude stones and iron tridents fixed in the ground and surrounded by a low circular wall of loose stones." The Todas worship the sacred Buffalo-Bell, a bell generally of great antiquity, which they imagine to be the representative of Hira Deva (Hari Deva) or Chief God. They leave all their religious duties to be performed by their priests. Says Mr. Mets, "the only signs of adoration, I have ever seen them performed is lifting the right hand to the forehead and covering the nose with the thumb, when entering the sacred dairy and the words 'may all be well' are all that I have ever heard them utter in prayer". Now-a-days, we see the Todas visiting the Temples at Nanjengode in Mysore State, and Karamadai in the Coimbatore District and other shrines, where they present votive offerings, pray for off-spring etc., Religious practices of the neighbours in the plains are also observed by some of them. "Occasionally they mark their children's foreheads with Siva spot, shave their heads, grow beards and offer that

to God". They take active part along with other people in the Pokkipuram Meriamman festival coming off annually. Attempts at conversion have not been very successful.

Occupations.—The Todas are a purely and strictly pastoral people with a very strong aversion for any other calling like hunting or agriculture. There are many reasons for this. The climate, the relief, the nature of the soil have all exercised their influence very strongly on them. Their region is very rich in luxuriant growth of grass affording good grazing ground for their buffaloes, on whose milk and its products, butter and ghee, they even today, largely depend for their very existence. Again, their wants and needs are very limited and these are easily supplied to them by the ever bountiful nature in their immediate neighbourhood, with the result that the Todas have continued to remain a self-sufficing community, through all these centuries, confining themselves solely to pastoral work, secure and uninterfered by other people, in their secluded hilly retreats, in splendid isolation. Pastoral work is rather easy compared to other callings which are laborious and at times very taxing too. It is but human nature to avoid difficult work and enjoy ease as much as possible. This is true of all the pastoral communities, and more so in the case of the Todas. More important than all the above reasons, is the absence of the problem of increasing population. There has been a slow but steady decrease in their population, so much so the Todas have never felt the 'urge'—to expand the areas of grazing and seek new pastures, or take to new means of earning bread, which might bring about a 'sea change' in their outlook and ways of living.

The Todas' dislike for any other kind of work and their attitude that it is beneath their dignity to engage themselves in other callings leave an impression that they are a set of lazy and indolent people. Pastoral communities in other parts of the world engage themselves in one or two subsidiary callings and also in manual labour to provide for their own personal needs. But these Todas engage others for this purpose. The Badagas are their agriculturists, who give them annually at the harvest time a fixed amount of food-grains regularly as a 'mamool', and the Kotas are their artisans. Perhaps, this is because the Todas consider themselves the lords of the soil, and others as their serfs, or because of the deep-rooted Indian tradition of strict divi-

sion of labour, based on economic and social principles, each community rigidly confining itself to the particular, traditionally allotted, calling only. Some how, the Todas have not felt the need for increasing their comforts or luxuries, which, in the case of many a community, has proved a very effective incentive for expansion and progress.

The Todas do not keep cows and goats because the climate and soil of the region are, perhaps, not quite suitable and also, certainly because they yield less milk and milk containing less fat than the buffaloes. They limit the number of buffaloes to the requirements of each mand. Their buffaloes know their masters very well and respond to their call very quickly and faithfully. The bugle or the horn of the pastoral lands of the other parts of the world is seldom heard in the Toda land.

The Todas, though a pastoral people, have not taken to dairy farming or cattle breeding on modern commercial lines like the advanced pastoral communities in the Alpine pastures of Switzerland. The Todas confine their dairy work to their domestic requirements only. No attempts have so far been made towards commercial production and it is problematic whether any attempt if made, would be successful.

Comparison with other pastoral communities.—While some other pastoral communities have succeeded in freeing themselves from the grip of nature and environment by moulding their life to suit the ever changing modern conditions, the Todas have simply submitted themselves to be shaped by the long slow relentless influence of geographical environment. Speaking about the self-sufficing communities, living on the edge of the Scottish moorland, Newbigin, in her 'Men and Conquest of Nature' says, "a hundred years ago the locality supplied the greater part of their necessities and the mode of life was determined by local conditions whereas now modifications have been going on so rapidly that such communities are greatly altered "so as to become unrecognisable" and are no longer self sufficing as they were formerly, because a railway is now close at hand and free communication by means of it with the whole world beyond has been opened up. The local conditions have now less influence".

Similar forces are now at work on the Todas but with what results, remains to be seen. Take again, the Anniviards living in

the Val d' Annivers of the Alpine region in Switzerland. These still live almost unaltered in their native valley. "They do not emigrate and narrow as is their valley, it can accommodate the natural increase of population. What is the cause of this difference? There are many reasons, some geographical, some largely economic; but we may at least notice that the Anniviard group was always more stable because more favoured by nature". This is also true of the Todas.

"As a general rule, pastoral life means nomadism—permanent wandering, for the flocks soon exhaust a particular region". But the Todas, like their Swiss brethren in the Alpine region, have only a limited and periodical nomadism—rotational grazing—so carefully adjusted that the pasturages do not lose their fertility, but can be relied upon to produce abundant crops of herbage with each successive season. "The adjustment is so accurate and complete that the inhabitant demands practically nothing from the outside world. He has no use for money, for all that he needs, he relies upon the recurring abundance of nature".

General character of the Todas.—The Todas have remained, all these centuries, a static, essentially conservative and unprogressive community. Lack of large-scale organised action on the part of the Government of the day, the Hindu fatalism rooted in them, their easy-going pastoral life, freedom and immunity from war and attack in their mountain retreats, their too individualistic and independent nature preventing them from combining together for joint action for social and commercial purposes, are some of the reasons why they have remained almost static. Again "progressive civilisation demands that the people raise a variety of food crops and raw materials and accumulate a surplus on which to live while making new discoveries and taking new steps in advance. It also demands that the people should be able easily to travel about, so as to get ideas and materials from other places and other peoples, to give others what they have accumulated. Energy is essential for progress and strong seasonal contrasts necessary to stimulate activity and infuse energy". There is nothing in the environment of the Toda to stimulate activity and infuse energy. He is strangely indifferent to what his fellow beings below in the plains are doing; with his conservatism is coupled a suspicion towards strangers, extreme sensitiveness, strong religious feeling and an intense love for home and family.

"The general type of Toda character is most unvarying, singularly affable, frank and self possessed, cheerful yet staid, respectful but watchful and shy. The Todas are intelligent within limits. Although they take a contracted view of things, yet they work and act within the circumscribed limits of their mental vision with great steadiness and sane sense". They are a peaceable and unwarlike people. They wander on the hills in perfect fearlessness and in absolute contempt of danger. "Their moral fearlessness of character," says Col. Rors King, "with its accompanying consciousness of power is felt and acknowledged by all the other tribes who voluntarily bow to an influence they can neither cope with nor emulate".

Family life.—The Todas live in family groups each occupying a separate mand. The eldest male member of the family is the head; his word is law with the other members of the family. Their buffaloes are not only their chief wealth, but also a source of health and happiness to them. The Todas do not divide their property, the eldest living son inheriting the property of the dead father. Immediately after marriage, the male member sets up a separate family with his wife, with the help of the marriage gifts, usually consisting of buffaloes, dairy house and dwelling huts and other useful things, given according to the status and position of the parties. The Toda women are loved, honoured and cherished; generally they confine themselves to their mands and domestic work. On special occasions they take part in dances with the male members. The daily life of a Toda woman has been summed up as "lounging, buttering and curling her hair and cooking". That the Toda women are lacking in sexual morality is the opinion of some; "but it is a question whether it is not too much based on the behaviour of the inhabitants of one or two villages. It is probable that the larger part of the Todas remain more uncontaminated than is generally supposed," says Dr. Rivers. There is also a difference of opinion as to the incidence and extent of polyandry and female infanticide among them. The Todas do not seem to have a tribal or village chief or any Council of Elders like the 'Caste Panchayats' of the Tamil Districts.

Customs and manners.—Some of the customs and manners of the Todas are rather peculiar.

Fire is obtained by the Todas in these advanced days for domestic purposes from matches. But within the precincts of the 'dairy temple' and on special occasions like marriage and death, the use of matches is strictly forbidden. On such occasions fire is kindled by rubbing very violently two green sticks, just plucked from particular trees.

Time is determined in the 'Todar Nad' by the opening of flowers, called by the Todas as 'arumani' (அருமணி) which opens at about Sun set.

Marriage takes place usually on New Moon days only. The bride proceeds accompanied by her father and relations to a shola where she sits near a particular tree. The prospective husband goes in search of a particular shrub, from the twig of which he makes a bow, the arrow being represented by a blade of grass. Meanwhile, a triangular niche has been cut in the tree, and a lighted lamp is placed in it. The bride seats herself in front of the lamp. The bow and the arrow are handed over to her by the man. She receives them, raises them to her forehead and salutes them, then she places them at the foot of the tree. From that moment they become husband and wife legally. The man also places on the ground near the tree rice, country jaggery, salt, all tied in a piece of cloth. All those present then leave for their huts, except the newly married couple who stay on there till sun set and then they go to their newly provided huts.

Death among the Todas is announced by Kota from hill-tops with a peculiar sound, on hearing which all the Todas assemble at the cremation ground. Soon after the death of a person, the body is burnt. The ceremonies connected with this are referred to as 'green or fresh funeral'. On the 16th day, or after an interval which may vary greatly in length, a second ceremony known as 'dry funeral' connected with certain relics of the deceased is performed. These funeral ceremonies are open to all and visitors are often invited to attend them. All the personal belongings of the deceased are also burnt along with him under the superstitious belief that they would be of use to him in his life after death, in the other world. During both the ceremonies there would be the usual procession with men in front, Kota band in the middle and the women bringing up the rear. The priests officiate on these

occasions, read from palm-leaf books certain verses, perhaps about the glories of Heaven and life there. All the Todas assemble there after bathing, and remain standing all dripping in their wet clothes, in pin-drop silence till the reading is over. It appears they also perform a 'homam' i.e., offering of ghee and rice to the sacred fire kindled for that purpose. A buffalo is caught on each occasion from among the herd, after a very exciting and dangerous chase, dragged to the 'deathstone' by means of its horns to the strain of Kota drum and music and promptly despatched by a blow on its poll. The dead animal is decorated and worshipped by all assembled. The death ceremonies and the chase and capture of the buffaloes are very exciting and impressive. The youth who is able to capture the buffalo single-handed is generally considered to be a fit bridegroom.

The Toda way of showing respect to their elders is rather amusing. When the elder comes, the younger kneels before him and the former touches the forehead of the latter, first with his left foot and then with his right foot. If however the difference in age between the two is less than three years, the younger touches the feet of the other with both hands and then places them on his own forehead.

The Todas are divided into two classes—'Deivalol' consisting of the priest class held in great reverence, and 'Tartharol' consisting of the common people. It appears that there are many subdivisions among these two classes. Between the two major divisions there are no intermarriages.

Sports and games of the Toda boys and girls are generally those representing the daily life of the Toda buffalo chase and capture, marriage and death ceremonies and mimic representations of objects of practical life. At particular seasons they play tip-cat, similar to Kittipulli (கிட்டிப்புல்லி) of the Tamil Districts—a play, "which", in the words of Thurston, "is epidemic at certain seasons in the London bye-streets" and also in the Indian towns and villages, thus linking the aboriginal Todas with the highly civilised Londoners.

Dancing is very important among the Todas. There are dances during marriage and death ceremonies. Women also take part in these dances on special occasions. The Toda songs are

generally about their daily routine of life, about natural objects like the Sun, the Moon, the Rain, the Fire etc.

Population.—The population of the Todas is rapidly decreasing. In 1901 it was 807; to-day it is about 600. Various reasons are given for this decrease in population. Some are of opinion that it is due to the prevalence among them of polyandry, female infanticide and loose sexual relations. Again, restrictions placed on their grazing grounds, encroachment by the other hill tribes into their region and the fear that increase in population would drive them to give up their easy-going life and independence, might have induced them to practise some natural means of birth-control. There are other communities in India even to-day, which try to check and restrict the number of children with a view to prevent their property getting divided into a number of small uneconomic holdings, leading to a lowering of their standard of life. This is not strange in the light of the fact that people holding advanced views in other countries resort to artificial means of birth-control for similar reasons.

Conclusion.—When we think of the Todas we are reminded of a dying race. Many species of the vegetable and animal Kingdoms have disappeared; many have survived adjusting themselves to new conditions. Whether the Todas will be able to adapt and adjust themselves to changing conditions, taking advantage of the modern amenities of life with a strong urge and will to live, remains to be seen.

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 7. Besides the above, the writer of this article is obliged to the following gentlemen.
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The Coconut—Its Cultivation on the Malabar Coast

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(Adapted from a thesis submitted for the Diploma in Geography).

Origin.—It is said that the Coconut, which is the world's most important food tree fruit and which is considered indispensable by millions of men in the tropics, was an autochthon of the islands in the Indian and Western Pacific Oceans, although some argue in favour of the New World as its original habitat. Its cultivation in India is traced to Malayasian immigration, Ceylonese influence etc. As for the period it was introduced in India, looking to the evidence displayed by "Silappatikaram", "Raghuvamsa" etc., it would not be entirely incorrect to presume that it must have been in cultivation in this country even before the Christian era.

Life History.—Coconut plants are reared from medium sized ripe nuts. Six weeks after germination they strike root and in about a year attain a growth sufficient for transplantation. Thereafter it develops steadily into a tall cylindrical stem, sometimes reaching 80 feet in height. The tree begins to bear by a process of cross fertilization in about 12 years. The fruits take about a year to mature and the trees yield continuously for nearly 50 years.

Geographic Factors.—The geographic factors affecting the cultivation of the coconut are various and important. Like other palms it is essentially a tropical plant and is found particularly luxuriant in the tropical coasts of the Eastern Hemisphere. The share of the tropical lands of the Indian and Pacific Oceans alone is 86.34% of the whole world cultivation, India's share being about 19.1% of the world total. In 1930 India was the premier coconut producing country in the world. It is unfortunate that none of the

standard annual publications on international statistics contains the acreage under coconut in the principal coconut producing lands and guessing from allied data it would seem that by 1936 the Philippines have become the leading country in the world in the production of coconut.

The main climatic factors delimiting coconut cultivation are isothermal and isohyetal. The requirement of constant warmth rules out non-tropical lands. Other things being equal, the moisture requirement of 70" annual rainfall with a fair distribution throughout the year further delimits the coconut area within the tropics themselves. Regions far removed from the sea and devoid of topographical features conducive to adequate supply of water—surface or sub-soil—are ill-adapted for coconut cultivation on a commercial basis. The tropical lowlands subject to heavy participation and high temperature are best adopted to coconut culture. They are generally nearer the coast than far inland.

Suitability of the Malabar Coast.—The Malabar Coast on the South West of India is eminently suitable to coconut culture. Its topographical features, the innumerable short streams and torrents gushing out through tortuous ravines from the spurs of the Western Ghats, the long stretches of lagoons connected by streams and canals, the abundant rainfall fairly regular as to time and quantity, all these render it an almost ideal region for wide cultivation of coconut although the coast is less favourably situated for winter rainfall than the Philippines, Malaya and Ceylon, her rivals in coconut culture.

Important as the climatic factors are, they are not the only ones governing coconut culture. Soil is another conditioning factor and the physical composition of the soil is more important than the chemical. Although marshes are rich and the sea-shore soil poor in chemical food, the coconut palm grows well in the latter and not in the former at all, which is due to the fact that the soil of the sea-shore is open unlike the marsh. The great height of tree and the consequent exposure to powerful winds render a wide and deep development of the root system necessary. Then again, the roots of the coconut tree do not grow into water.

The deep alluvial plains provide the best soil for the coconut palm and hence rich harvests are possible in the banks of backwaters and rivers. The inland region however, is not by itself

unsuitable as the presence of sub-soil water justifies coconut plantations in such regions where the slope is upward from the sea and where there is still higher country behind them from which they derive an unfailing supply of seepage.

As for manure to maintain the fertility of a rich soil or to increase that of a poor one, experiments have shown that ash alone or better still ash and ammonium sulphate together give the best yield although in combination with ash, fish guano also is very fruitful. Ash, fish guano, cowdung, silt and green manure are the fertilizers commonly employed on the Malabar Coast. The process of manuring on the Malabar Coast is different from that of Ceylon where ring-manuring is commonly followed.

In the Malabar coast as a whole, laterite soils support a larger acreage of coconut than any other single soil. Lateritic soil requires greater preparation and more watering than loamy soil. The eastern part of the Malabar Coast is mountainous and the rock is crystalline. This is unsuited to coconut culture. The elevation also is too high for profitable cultivation of coconut.

Economic factors also govern the localization of coconut cultivation as a money-crop. As it is an article of food incapable of production by mechanised methods, the coconut can thrive well only in densely populated areas in the tropics where an adequate supply of cheap manual labour is available and home consumption assured. Other factors conditioning the maximum utilization of the products of the coconut palm are the proximity of the market, cheap means of transport and facilities for retting the husk. Proximity to back-waters, rivers and canals offers the most favourable conditions for retting. The climate, the soil and the physical features of the Malabar coast with its teeming population therefore render the region well-suited to coconut culture.

In 1930 India (coconut acreage.—1,387,773 acres) contributed about 19% of the world's total production of coconut. More than 97% of the Indian production of coconut is in South India and it is noteworthy that the Malabar coast (coconut acreage:—1,047,275 acres) alone accounts for about 71.4% of the Indian acreage under this crop. Taking the Madras Presidency alone (coconut acreage—584,613 acres) Malabar and S. Kanara together claim 68.58% of the acreage and along with Cochin and Travancore they consti-

tute the area of major concentration in India. Thus Kerala, which also means the land of coconuts, is seen to occupy the most dominant place in the coconut world in India.

In the Malabar coast, out of a total area of about 12 million acres the area under cultivation is nearly 5 million acres about half of which accounts for rice cultivation. The total acreage under coconut cultivation (1923-27) is over a million acres and more than half of this (577,419 acres) is in Travancore State, Malabar Dist., being responsible for 353,826 acres. That is to say, Travancore has 55.1% and Malabar 33.8% of the total coconut area on the coast. The following table shows the percentage of coconut and rice to the net cultivated area in different parts of the Malabar coast.

State or Dist.	Net cultivated Area in Acres.	Percentage of Rice to net cultivated area.	Percentage of coconut to net cultivated Area.
Travancore State ..	2,229,269	29.3	26
Cochin State ..	472,026	59.3	14.6
Malabar Dist. ..	1,514,742	58.9	23.4
S. Kanara Dist. ..	761,641	76.4	6.2
Total ..	4,968,759	8.6	21.1

The table discloses that whereas in Travancore the areas under rice and coconut cultivation are practically the same, rice forms the predominant cultivation in the three other administrative Units. Thus Travancore is the foremost in coconut cultivation amongst the areas of the Malabar Coast, claiming as she does more than half of the total extent of the coconut acreage (55.1%). The geographical explanation of this premier position of Travancore is that she has a greater extent of lowlands and a greater length of coast line (168 miles) than any of the other parts of the coast and she has a better distribution of rainfall than the rest of the country.

Density of Coconut Cultivation.—A map of distribution of cocoanut culture will mark out the lowland region as the area of intense cultivation of coconut. The foothill region has, as in Minachil and Pathanamthitta in Travancore, large acreages under the palm but the total extent of coconut cultivation here is much less than on the lowlands, largely because of the poverty of facilities for retting, for cheap transport and because of the distance from centres etc. The highland region, in spite of its heavy rain-

fall as at Malayattur, Peermade and Wynad, does not appear in the map of coconut culture as the topography and the soil are unsuited to this crop. The ratios of coconut culture to cultivated areas are strikingly different in some of the neighbouring taluks. The following table shows the density of coconut cultivation in certain taluks of the Malabar coast selected for purposes of comparison:—

Taluk.	Area (in acres)	Cultivated area (acres)	Percentage of (3) to (2)	Area under coconut (acres)	Percentage of (5) to (2)	Percentage of (5) to (3)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Travancore State.						
Agastiswaram ..	68,429	54,273	79.31	11,117	16.24	20.48
Nedumangad ..	234,254	92,526	39.49	7,695	3.28	8.31
Quilon ..	94,342	53,543	63.11	49,885	52.87	83.77
Kottarakara ..	129,299	96,084	74.31	26,427	20.43	27.50
Mavelikara ..	71,315	66,759	93.61	19,070	26.73	28.56
Thiruvvelia ..	140,896	117,668	83.51	43,150	30.26	36.67
Pathanamthitta ..	574,855	97,885	17.01	20,668	3.59	21.11
Karunagapally ..	56,954	42,282	84.77	23,724	41.65	49.13
Karthikapally ..	47,514	40,135	84.46	16,239	34.21	40.51
Ambalapula ..	94,374	69,299	73.43	23,742	25.15	34.26
Shertala ..	74,970	57,223	76.32	34,941	46.60	61.06
Changanachery ..	168,819	106,983	63.37	23,349	13.83	21.82
Kottayam ..	136,986	100,237	73.17	27,153	19.84	27.11
Vaikom ..	92,218	71,379	77.4	22,832	24.75	31.98
Minachil ..	151,400	142,220	78.40	57,021	31.52	40.22
Thodupula ..	311,680	65,552	21.04	9,986	3.02	15.22
Moovatupula ..	279,999	118,566	42.34	9,823	3.54	8.28
Kunnathnad ..	231,458	72,209	31.19	819	0.35	1.13
Cochin State.						
Cochin—						
Kanayanur ..	101,452	75,284	74.20	25,400	25.03	33.73
Cranganur ..	11,200	9,481	84.38	6,457	57.91	68.63
Malabar Dist.						
Ponnani ..	272,093	225,957	83.04	64,533	23.73	28.58
Calicut ..	242,477	111,231	45.91	40,442	16.67	36.32
Kurumbranad ..	323,456	191,719	59.27	103,348	31.59	53.9
Kottayam ..	308,032	112,747	36.6	39,917	12.95	35.40
S. Kanara Dist.						
Udipi ..	228,480	84,867	37.14	9,037	3.95	10.64
Coondapur ..	397,440	73,934	18.06	6,095	1.53	8.25

A cartogram prepared on the above basis will tell interesting tales. Ambalapula Taluk in Central Travancore is a predominantly agricultural area. Next to rice, the important crop there is the coconut (density 34.26% of the cultivated area). To its north is Shertala Taluk where coconut is the principal crop, the density being over 60%. To the east are Kottayam and Changanachery in each of which rice is the foremost crop and coconut is secondary. To the south-east is Thiruvella where coconut (density 36.67%) is predominant and rice is secondary. South of Haripad is the long stretch of Taluks extending down to Trivandrum along the coast, in each of which coconut is the principal crop, Quilon having the highest density of 83.77%.

The geographical explanation for the disparity in the density of coconut culture in Ambalapula and in the neighbouring Taluks is that both Kuttanad and Onattukara have been reclaimed from shallow lagoons. The lands on the eastern bank of the chain of lagoons are drained by the larger rivers arising from the forested hills of the east than those in Onattukara (Karthikapally—Quilon). The soils of Kuttanad, Kottayam, Vaikom and Changanachery are largely alluvial, the alluvium being the recent deposits of silt rich in organic matter brought by the Minachi, Mannala and the Pampa rivers originating from the forested scarps of the Sahyadri. The forest loam that these rivers carry and deposit on their banks is rather stiff in texture and dark-brown in colour. It is a soil well-suited to the cultivation of rice. On the other hand, Onattukara has no large river still depositing silt heavily laden with organic debris. The deposits are older than in Kuttanad. The soil is pale in colour, clayey and is capable of lifting up sub-soil water by capillary action and it is better suited to plants with deep roots like coconut than to cereals. The greater density of coconut culture in Shertala than in neighbouring Ambalapula is due to the predominance of white sand in its soil. The sandy strip along the Malabar coast is broadest in Shertala. The prevailing winds are generally south-westerly and westerly. They cause large deposits of sand to clothe the surface. Being on the western

side of the Vembanad Lake, Shertala has no river nor stream to mix its sands with clay. The soils nearer the sea are generally more saline than farther inland and hence better suited to coconut than to rice. The poverty of arenaceous soil is compensated by the under-current of water rich in salts in solution. This accounts for the higher density of coconut culture in Shertala than in Ambalapula.

The density of coconut culture in Ambalapula and Vaikom is greater than in the adjacent taluks of Kottayam and Changanachery because of the greater extent of coastal or backwater shore and of the greater facilities for retting that the former taluks enjoy. Further, parts of Kottayam and Changanachery have elevations unfavourable to coconut culture. There are also plantation crops in Changanachery and Kottayam, competing with the other crops unlike in Ambalapula and Vaikom.

Everywhere in the lowland the narrow coastal fringe is more sandy than the tract to the east of the backwaters and canals. Hence the predominance of coconut in Cochin-Kanayanur, Cranganore etc. In the Ponnani taluk coconut dominates the coast while the premier crop in the interior is rice. Forest loam deposited by the Ponnani river renders the interior parts of the Taluk well suited to the cultivation of rice. In Kurumbranad we have another striking instance of high density in coconut culture while its neighbours in the north and south have lower densities. Its high density is due partly to its coastal location and partly to the low hillocks of laterite where among wet crops perennials fare better than cereals.

Even the coastal taluks of S. Kanara have lower densities than some of the taluks of S. Travancore. This is partly because of the smaller area of lowland available and partly because of the longer period of the dry season. Agastiswaram in S. Travancore has a much larger area under coconut than Coondapur in S. Kanara and the density of coconut culture in Agastiswaram is very much higher than in Coondapur. One explanation of this is that in Agastiswaram the distribution of rainfall is much better than in Coondapur.

Coming to the density of coconut culture in the interior parts, Minachil in Travancore, although no part of it is in the lowland zone, has, contrary to the general rule, a high density of coconut culture. This is explained with reference to its topography and its soil. The land is neither flat nor is the soil clayey enough for retaining surface moisture, but there is abundance of sub-soil water within easy reach of the deep-roots. In adjacent Vaikom, Kottayam and Changanachery which are washed by the waters of the Vembanad Lake, coconut culture is less dense than in Minachil because the western parts of these taluks are in the lowland zone where the rich alluvial soil is equally suited to rice culture as to coconut. Thodupula to the north of Minachil has a still lower density of coconut cultivation partly because the major part of the taluk is in the highland zone unfit for coconut culture and partly because the lower parts in the valleys are equally suited to rice as well as to coconut. The attraction for coconut culture may be regarded as even poorer than for rice because of the poverty of facilities for retting. Fullest utilization of the coconut is not therefore easy in Thodupula. To the north-west of Minachil is Moovatupula where the importance of coconut cultivation is only about a fifth of that of Minachil. This disparity is due to the fact that the valleys of Kothamangalam, Kaliyar and Moovatupula are well-fitted for rice cultivation.

Crop Associations.—While coconut is grown everywhere on the Malabar Coast, where topography and soil permit it, there are other crops grown in close association with it. In several places coconut, arecanut and the plantains are grown in the same garden. The coconut has, however, a monopoly on the sandy coastal strip. As a general rule, it may be remarked that increase in distance from the sea-shore and the backwaters progressively diminishes the importance of coconut as a crop. In the alluvial flat on the lowlands, rice, coconut and plantains from the important crops, rice being the leading one, coconut a good second. In foot-hill zones where slightly firmer laterite predominates, the water-table is low and facilities for retting, cheap transport etc., are poor; root-crops,

palmyra, cashew etc., begin to compete successfully with the coconut. Among the root-crops tapioca and the several varieties of yam are the most important. Especially is the cultivation of tapioca well-developed in Travancore in the midland zone, and it is gaining in popularity in the other parts of the coast also. The greater popularity of the foot-hill zone is due to the fact that its climatic and edaphic requirements are less rigorous than those of the coconut. Cashew and palmyra, requiring less attention on the part of man and able to thrive on poor and dry soil, have wide currency in these parts. In the eastern fringe of the root-crop region, fruit-bearing trees like mango tree and jack tree, able to thrive under less rigorous climatic conditions than coconut, are successful alternatives to the latter as cash-crops. Further east, near the forest, pepper, ginger and other condiments are certainly more widely grown than coconut. The highland region, while growing the hill paddy, specializes in the cultivation of such plantation crops as rubber, tea, coffee and cardamom according to elevation. Coconut has no place in the highland zone.

Holdings and Harvest.—The coconut gardens on the Malabar Coast are in small holdings, the average holding being less than two acres in extent. Very often the holdings are also scattered. In Ceylon, on the other hand, the holdings are generally large. More than 50% of the coconut area in Ceylon is in holdings of more than ten acres each. The cost of maintenance of the average garden is estimated by Dr. Patel at about Rs. 25 per acre per year exclusive of interest on capital and land revenue. The latter varies from about Rs. 1-4-0 to Rs. 8 per acre.

Unlike in Ceylon and Malaya, the harvest is usually done in Malabar by climbers. On an average a professional climber manages about 60 trees a day. There are 8 harvests in the year. The intervals are shorter in the dry season and hot weather than in the period of rains. The harvests are more frequent on the West Coast than in other parts of India where the number of harvests varies from two to six a year. The number of nuts, their size and weight of the copra are maximal in the hot weather harvests.

On a conservative estimate an acre of land would yield about 3,000 nuts a year. The full yield of the tree commences only about 5-6 years after it has begun to bear. The yield is higher in Malaya, the Philippines and Ceylon than in Malabár. The average yield per acre is more than 4,000 in those countries. This higher yield is due partly to the better distribution of rainfall in those countries and partly to the economics of large-scale cultivation.

The Indian Census Report of 1931 records 203,293 persons as engaged in and dependent on coconut culture in India. This is certainly too low an estimate to be true. It is not necessary here to go into details. Suffice it to say that the ratio of people engaged in coconut culture to the total agricultural population is lowest in S. Kanara and highest in Travancore on the Malabar Coast.

The statistics quoted in the article are from the following:—

1. Agricultural Statistics of India 1930-31 and 1936-37.
2. The Statistics of Travancore 1112 M.E.
3. Census Report 1931—India—Cochin—Travancore, Madras Presidency.