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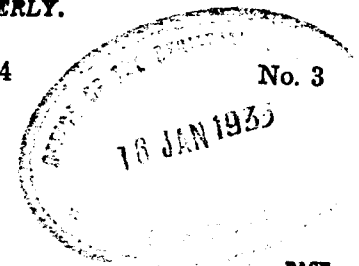
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THE MADRAS GEOGRAPHICAL ASSOCIATION,

Gopalapuram,

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THE MADRAS GEOGRAPHICAL ASSOCIATION, MADRAS.

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The Journal of The Madras Geographical Association

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Hill-Climbing in South India

By

MR. N. SUBRAHMANYAM, M.A., L.T., F.R.G.S.,

A meeting of the Association was held on the 15th Sept. 1934 at the University Geography Department, Wesley College, Royapettah when Mr. N. Subrahmanyam, M.A., L.T., F.R.G.S., Lecturer in Geography, Teachers' College Saidapet delivered a lecture on "Hill-Climbing in South India". Miss J. M. Gerrard, M.A., Principal, Lady Willington Training College and President of the Association, occupied the chair.

In her introductory remarks the President said that excursions afford the best means of knowing the Geography of a country, and Hill-Climbing is the best form of such excursions. She hoped that the lecturer of the evening, who is an enthusiast in Hill-Climbing, would inspire others to take a lively interest in it.

Then Mr. N. Subrahmanyam delivered the following lecture :

Hill-climbing is one of the most fascinating of out-door pastimes. I had opportunities of practising it from my school-days owing to the influence of an uncle of mine with whom week-end excursions was a passion. After I became a teacher and a teacher of Geography I had further opportunities of carrying it on. All these years I have done a large number of hills in South India, not only on the Nilgiris but also all over the plains. Excepting the forest officers whose duty takes them there, I believe few other laymen would have done so much hill-climbing in this part of the world. The wealth of experience thus gained has tempted me to place before you some aspects of hill-climbing that may be of interest not only to prospective

hill-climbers but also to stay-at-home people who have not tasted the joys thereof. I wish hill-climbing becomes a popular hobby at least with our young men. The joy of planning for it, the joy of surmounting difficulties of all kinds, the enjoyment and appreciation of the beauty of physical and human landscape, not to speak of the invaluable help in the study of real geography—these delights are unique and incommunicable, and are better experienced than described.

Instead of tiring you with personal anecdotes and particular events, I propose to address you in a more general way, dividing my subject into three parts as follows: (1) The Joys and Values of Hill-Climbing; (2) Its Dangers and Difficulties; and (3) Some Hints and Tips for Prospective Climbers.

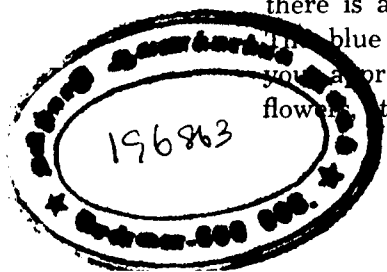
The Joys and Values of Hill-Climbing.—Stay-at-home people, who have not ventured out and have not tasted the pleasures of climbing usually exaggerate the dangers and difficulties of hill-climbing, while they discount very highly the joys and compensations for all the trouble and treat them as almost negligible or not worth while. There is no good of arguing with them; the best thing is to persuade them to join a party to hills of low heights—preferably to shrines which they would like to visit, places like Tirupparankunram, Palni, Narasimha Konda, and Simhachalam. Having got them up, we have only to appeal to their aesthetic sense; and their eyes are opened. On subsequent occasions less and less effort is required in getting them out; and they are prepared to venture out for bigger and more strenuous jobs. Not only have they learnt that it was worth while, but that they could stand it. I have converted several persons in this way; and they have subsequently become inveterate climbers. It is the first step—the first hill, however low, that is the most difficult; for, great is the strength of human inertia, associated as it always is with prejudice. The hot sun and the hard breathing that appeared so stupendous at first do not count after a time; for, you learn instinctively to get out of their evil effects by little subterfuges.

Mountains form one of the finest features of Nature; and there is almost infinite variety in the scenery afforded by them. The blue tints of the distant hills, shades of green verdure as you approach them nearer with the multi-coloured gorgeous flowers, the sound of the falling waters, the rustling of the

leaves and the varied chirping of the birds, the changing view of the hill and valley, ridge and gorge, all these and many other features of natural scenery, too numerous to be catalogued, greet you and feed your aesthetic sense as you trudge along, and cheer you up in your laborious ascent. Even the weird barrenness of some places with their craggy knolls, and bluffs and boulders have their own majestic beauty. Very few of us think of the aesthetic side at all. I think it was Dr. Vaughan Cornish in his Presidential Address to the Royal Geographical Society some years ago that took for his theme "Outlines of Aesthetic Geography", in which he analysed the beauty of various kinds of natural scenery. Hill-climbers will find it very interesting, as it voices forth their own experiences. The mist and the cloud, the foliage and the flowers, the changing hues of the morning and evening sky on the hill forms and the changing aspects of the seasons—all these afford an infinite variety and wealth of beauty that requires the seeing eye to observe and appreciate. All this is part of the compensation for the trouble of going up.

But more of it is awaiting you at the hill-top. The joy of looking at the varied prospect of the surrounding country is something unique. The changing panorama of forests and fields, dry crops and wet crops with waving corn forming geometrical patterns, meandering streams and bunded tanks, human settlements forming nodes at favourable places withavenued roads linking them, the railway line with its embankments and cuttings keeping a fairly level course, or a dissected highland like a stormy sea petrified, sometimes barren and sometimes with rank vegetation in hollows and valley-lines,—all this and several other types of mingled scenery of physical and human landscape present themselves to the view from the hill-top. You look at things in their natural setting and right perspective from the hill-top, which is the natural outlook tower, the proper place of vantage from which an ocular grip of the surrounding country can be easily obtained and its Geography studied with a sense of reality. An air-view of the country is thereby available without going on the aeroplane.

Then there is the joy of surmounting difficulties. When you decide to go up, you have bargained for difficulties of various kinds, both expected and unexpected, as will be shown later on. And the roughing and the discipline got out of surmounting them



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one after another affords an excellent training of character ultimately; but in the first instance the joy of surmounting them is immense indeed. One who has climbed hills readily appreciates the truth of the statement that difficulties are *meant* to be surmounted, and goes about courting them for the sake of the greater joy that is in store than that to be obtained in a quieter way. The joy of achievement is worth all the trouble.

Besides the subjective pleasure and the training of character, there is also the instructional side, the immense educational value of hill-climbing. On the hill-slopes as you ascend, on the hill-top after ascent and from the hill-top the view around—in all these there is a good deal to learn.

On the mathematical side there is the measurement of heights and distances, and of the slope and the gradient. Geologically, the types of rocks and minerals, weathering and erosion, are some of the topics for field study. On the botanical side the types of vegetation changing with altitude, the occurrence of peculiar forms not to be found on the plains, etc., will afford scope for study; while on the zoological side a similar study will be equally interesting. On the human side the utilisation of hill and forest produce, the rocks and minerals of any special value, any peculiar types of hill cultivation and modes of life of the hill people such as those of the Malayalis on the Jawwadi Hills—all these form interesting topics of study. On the plateau of the Elagiri Hills near Jalarpet, we have villages and cultivated lands with crops, orchards and plantations which interested us very much, and the botanist in our excursion party told us that he found on the highest peak rising over the plateau new types of plants which he had not seen before; and he took several specimens with him. The vegetation and crops suited to the temperature and moisture conditions at that elevation afford scope for interesting study. Sometimes the methods of transport of produce, manure or merchandise is peculiar; we found for example pack animals such as donkeys and oxen used for the purpose and it is interesting to note the similarity of method at such distant places as Elagiri and Gandikota. Once as we were walking along on the Erramalai plateau on the Cuddappah formations some miles from Tadpatri, it was interesting to note how in a plateau village the people had to provide themselves with water in their barrel-carts every morning from the foot of the hill two miles off. All these and other similar adjustments to

their particular environmental conditions make interesting and instructive study. If in our excursion to the hill we take with us the one-inch map, we are enabled to get from that mine of information a good deal of valuable guidance which cannot be had otherwise. The location of features and places with the help of the map and the comparison of the contours therein with the actual shapes and features on the hill will afford scope for exercises in map study.

Hill-climbing in India has also its archaeological and historical aspect of study; for, most hills that have any advantage of location, or command a large area of country, or have a defensible or practically impregnable build have been fortified and used as capitals or as outposts for the defence of the land by the kings of former days. I have had the good fortune to climb up and study several of these in distant parts of the country; and the following are some of the more important of them:—Kondapalle, Kondavidu, Gooty, Penukonda, Chandragiri, Vellore, Kailasgarh, Karnatgarh, Kidambur, Gingee, Gandikota, Sankari Droog, Krishnagiri, Nandidroog, etc. Standing on one of these fortresses and surveying the country round, if one attempts to appreciate the importance of the site and recalls in imagination the doings of the kings and armies and the common men when the fort was a live one, one will be able to make the past live; and if a peep at the past is thus given to the pupil, history ceases to be a fossil study that it unfortunately is so often made to be, and becomes extremely absorbing and romantic. It is easily possible to correlate the visit to the hill-fortresses with the study of local history.

There is again another aspect to this study of the hill fortresses. When one visits a number of them, one finds that there is an extraordinary similarity in them in several respects—in their defences, in their secret passages of escape, in their dungeons and prisons, in their method of storing grain and collecting water for various purposes in secret and open reservoirs, etc. From these common features, it is certain that the art of planning and construction of hill fortresses must have been a highly developed one in India. The granary at Gingee, the lotus tank at Chandragiri, the secret reservoir at Krishnagiri, the armoury at Gooty and Kondapalle, the arched hall at Gandikota, the powder magazine at Karnatgarh, etc., are some of the unique features, well worth a visit.

In several of the hill fortresses, it is interesting to find different styles of architecture such as Vijayanagar, Mahratta and Moslem, as they passed successively into the hands of different rulers; and the temples and mosques in some of them have their own peculiarities of architecture.

I think I have spoken enough of the joys and values of hill-climbing in South India. Let me next indicate some of its dangers and difficulties—especially on the plains.

Dangers and Difficulties of Hill-Climbing.—People who have climbed the peaks on the Nilgiris and who have not done the hills in the plains cannot appreciate this section of my talk at its full worth. Every hill-climber in the plains has first to guard against the danger from wild animals. It is always desirable that you go with a guide, who not only knows the right way but also the usual haunts of cheetahs, tigers, wild bears, etc., and their habits. I got the thrill of my life on two occasions when I neglected the precaution of either taking a guide or making an enquiry as to whether the neighbourhood was haunted or not. On the first occasion several years ago, two of us climbed the steep slope of a hill near Kumili Ghat in Vizianagaram at evening time, not knowing then that evening hours are to be avoided near forests and hills as wild animals begin to prowl just about that time in search of their prey. A resounding echo of a growl from the opposite hill showed us our folly; and we rolled down a half-hour's difficult climb in two minutes and ran for three miles in the plains before we had courage to turn back. On the second occasion, I was climbing Bezwada Hill from the western side by way of variety on an afternoon, and when I was half-way up, a large crowd gathered at the foot of the hill and bawled and beckoned to me to come down immediately. It seems for about a week the hill was haunted by a stray tiger.

But when we do the hills by daytime and with proper guides who know the locality, there is little danger of wild animals. We have also to guard against snakes when we are passing through bushy and forested paths. We have to keep our eyes and ears always open to all the sights and sounds, as we pass along.

Thorns of various kinds are a nuisance when you are climbing by unfrequented ways with unshod feet. Sometimes thorny

bushes and creepers tear off your clothes and your skin too, if you are careless. Walking on the gravelly path on stones with sharp angles is sometimes a very painful process. Climbing up Karnatgarh recently, the unshod among us suffered immensely, while people like me who had shoes on suffered in a different way from blisters as a result of the continuous rubbing of the feet by the shoes. Sometimes the pathway is steep and slippery, when also all your skill is required in saving yourselves from slipping, whether you are with or without shoes.

Hill-climbing in the plains has got its own peculiar dangers and difficulties from which you are free on the Nilgiris; and they arise largely from the difference in weather conditions. Climbing Dodabetta or Snowdon on the Nilgiris, you feel it is most exhilarating which is due to the weather; but on the plains you try to climb a hill of similar height, say Gingee, Urachikottai, or Vellore Hill, it is found very enervating; and when you attempt higher hills which are more than 2000 feet from the foot such as Nagari Nose, Karnatgarh, Tiruvannamalai and Elagiri, you run the risk of getting heat stroke, if not sun-stroke, unless you choose your season and time of day aright and take certain other precautions besides. Christmas is the best time for attempting some of the higher hills on the plains of South India; and it may be done conveniently for a month before and after. I quite well remember the difference that a month's interval made in the case of Nagari Nose (2400 feet from the foot). I did it with one party during Christmas, when it was quite enjoyable; but, repeating it with another party just a month after at the end of January, it was comparatively more tiresome and enervating, and the difference in temperature was distinctly felt.

Again, the sun begins to be powerful in South India after about 8 o'clock in summer and after about 10 o'clock in winter; and it is therefore desirable and even necessary to do as much of it as possible in the cool hours of the morning, and not waste time in waiting for *chota* or coffee. Everything should be carefully arranged overnight; and whatever food or drink is needed should be got sufficiently early to enable the party to be at the foot of the hill at dawn when you are just able to see, ready for the climb. I used to be generally careful about the start; but we paid the penalty owing to the failure to observe this precaution recently, when we climbed Karnatgarh (over 2500 feet from the foot) during August last with a party of nearly a hundred and fifty persons. The ordering

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of things was not then in my hands ; and our kind host who made all the arrangements for us in the best manner possible, however, committed one blunder without knowing it and that was to give us food rather late so that we had to start a couple of hours after sunrise with yet an hour's walk to the foot of the hill. The result was we got enervated and exhausted soon enough and could reach the top only by mid-day instead of by 9 or 9-30 a.m., as was intended. Not only did we get terribly tired, our period of stay on the hill-top had to be reduced ; for, we had arranged to come down the same evening. No doubt the cool air at the top revived our energies, and made us fit for the descent.

Lastly, there is the individual factor. The hill-climber should keep himself fit and healthy, and should possess a good heart. People unaccustomed to it easily get out of breath. It is good to remember the truth of the statement that it is the pace that kills ; and it is desirable that beginners and persons on the wrong side of 40 or 45 do it at their own pace, taking frequent rest. The test of suitable pace is that the individual should be able to enjoy the ascent and the scenery, and should not get anxious, uneasy or seedy. If there is one or more in the party who get easily tired and lag behind, the leader should see to it that somebody with grit and stamina is left behind to wait and come with him at his own pace, cheering him up. For, if any tired person is left behind, he gets easily disheartened and demoralised and would find it impossible either to go forward or backward.

More than hunger, it is thirst that troubles a good deal the hill-climber in the plains. On the Nilgiris there is no such thing. And failure to quench the thirst increases the exhaustion ; but, at the same time it is not desirable to gulp down tumblers of water. My advice is that each climber has his own water-bottle with safe water in it, but only sips it very occasionally. Sucking a lime-fruit is again a desirable thing to do. Chocolates and sweets supply ready food ; and juicy fruits are food and drink in one ; and they are all easy to carry too. A person with weak limbs or unaccustomed to long walks or to strenuous work sometimes gets cramps when he climbs up. The only remedy that I know of is to massage the portion in a gentle manner and slacken the pace, and do it with more frequent rest intervals. Hunger, thirst, hard breathing, exhaustion and cramp are the five chief personal difficulties that the individual is likely to suffer from ; and I have indicated above how these can be got over successfully. The need

for a good heart cannot be sufficiently emphasised, especially in the case of convalescent persons and those on the wrong side of forty. But very often people mistake any tightness of the chest due to indigestion, constipation or flatulence for a weak heart. The marvel often happens of hill-climbing relieving such persons and making them fitter by removing the cause.

Some Hints and Tips to Prospective Hill-Climbers. For hill-climbing in the plains cotton dress is the most pleasant and comfortable ; and silk and wool should be avoided as far as possible, unless you are staying on the hill-top over-night. It is desirable to wear glare-protectors to protect the eyes from the glare of the bright sun and white clouds ; otherwise, nervous energy oozes out through the eyes, as it were, and you soon feel very jaded. Protection against the sun is needed for the head also, even if it be in the shape of an upper cloth or a towel ; otherwise, the advancing sun acts directly on the brain, and you render yourself more easily liable to get sunstroke or heatstroke. A tough and hard walking stick is practically a necessity both in climbing up and in climbing down ; thereby both ascent and descent are rendered considerably safer, easier and quicker. Again, a stick comes in handy for several other obvious uses. Concentrated and nourishing food and safe water have already been mentioned under the previous section as things quite indispensable in hill-climbing in the plains.

The one-inch map of the hill and of the surrounding country is an absolute necessity, if there is any desire to make a fairly full and useful study of the region. Even otherwise, it will serve as a fairly accurate and reliable guide and a mine of interesting information. If a field-glass helps better appreciation of the views around, a good camera will help some of the important views to be taken as a permanent possession. A small empty bag will be needed for taking collections of specimens of rocks, plants, etc., while a pocket-book and a pencil will be required not only for taking notes but also for making sketches and drawings.

Hill-climbing requires more careful planning than any other kind of excursion, as risks and dangers as well as difficulties are greater here. Great care should be taken to eliminate weak and unfit persons, not only to avoid risks but also to make the party enjoyable. There must be a general understanding that members of the party do not scatter themselves and lose themselves from each other, but are within earshot of each other. There is no

doubt the temptation of unbridled youth to rush forward and be the first to reach the top; but in the general interests of the whole party it should be kept under curb. It is always a safe rule to regulate the pace of the whole party by that of the weakest in it; for it is the pace that kills. Slow steady pace and rhythmic breathing make the ascent pleasant and enjoyable, putting the party in a mood to study and appreciate and get the best educational values out of the hill-climb.

Very often an excursion, including a hill excursion, is treated merely as an opportunity for outdoor activity and enjoyment; and the full educational values of it are missed when students form the party, by omitting the follow-up work after return to the school. Even for others it is very beneficial to recall and rehearse what has been observed and noted so that it may get fixed in the mind.

In conclusion, I wish to suggest to the members of the Madras Geographical Association, especially to the younger ones among them, the advisability of developing hill-climbing as a new activity of the Association, doing it in a systematic way. If a start is made with hills near enough, it will be possible in course of time to gather a record of achievements near and far. There is no reason why some of them should not train themselves for and plan and carry out Himalayan and other similar expeditions in course of time.

After the lecture was over in her concluding remarks, the President spoke as follows:—

“The lecturer has delivered a most enthralling address on the subject and has tried to explain something of that fascination for hill-climbing which only climbers are aware of. It is an extraordinarily difficult thing to explain. It is an impossible thing for a mountaineer to explain the nature of his enthusiasm to any one to whom the susceptibilities of the atmosphere of the hills have been denied. The fascination of mountain climbing is something that is really inexplicable. There is an extraordinary lure about it.

Of course, enormous effort is involved in hill-climbing. Sometimes it so happens that the hill-climber sustains just that energy to reach the top and then falls down very tired and exhausted. But the rejuvenation at the top is certainly tremendous and immense. Then again there is the joy of overcoming difficulties and that is of

tremendous value in disciplining the individual. On the hill-top you have to meet with dangers from animals and plants and that gives you extraordinary power and resourcefulness that seems to come with you when you come down.

The lecturer also gave us some practical hints about hill-climbing and as he points out, hill-climbing in this part of the world is much more difficult than in any other part of the world. It is always good to practise hill-climbing with shoes on, for then the heels give you a stronger hold on the slippery rocks. We in our parts use a pair of socks for each leg and often times anoint our legs with some grease, to avoid blisters. You feel very thirsty; and it is a bad thing to go on drinking as you go on climbing. I would suggest to you the use of lime fruits. All these little things help us a long way in comfortably climbing the hills. We must venture out with a small group and often it is good to have a company of our own age and experience.” The President then read a poem from an old cutting of “The Hindu” showing the fascination that hills have. She said that some of the hills in the Agency tracts seem to be very attractive from that article. Referring to the desirability of having a hill-climbing club she said that it would be better to get hold of people like the lecturer of the evening who could give the necessary inspiration and visit many of the hills in South India.

With a vote of thanks to the Chairman and the Lecturer proposed by Mr. T. S. Krishnamurthi Ayyar, the meeting came to a close.

The Forests of Southern India

By

MR. A. WIMBUSH,

Chief Conservator of Forests, Madras.

Under the auspices of the Madras Geographical Association Mr. A. Wimbush, Chief Conservator of Forests, delivered an interesting lecture on "Forests in South India" in the University Geography Department, Wesley College, Royapettah, on Tuesday, the 27th November, 1934, with Mr. S. V. Ramamurthi, Director of Agriculture in the Chair.

The Chairman, Mr. S. V. Ramamurthi in requesting Mr. Wimbush to deliver the address said that he was very glad to preside over an occasion when the Chief Conservator of Forests was going to deliver a lecture on "Forests in South India."

Mr. Wimbush then delivered the following lecture :—

When asked to give a lecture on "The Forests of Southern India" to the Madras Geographical Association I had considerable misgivings in view of my comparative ignorance of geography and also my ignorance as to the sort of things connected with forestry that would be of interest to the members of the Association. However, after thinking the matter over and being assured that the members would be interested to hear something about the forests, even though it were not very intimately connected with geography, I consented to do my best.

There are a great many different types of forests in South India probably many more than in the North. Over vast areas in the North there are forests a great portion of which contain one predominant species—Sal. Again in the Himalayas although different types are met with, yet the number of these types is comparatively small. In the Himalayas the predominant species are conifers of several varieties.

Now in the South of India there are many diverse climates, and places at no great distance apart vary tremendously in the matter of rainfall. Again every elevation is met with in South

India from sea level up to over 8000 ft. and in a great many districts there are hill ranges of greater or less extent going up to elevations of—say—3000 to 5000 ft.

Rainfall and elevation perhaps play the greatest part in influencing the type of forests found in different localities. But there are other things, as for instance, the nature of the soil and underlying rock which are also important. I think that before we go any further it will be interesting to name some of the chief types of forests found in Southern India and indicate roughly on the map where they can be found.

In thinking of forests my thoughts automatically turn first to the west; for, roughly speaking, it is on the west of the peninsula that our most important forests in Madras are found. Between the sea and the Western Ghats much of the land is of course under cultivation; but a typical feature is the series of low hills, frequently of a lateritic nature, which are interspersed amongst the paddy fields. These low hills for the most part contain a deciduous type of forest, that is to say, one in which the trees are leafless during an appreciable time in the hot weather. There are, however, places in this tract of the country where a type of forest almost or entirely evergreen occurs. On ascending the Western Ghats from the west the type of forest becomes more and more evergreen and in fact after ascending a few thousand feet we enter what are termed the tropical rain forests. There are many different species of trees in these tropical rain forests and, for the most part, the species are quite different from those found in the deciduous forests already mentioned. The trees grow to enormous heights. The crowns form a completely closed canopy overhead and during the hottest time of the year it is possible to walk about in complete comfort without a hat on. These tropical rain forests stretch from the North of the Presidency in South Kanara right down through Malabar to the Palghat gap and further South than that they are found along the frontier between Travancore and Tinnevely as well as in the Anamalai Hills and various outliers from the Ghats including the High Wavy Mountain in Madura district. On the tops of the hills, as for instance the Nilgiris, we get above the typical tropical rain forests, into another type where the growth, although still evergreen, is very much smaller both in height and thickness. This type is known as shola and those of you who have been to the Nilgiris or Palnis will be familiar with the rolling Downs covered with short grass intermingled

with the well known sholas which occupy so many of the moist depressions on the plateaus.

Some of the most interesting and valuable timber forests in South India lie on hilly ground intermediate between the forests of the plains and the tropical rain forests. Such forests are found in the Wynaad of Malabar and Nilgiri districts and the west of the Anamalais at elevations between about 2000 and 3000 ft. These forests are typically deciduous and the most important tree which they contain is the famous teak. In nature teak does not grow gregariously i.e. as a pure crop. On the contrary it is found scattered amongst numerous other deciduous species only a very limited number of which are of economic value.

Going eastwards from the Western Ghats we rapidly get into areas where the rainfall is very much less than it is on the west and south of the Ghats. In places the change in rainfall occurs at an interval of very few miles, for instance near the Palghat gap which as you know is the gap in the Western Ghats through which the railway from Madras to Calicut and Mangalore passes. The rainfall in Malabar on the west of this gap probably exceeds 100 inches whereas a few miles on the east of the gap the rainfall is less than 30". All this has an immediate influence upon the types of forest which are found. As we get to the east trees are very much smaller both in height and in diameter, and over vast areas stretching from the eastern side of the Western Ghats practically up to the east coast, the forest may be described as mixed deciduous fuel forests. There are vast numbers of different species in these forests, some of economic value and some comparatively worthless and a great many of the species are entirely different from those found on the west of the Ghats and of course are completely different in species and appearance from those found in the tropical rain forests.

Roughly speaking in the centre of Southern India including large parts of Mysore and Coorg we have a large tract of country with very moderate rainfall and at an elevation of about 2000 ft. rising to 3000 or 4000 ft. on many of the hill ranges which are so common in this part of the country. This tract of country is the home of the famous sandalwood. Sandalwood like teak is not gregarious but grows scattered about amongst deciduous species and for some reason or other it is particularly fond of the hedgerows and old village sites in the neighbourhood of cultivation.

On approaching the East Coast for instance in Chingleput district, a type of forest is met with which is semi-evergreen in character. Many of the species are quite different from those met with further to the west and although many of the individual trees are leafless during part of the hot weather yet much of the undergrowth and shrubs retain their leaves with the result that you never get the completely leafless appearance so characteristic of true deciduous forest in the hot weather.

Further to the North on the East Coast are found what are known as Mangrove forests. These forests form a distinct type of their own. Several different species are found in these mangrove forests and the chief factor influencing the constitution of these forests is the tide which submerges portions of the area covered by these forests twice every twenty-four hours. Some of the species in these tidal forests are provided with curious knee joints which enable them to breathe even though their main root system may be submerged by the sea water. On the very north of the East Coast of the Presidency are found the only Sal forests which exist in the Madras Presidency. They form the South-eastern extremity of the vast sal belt which stretches through Bihar and Orissa, Bengal and Assam and along the foot of the Himalayas up into Nepal, where sal probably is at its optimum. In Ganjam the sal is found growing pure in certain favourable pockets whilst in between the patches of pure sal are deciduous forests of other species.

Having mentioned some of the main types of forests in Southern India it is necessary to point out that each one contains various sub-types which it is not necessary to try to describe in detail. For instance, I have given to one type the name of the deciduous fuel forests. It must be understood that within this type are to be found forests ranging from open thorny scrub forest to a forest of much better quality producing a mixture of species which may grow—say—to the size of telegraph poles. Probably each locality in the world is capable of carrying what is termed a climax type of forest, that is to say, if no external influences such as men, fire, etc., were ever allowed to play a part in the development of the forest a certain type of forest would be evolved by nature as being the one best suited to the particular locality. In Southern India there are at present very few forests which have reached the climax type. No doubt the Nilgiri sholas and parts of the virgin tropical rain forests on the Ghats may be said to be climax type

since if all external influences, more especially man, were to be removed from the face of the earth the probability is that these particular types of forest would remain as they are at present. It is possible that some of the tidal mangrove forests may also have attained their climax.

It would perhaps be interesting to give some sort of idea as to why a limited number of species tend to grow gregariously, that is to say, to form pure crops of their own to the exclusion of other species. Various factors no doubt give rise to this gregarious form of growth. If a particular species seeds prolifically, germinates as soon as the seed reaches the ground and having germinated is able to stand a considerable degree of shade over its head then supposing that in these respects that it has the advantage over any other species which would otherwise grow on the area, that particular species tends to form pure crops. This presupposes that the soil, climate and other essential influences are completely favourable to the species in question. Such a species is *Sal* of which the botanical name is *Shorea robusta*.

It must be understood that types of forest which are subjected to external influences, most of which are connected with the existence of man, are not permanent or constant but are subject to material changes; for instance if an evergreen forest is cut down by man the regrowth which will spring up on the area will be of an entirely different type from that which has been cut down and it will contain a large proportion of quick growing deciduous species. Should a forest fire get into such an area after the felling of the evergreen forest the change of type will be even more marked and for many many years afterwards a much degraded type of forest will be found in place of what previously may have been a most excellent evergreen forest. The reverse of this process is also taking place over many of the reserved forests of Southern India. Before the Forest Department came into existence and before the Madras Forest Act was passed in 1882 the forests of Southern India were subjected to very severe mishandling at the hands of man. Not only was felling carried out indiscriminately but forest fires were rampant with the result that many areas capable of producing fine forest crops were only covered by a very much degraded type of forest in which the soil had deteriorated owing to constant exposure. Since the Forest Department took over the management of these areas the forests have been afforded a great degree of protection from excessive felling and from fire

with the result that by degrees the forest is being restored to its normal type. This process of restoration is necessarily a very very slow one. There are cases, however, where it has proceeded far enough to bring about a tendency for a forest which contained a degraded type of deciduous growth 50 years ago, to become evergreen. Instances of the two processes of destruction and restoration are to be seen in many parts of the Presidency. Round Salem for instance as you travel on the railway it is possible to study both processes. To the south of Salem Town may be seen a range of hills which is virtually devoid of any tree growth. This range of hills which I have in mind is not in the charge of the Forest Department. To the north of Salem Town are the Shevaroy Hills and the slopes of these hills which are in the charge of the Forest Department may be seen to be covered with a thick growth of forest. There is one place which I call to mind alongside the bridge path leading up the Shevaroy Hills where the whole process is apparent to the most casual observer. A cut line separates the Government reserve forests from an area which is not reserved. At this point quite a sharp distinction in the growth on either side of the line is most noticeable.

It is now necessary to consider the effects which forests have upon any country and more especially on the tropical countries such as South India. Forests have an appreciable effect upon the climate of the locality and they tend to make the climate more equable: that is to say less hot in summer and less cold in winter. Anyone who has had the opportunity of walking in a forest country during the heat of the day must have noticed that on entering a patch of really heavy forest the temperature is very appreciably lower than that in the country outside the forest. In South India it is only on the higher hills that frost occurs but if any of you have been at Ootacamund or Kodaikanal in the winter time you may possibly have noticed that whereas it has been extremely cold whilst you walked in the open grass land, a marked rise in temperature is noticed as soon as you enter a shola.

It is doubtful whether forests increase the actual amount of rain which falls in any given locality. It is after the rain has fallen that forests play the most important part. You will all realise that if you have a piece of blotting paper in front of you on a sloping desk and have the misfortune to upset your ink pot on the desk the ink will run away from the bare wood and probably soil your clothes whereas it will not flow away rapidly from the

place where the blotting paper is. Now this is almost precisely what happens when rain falls on a hilly area. The forests take the place of the blotting paper. After a heavy shower of rain water will flow very rapidly off the bare portions of a hillside; but where a forest exists the water will be held up and instead of rushing off the surface of the earth it will tend to soak gradually into the earth. The result is that forests play the most important part in the storage of water which as you know is of importance in a country like South India.

By holding up the water in this way forests also prevent erosion. In a hilly country where the forests have been removed not only does rain water rush off very rapidly but it also carries with it great quantities of the surface soil. This soil is carried down the various nullas and often is deposited in the form of silt upon the agricultural lands at the foot of the hill, which of course is very bad for agriculture. In such a country when abnormally heavy rain occurs in addition to the erosion which takes place the danger of floods is greatly increased, for instead of the water being released by degrees and, after soaking into the earth, tending to raise the general level of the water table of the country at the bottom of the hills, the water flows away with the greatest rapidity and if any obstruction such as a railway embankment comes in its way floods are formed and as you know very great damage may be done to the surrounding country.

Forests are of use not only in holding up water as already described but in some places in holding up drifting sand. In some parts of the world this question of shifting sand is of very much greater importance than it is in South India. There is, however, one place, which some of you may have visited or heard of, where shifting sand is a source of considerable damage. I refer to the neighbourhood of Nazareth in Tinnevely district where there is a vast area known as Kudiramoliteri. Here the nature of the soil is loose sand and at certain times of the year when strong winds blow this sand is carried off the Teri and is deposited on the agricultural lands on the other side. For many years the Forest Department has been trying to arrest the drift of this sand. It will be readily understood that if a forest of trees could be grown on this sandy land the effect would be to prevent the sand from being blown off the area. Unfortunately the creation of a crop of trees in this locality, which is almost of the desert type, is extremely difficult especially owing to the fact that herds of semi-wild cattle

roam over the area and delight in eating any young trees which may appear. The way to tackle this problem is to start on the side of the area from which the prevailing wind comes. If a belt of trees can be grown on this windward side it will produce a belt of protection on its leeward side. Beyond this belt of protection other growth can gradually be introduced and in the course of many years the protected belt can be made wider and wider until eventually it may extend right across the desert area.

So far I have confined myself to telling you about what we call natural forests. In addition to these natural forests there are in Southern India many *plantations*, for instance on the Nilgiris are many plantations of the well known *Bluegum*, which is a *Eucalyptus* from Australia, which is planted in order to supply the large quantity of firewood required in the various hill stations. In addition to *Eucalyptus* there is a certain amount of *Wattle* which produces the beautiful yellow mimosa flowers which you may have seen. This species also is confined to the higher hill ranges and like the *Eucalyptus* it is a native of Australia. One species of *wattle* produces excellent bark for tanning and a private gentleman on the Nilgiris has planted up many acres of it in the hopes of selling it to the Madras tanners. By far the most important species, however, that is planted by the Forest Department is *teak*. This is grown in Malabar and on the Anamalais as well as in the Wynaad and elsewhere in suitable localities. The Nilambur *teak* plantations in Malabar are world famous. The first plantation there was made by a Collector called Mr. Connolly in the year 1842. The oldest plantations have now become mature and the final crop is being clear felled each year and a new crop is being planted up on the same ground.

An interesting development of comparatively recent years in the Madras forests is the combination of agriculture and forestry. You may or may not know that in various parts of the country some of the more backward tribes have for generations been in the habit of cutting down and burning the forest on hills and sowing food grains on the area. Their habit is to use the same place only for one or two years and then cut down a fresh bit of forest and repeat the operation. Needless to say this is extremely destructive and is forbidden in our forests as a rule. We have, however, devised a means of utilising this form of rough agriculture to our own ends. In an area on which we wish to raise a *teak* plantation we first fell and remove all sale-

able trees and we then hand over the area to the jungle tribes who cut down the balance of the trees, burn them, and raise a crop of food grains, usually ragi or hill paddy. At the same time as they are preparing the ground for their cereal crop we plant teak stumps usually at an espacement of 6' x 6' and these grow up along with the cereal crop. The hillmen weed their cereal crop and look after our teak trees with the result that after the cereal crop has been harvested we have a teak plantation on the area. This system of combining agriculture and forestry has numerous different names in different parts of the country. The Burmese term is the one most universally known and it is called Taungya. In different parts of Madras it is known as podu, kumri, ponakad, tuckle, etc.

Having told you about the different types of forests in South India I think you will now be interested to hear something about their inhabitants. Our forests contain many things besides trees—some of them extremely nice and some exactly the reverse. I may first mention a few of the unpleasant inhabitants of the forests which forest officers have to look out for. First of all there is the *leech* which lives in its millions in the tropical rain forests. In the dry weather none of these creatures are to be found but as soon as the rain begins out they come and attach themselves to any human being who enters the forests. They suck the blood and make a nasty wound. Naturally forest officers and others have devised means of mitigating this nuisance. One way of keeping off leeches is to tie a band of country tobacco round the top of one's boots. Another enemy of the forest officer is the *grass tick*. These pernicious insects live in the deciduous forests and are most active during the dry weather. They are minute in size and difficult to see but their bite is most poisonous and irritating. The way to deal with them is to smear one's body with an emulsion of kerosene oil and soap after coming back from the jungle before taking one's bath. Another thing which we have to be on the look out for in the tropical rain forests is the *devil's nettle*. This is a shrub growing to about 15' in height which has a most innocent appearance but which if touched will cause irritation which is so bad that it induces fever in the case of some people and is in any case enough to keep one awake at night in considerable pain.

The more attractive inhabitants of our forests are fortunately numerous. To start with there are the various *jungle tribes* such as Kurumbar, Kaders, Mulsers, Khonds, etc. Most of these people are extremely simple and unsophisticated and are the very

good friends of forest officers. Some of them, as for instance the Chenchus in the Nallamalais of Kurnool, have a criminal tendency but for years the Forest Department has been spending large sums of money in civilising these people who are gradually becoming more and more amenable; like man-eating tigers they seldom interfere with forest officers.

Of the animals that live in our forests probably the *elephant* is the best known. Generally speaking these animals live in the better types of forest, for instance in the Wynaad and Anamalais and Malabar. They enter the tropical rain forests in large numbers at certain times of the year whereas most other jungle animals are comparatively rare inside these dark evergreen forests. Elephants are migratory in habit and at certain seasons of the year they roam from the west right through Coorg, Mysore and the Wynaad towards the Biligirirangan Hills and Bargur Hills of North Coimbatore and Kollegal. We catch these elephants in pits and use them for dragging our timber. Other most attractive animals are *Bison*. These enormous cattle stand as high as a big horse. They are very shy creatures and as a rule do no harm to anybody. Generally speaking they inhabit the same type of forest as the elephants do. *Tigers, panthers, boars, wild dogs and other predatory animals* are found in varying numbers throughout many of our forests. Their chief object in life is to keep out of the way of man and, except in rare instances where, for instance, an old or wounded tiger has become a man-eater, they are of very little danger to human beings. Other forest dwellers are various *species of deer* notably the sambhur and spotted deer. Sambhur live mostly on the hill ranges whereas spotted deer frequent the open grassy glades in the bamboo forests at lower altitudes. Deer especially are subjected to terrible persecution from men and in many places, where formerly they used to be common, they are in danger of extinction. This is largely due to the pernicious habit of shooting from motor cars and by the light of electric devices during the night time, a procedure which cannot be too strongly condemned as being thoroughly unsporting.

In conclusion you might be interested to know a few of the *main functions of the Forest Department*. You will I hope have realised from the early part of my lecture the supreme importance of forests to the country as a whole from the point of view of protection and conservation of water supply. The forests are also,

of course, a great source of revenue to the State and one function of the Forest Department is to harvest the legitimate revenue which the forests can produce whilst at the same time preserving and increasing their protective value. In forestry the tree crop and the soil on which it grows represent the capital of the business. Each year the crop grows and puts on what is known as annual increment. This annual increment is the interest which the capital produces. Now the difficulty is that it is impossible for the lay man to differentiate between the capital and the interest since they are so intimately connected together. Unless the greatest care, therefore, is exercised nothing is easier than to cut out more trees than the equivalent of the interest in order to make more money and in the process infringe upon capital. In privately owned forest where the owner of the day is usually in need of ready cash the capital is constantly being infringed upon with the result that in the course of years the forest deteriorates. In the case of the Forest Department who manage the Government reserved forests most careful working plans are made which prescribe the legitimate amount of felling which may be done each year for a number of years in advance. Obviously it is impossible to harvest the increment or interest from each individual tree. So what is done, broadly speaking, is to calculate the volume of timber which is equal to the total annual increment and then to remove this each year in the form of full-grown mature trees.

A great part of a Forest Officer's work of course relates to the protection of the forest from the depredations of man. They are helped in this by the Madras Forests Act of 1882 which gives them the necessary powers. This prevention of cutting trees which forest officers always have to insist upon naturally results in the Forest Department being not very popular with the people. The people cannot understand why if they want a bundle of sticks for their fire they should not be allowed to cut and remove them from the vast areas of forest that exist in the presidency. What a forest officer has to bear in mind, however, is the fact that although very little harm may result from one old woman collecting a bundle of sticks for her fire yet if the 350 million people in India all started collecting bundles of sticks for their fires there would very soon be no sticks left either for them or for their descendants.

Finally I may say that if this talk of mine has created an interest in the forest in the minds of any of my listeners who are

instructors of the young I hope that these instructors will do all that is in their power to interest the young generation in the forests and animals and birds that live in them and that they will endeavour to impress upon them the importance to the country as a whole of the existence of forests and the protection of them and their inhabitants.

THE CHAIRMAN'S CONCLUDING REMARKS

In winding up the proceedings of the evening Mr. S. V. Ramamurthi, the Chairman said :—"I am sure we are all obliged to Mr. Wimbush for the interesting account he has given us of forests in South India. Mr. Wimbush has told us about the influence of forests on rainfall, on climate, on the conservation of water supply. Mr. Wimbush told us that in certain places in the north floods were more frequent because of wet cultivation as his friend thought, while he was himself of opinion that it was due to too much of cutting down of the forests. But I would suggest a third alternative and that is that most of the bunds constructed are not good and they ought to be improved.

I was interested to find in the report of the Joint Select Committee, paragraphs relating to the preserving and stimulating of forestry and irrigation in India. Much could be achieved by research in forestry. All these years our attention in regard to the application of science has first been to agriculture, then to horticulture and I believe we will soon turn our attention to silviculture. By the application of science and due to intense research work, the cinchona cultivation which at one time was impossible in Russia, has been made possible. Vernalisation is one of the most important revolutions in agricultural science. It has been developed during the last 4 or 5 years and this vernalisation has been extensively applied to trees in Russia. Many things are being done in agriculture in the way of budding. In regard to forests we can apply the same improvements of budding also. With regard to forest utilisation, our woods in Madras are largely jungle woods. Our teak forests are comparatively small in area and the reason why our forests have not given large returns to the Indian investor is the unfortunate difference between the teak and other woods. Teak has a power of resistance against white ants and fungi which the jungle woods have not and as such the jungle woods are the "depressed classes" among the forest trees. But with the application of science, it has been

made possible to preserve jungle woods also against white ants and fungi. This improvement in forestry would open a large industry which would be a better panacea for unemployment than selling or hawking in the streets. I am sure that due to the emphasis which the Joint Select Committee has laid on research, in future greater attention would be paid in India to forest development. I hope for a research institution in Southern India like the one at Pusa and I look forward eagerly to such improvements and research in forest cultivation which would materially improve the national income.

Rao Bahadur R. Krishna Rao Bhonsle, then proposed a vote of thanks, and the meeting came to a close.

Geography and Education

[It is hoped that it will be possible in future to arrange for a special section in each issue of the journal dealing with problems of Geography teaching in the schools. Geography teachers are invited to send in accounts which they think would be of interest and value to other teachers, of how they themselves have successfully overcome difficulties in the teaching of the subject. These accounts may relate to any stage in the school course, and to work in elementary as well as in secondary schools; they may deal with such aspects as the presentation of new ideas, methods of learning, the organisation of work, the making of equipment etc. etc.]

NOTE.—Map reading in Fourth Form. The Association will be pleased to help teachers in the ordering of the local survey maps prescribed in the new S. S. L. C. scheme for Fourth Form. Teachers desiring information as to the index number of the one inch map of their locality should apply to the Secretary stating the following particulars *viz.*, name of locality, taluk and district.

GEOGRAPHY UNDER THE DALTON PLAN

By

HELEN T. SCUDDER, M.A.,

The following assignments were given to the Fourth Form and were completed in 9 weeks. Each block of work is planned for three weeks and must be completed at the end of the three weeks. The blocks are divided up into questions, simply as a matter of convenience for keeping track of the pupils' progress.

The time allowed for Geography, including both the school hours and the time for home work, is 2½ hours a week. Of this, one period of 40 minutes is a regular teaching period.

The study of Australia was planned around certain problems which the pupils discussed and then set out, to solve with the assistance and direction of the questions. The following were the major problems which were taken :—

Problem I. What are the reasons why the population of Australia is distributed so unevenly? (In the solution of this

problem a study of relief, rivers, climate and minerals was undertaken).

Problem II. How do the people of Australia earn their living? How do they provide themselves with food and clothes and houses, fuel, luxuries and tools? (In the solution of this problem, the topics, occupations, trade, communications and towns were studied.)

The individual work of the assignments, and the class teaching are very carefully correlated. The class work falls roughly into the following types of lessons:—(1) Introductory lessons, to rouse interest. (2) Lessons consisting of pupils' reports on the extra or optional work provided. (3) Lessons summarising the work of a block. (4) Lessons dealing with any particular questions which many pupils in the class have found difficult. There were 9 teaching periods in connection with these three blocks. The first period was used to introduce the general topic and to rouse the interest of the pupils, mainly through talking about the discovery and early exploration of Australia. By the second period most children had completed the first three questions, and had done the extra reading suggested. So the second class period was taken up with reports on the "wonders of Australia" given by several pupils. In the third class period certain difficulties which had occurred very frequently in the pupils' work (which was of course carefully corrected each week) were dealt with. Such things as the relief of Australia and the fact that the densest population is *not* found in the plains were drilled on. The fourth and fifth lessons were really a summary of the conclusions which the pupils had come to in their work on the assignments, in regard to the main controls of the population of Australia. By this time the first two blocks of work, i.e. the first 27 questions, had been finished. The 6th lesson was again a time for individual reports on extra work. Such topics as the gold rush, the white Australia policy were spoken about. Then in this lesson also, the next block of work was introduced by discussing the list suggested in question 26. The next two lessons were of the type which dealt with pupils' difficulties, and gave drill on important facts—while the last lesson was a definite teaching lesson on Australia's communications and trade with the rest of the world, intended to answer the last question of the assignment.

Each pupil owns an atlas and a copy of Secondary School Geography by Dudley Stamp. They borrow Pickles—India, World

and Empire, from the pupils of another class, who use that as their main text book and who in turn borrow the Fourth Form's copies of Stamp. Archer's Stories of Exploration and Discovery is in the school library and furnished material for some extra reading. The Australian Annual was a source of interesting pictures, and for the most advanced pupils, Herbertson's Descriptive Geography of Australia was used.

BLOCK I. (3 WEEKS.)

AUSTRALIA

We know that Australia was discovered very recently. Last month you found out why this was so. Now we are going to study about the brave men who found Australia and what they found there.

Read Stamp pp. 20-22. Pickles p. 7.

Study the wall map of Australia and the picture, which is in your class room especially the lower left corner.

1. Write the names of the early explorers and discoverers, and the dates of their voyages. Tasman: Dampier: Cook.

2. Draw a map of Australia showing these men's voyages. Put in the names of the places where they landed.

When they arrived they found that Australia was a very different country from their own. Read: Stamp pp. 13, 14 and 19. Pickles pp. 6 and 7.

3. What did they find? Make a list of the trees, animals and birds which were there.

* Will someone read a special book that I shall give you and tell the class about some more "Wonders of Australia"? (Reference—Herbertson.)

The people too were very odd. Read stamp p. 21.

4. Write a brief description of the aborigines of Australia.

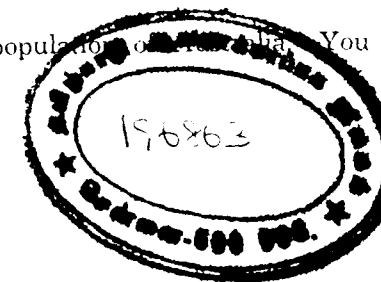
THE SETTLEMENT OF AUSTRALIA

Read Stamp pp. 22 and 25.

Study the map of population.

5. Who were the first settlers? Where did they live? What people live in Australia now?

6. Draw a map showing the population of Australia. You will find this in Stamp Fig. 20.



Under your map write

The thickest population is in the ——— and ———

There is one small patch of country which is thickly populated in the ———.

Now we have another problem to think about. We have seen where the people live. We shall next try to find out why they live in just those places and how they live.

PROBLEM I. To find the reasons why the population of Australia is distributed so unevenly.

Study your atlas p. 11 where you will find a diagram of population and areas.

Read Stamp p. 318, p. 2.

7. How many people live in Australia? How many in India? How many people are there on the average to each sq. ml. in Australia?

Compare the size of India and Australia and their populations.

Study the map of India showing population in Stamp p. 319

8. Where do the greatest number of people live in India?

9. Why do you think they live there?

Let us look at the relief of Australia to see if it will help to explain the distribution of the people.

Read stamp pp. 2-7.

Study the wall map and your Atlas maps of the relief of Australia.

10. Draw a map of Australia to show the mountains and plains. Locate all the mountains etc. named in Stamp and label your map very neatly (I shall ask you in class to describe the relief of Australia).

11. What are the three main physical regions of Australia?

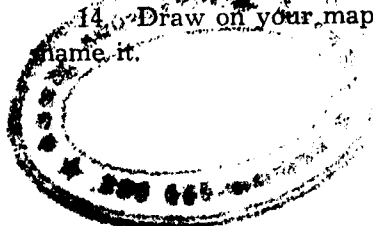
12. Does the relief help you to understand why most of the people live in the east?

RIVERS.

Think again of the population of India.

13. Is there any connection between the distribution of population of India and the rivers?

14. Draw on your map the chief river system of Australia and name it.



Look again at the population map you have drawn and the rivers.

15. Is there any connection between the population of Australia and the rivers?

* The exploration of the mountains and rivers is a very interesting story. Will someone read about it and tell the class about it? I shall give you the books. (Reference—Archer).

We have not yet found a satisfactory explanation of the distribution of the population of Australia. Neither relief nor rivers seem to give us reasons why the people live where they do. (Revise your map so that you know where they do live). Let us look at another set of possible reasons. That is, temperature and rainfall, or the CLIMATE.

Read Stamp pp. 7-10.

16. How does climate affect the distribution of population?

17. What is the hottest part of Australia? Why? How hot is Darwin in summer? in winter?

18. Draw the two maps (Figs. 7 and 8) side by side. Colour the place where the temperature in Jan. is over 80 degrees RED. Colour the place where the temperature in July is over 60 degrees PINK.

19. Now look at your population map. Write a sentence about the population of Australia and the temperature. Think of the people of Australia and try to give a reason for your answer.

* Special reading and report on the "White Australia" policy.

20. Study the rainfall map Figs. 9 and 7 and answer the following questions. What kind of rainfall do you find in the north of Australia? When does it come? Why? What kind of rainfall do you find in South Australia? When does it come? Why? In South-eastern Australia? In North-eastern Australia? In Western Australia? In Central Australia?

21. Look at Figs. 9 and 14 and draw a map showing where there is more than 40" of rain in the year, 20-40", 10-20", less than 10". Look at Fig. 207 and notice what parts of India have over 40" of rain. Colour the SUMMER rains blue and the WINTER rains mauve or brown.

22. Now write a sentence about rainfall and population.

23. There is a small patch of fairly thick population which still cannot be explained. Read Stamp pp. 30 and 31. (The region

near Kalgoorlie is referred to.) Describe the relief, rivers, temperature and rainfall of this region. Why is it thickly populated?

* Describe the "gold-rush" and the life in these settlements. (Ref. Herbertson.)

24. In what other places are minerals found? Make a list of these regions and the minerals and then draw a picture map to show the location.

The reason why climate is so important to us is of course mainly because the things which grow in a country depend so much on climate. So, in thinking about the people of Australia and where and how they live, we must know about the *vegetation*. Remember the rainfall and temperature all the time you are studying the vegetation.

Read Stamp, pp. 12-18. Pickles, pp. 5, 6, 12.

Study the wall map of vegetation.

25. Draw a map of the natural vegetation of Australia using the wall map. Make a large map and use colours for the different kinds of vegetation. Then write on the map very neatly, the *crops* which are grown in the different regions.

26. Make a list of all the things which *you* use which can be found in Australia. Make another list of things which you use which we have not yet found in Australia. Don't include anything on your first list which is not on your two maps drawn for questions 24 and 25.

27. The greatest occupation of all we have not yet mentioned. Read Stamp, pp. 25-31. What is this great occupation? Write down a list of all the things you can think of for which sheep are useful.

BOOK III (3 Weeks).

The next problem (Problem II) which we must study, is how the people of Australia live. That is, we want to find out how they get food, clothes, shelter, fuel, luxuries and tools. There are 3 parts to this problem.

A. What do they produce for themselves and how much of it?

B. What happens to the extra amount that is left over?

C. Do they need anything else and if so, where do they get it from?

Then we must also discover how they send things away and how they get things from elsewhere. Do you see that the answers

to these questions can be arranged under the following headings: *Occupations. Trade. Communications. Towns.*

A. What do they produce for themselves?

Read Stamp, pp. 25-31. Pickles, pp. 11-14. Stamp, pp. 10, 12, 13.

28. Make a list of the 7 main occupations of the people.

29. Write a composition as if you were one of the workers of Australia (that is, imagine that you are a farmer or a shepherd, etc.). The best will be read in class.

30. Draw the maps showing where sheep, wheat, cattle, and dairy cattle are found. (N.B. No maps are to be traced this time.) Under the proper map write the following, filling in the blanks.

(1) Sheep are raised in —, —, —, —. (Names of states). Most of the sheep are found in the — side of the hills in the — because — (Give 4 reasons).

(2) Cattle are raised in —, —, —, —, —, —. Very few are found in —. The cattle live south of the regions where sheep live because —.

(3) Wheat is grown in —, —, —. It is — of the Tropic, because —.

(4) Dairy cattle are raised in the — because —.

31. Draw a map and put on it the fruits of Australia. Find out from Pickles where the different kinds of fruit are found and draw a picture map.

B. & C. Do the people produce more than they need? Do they produce everything that they need? There are very few places in the world where this happens, so we have the extra things sent away and other things which they want bought from other countries. This is trade. Now try to find out about the trade of Australia.

Read Stamp, pp. 41-44.

32. How many sheep are there in Australia? List the *exports* which are sheep products. What proportion are they of the total?

33. List the wheat products which are exported. What proportion of the total are they?

34. List the cattle products: the mineral products: which are exported.

35. Draw the diagram Fig. 34.

36. Where are these things sent? Wool, wheat, sugar. How much is sent to each country?

37. What are the extra things which the people of Australia need? What are the *kinds* of things imported?

38. Copy the diagram and say what you think the people use each thing for.

D. We must now find out how these goods are brought to and taken from Australia. Think of all the means of transportation that you know of and all the types of communication also. Remember that Australia is a great modern country when you are imagining their means of transportation and communication.

GEOGRAPHY SCHEME OF WORK IN FORMS I TO III

The aim of the following scheme of work is to give an adequate idea of the requirements considered essential, without restricting the school or the teacher too rigidly to any standardised method of planning the detailed syllabuses. In planning its Geography teaching syllabuses each school must select the treatment and material which is best suited to its own particular needs and resources, and in particular to the district in which the school is situated. The scheme merely outlines the general principles which must be born in mind.

1. The whole world should be studied in the 3 years. All the continents should be taken in turn and studied regionally. The treatment should be largely descriptive at the beginning and become progressively less so as the course proceeds; it should aim at bringing out the influence of geographical environment upon human activities. Physical, human and political geography should be taken in combination so as to present a synthetic picture of a human society in any area. Under no circumstances should these aspects be considered separately.

2. Emphasis should be laid on developing a broad general knowledge of world topography including the main physical and political features.

3. The following geographical principles should be treated in an elementary way in relation with each in connection with the region of which it is characteristic:—

Formation of fold mountains, block mountains and rift valleys; volcanoes, hot springs and geysers, the Pacific "Girdle

of Fire"; earthquakes; the work of rivers as illustrated on a large scale by characteristic types, *e.g.*, Ganges and Colorado, and as seen by actual observation of the local streams; underground water and ordinary wells and artesian bores; tides and their work, a tidal bore; the snow-line, avalanches, glacier and iceberg; formation of soil. Simple climatic studies—the effect of elevation and latitude upon temperature, why rain falls, how winds bring rain, trade winds and monsoon winds, the effect of the sun's altitude upon temperature, the seasons in temperate lands and tropical lands, the effect of temperature and rainfall upon vegetation and the resemblance between the sequence of zones of vegetation found from the Equator to the Poles and that found on the slopes of mountains, leading up to the study of simple temperature and rainfall distribution over a continent, and of simple regional distribution over a continent.

4. The following geographical concepts should be gradually developed in the mind of the pupil in the course of the regional study and not as separate lessons:—

- (a) A clear picture of the work and environment as found in a characteristic region of the following workers:—hunters and trappers, lumber men, deep-sea fishermen, farmers including the wheat farmer, rice-farmer, millet-farmer, dairy farmer, fruit farmer, sheep farmer.
- (b) A clear picture and life of environment as found in the following regions:—a desert region, an oasis, a tropical forested country, a mountainous region.
- (c) Clear ideas of typical products grown in different climatic regions—what they are like, why they are important, why grown in particular regions.
- (d) Sound elementary ideas of the following:—how coal is used; the use of water-falls to industry; how metals are produced; important uses of iron and wood; the dependence of factories upon communications and population; the purpose of locks in ship canals; characteristic ways of irrigating lands; geographical factors that have helped settlements to develop; how man has reclaimed land from the sea; why and

how men exchange goods; ways in which people and goods are transported.

5. *Map Work.* The pupils should be gradually introduced to the idea of the contour line in the representation of relief, of simple climatic maps (temperature, wind and rainfall) of vegetation and population maps. They should also be given practice in the making of sketch maps from given data. Attention should also be drawn to the value of lines of latitude and longitude as a means of indicating world position and of calculating distances.

6. *Sun and Weather Observations.* The following daily observations should be taken for a season at least and the records plotted in graphic form on a large scale, if necessary—maximum and minimum temperatures and the rain gauge. The altitude of the sun should be taken by means of shadows once a month, and the relationship between sun altitude and the seasons emphasized and dates of overhead sun to be observed.

7. *The Home Region.*

8. *Globe Study.* Exercises based on the slate globe to demonstrate how the spinning earth is the cause of night and how the shadows move, cast by a pin on a rotating globe, and their resemblance to the shadows cast by the shadow pole in the play ground; the effect upon length of day and night when the spinning globe is moved round the source of light; how places are located on the globe with reference to 2 meridians.

9. *Regional Geography.* A suggested treatment would be—Form I.—The three southern continents. Form II.—North America and Asia. Form III.—Europe and the British Isles.

SPECIAL REGION FOR C. GROUP GEOGRAPHY 1935.

Suggestions for the study of North America east of the Prairies.

I. A general study of the region as a whole to bring out its unity and the differences between it and the rest of the continent, including.

(a) Relief—the Appalachian system in the North and South, the differences and the causes of these differences, emphasising especially glaciation.

The coastline in the North and South (as above).

The coastal plain in the North and South (as above).

(b) Climate and causes.

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(c) The history of the settlement of this region and the influence of the historical factor on the present occupations and distribution of population.

II. A detailed study of the following sub-divisions, including in the case of each, the relief, climate and development, but with special emphasis on the points noted below as the outstanding features of the region.

1. The Northern Appalachian Regions.

(a) Newfoundland—fishing and other industries; their development and the reasons for this.

(b) The Maritime Provinces of Canada—agriculture and fruit-farming; forestry; mining.

(c) The New England States—manufacturing and its historical development; types of manufacture and the reasons for the localizations of these industries; cities; the specialized agricultural development.

2. The Southern Appalachian regions i.e., south of the Hudson.

(a) Coastal plains and agriculture.

(b) the Fall line and routes to the interior.

(c) The Piedmont plateau.

(d) Ridges and valleys of the Alleghanies: Coal and manufacturing.

(e) Cities of this region with special emphasis on New York.

3. The St. Lawrence lowlands.

(a) Lake Peninsula, its special climatic condition and fruit farming.

(b) the lower St. Lawrence basin—lumbering and agriculture; cities and their location and development.

4. The Great Lakes—formation: the improvements in the natural waterway (Soo canals, Welland canal) trade on the lakes (wheat, coal, iron).

Lake cities and their growth, and the factors in their development.

5. The South-eastern Plantation Region: Cotton and other crops.

6. Florida—its specialized development.

The Ramayana

AS A GUIDE TO THE GEOGRAPHY OF INDIA

By

DIWAN BAHADUR K. S. RAMASWAMI SASTRI.

Some scholars regard the Ramayana as typifying the Aryan conquest of South India. The Aryans themselves are regarded as immigrants into India from abroad. Some savants say that the Pandyas were so-called as they claimed descent from the Pandavas. Some speak about a deluge that washed away a portion at the southern extremity of India. These and other unproved theories are puzzling to a degree. It is worth while to examine them afresh and to see what light is thrown by the Ramayana on the geography of India.

The Vedas do not refer to the Aryans as having come into India from anywhere else. They refer to the Himalayas as the northernmost range of mountains (*Uttaram Girim*). The theory that Sita is the furrow of the plough and that her abduction signifies the extension of Aryan agriculture into South India is sheer fancy. Her going back to Ayodhya must then mean the disappearance of agriculture from South India. Further, the Ramayana describes the Rakshasas as reciters of the Veda, and Ravana is described as a Brahman (Brahma-Rakshas). It is impossible to regard him as a non-aryan or to say that Rama's conquest over Ravana typifies the penetration of Aryan culture into South India. The Ramayana refers to the Chera and Chola and Pandya kingdoms, and hence the Pandya Kings could not have been the descendants of the Pandavas.

Ayodhya was the famous capital of the Kingdom of Kosala. It was known as Saketa. It was on the banks of the Sarayu river. It was situated between the Ganga and the Yamuna. We learn in the Ramayana about the Kingdom of Anga which was ruled by Lomapāda who adopted Dasaratha's daughter Santhā, the kingdom of Kekaya in Northern Punjab of which the capital was Girivraja and which was ruled over by Kaikeyi's father Asvapathi, the kingdom of Mithila which was governed by Sita's father Janaka, the kingdom of Kasi, the kingdom of Magadha, the kingdom of

Sauvira, the kingdom of Saurashtra, the kingdom of Sindu, the kingdom of Vanga (Bengal), etc. We find detailed descriptions of Kishkindha and Lanka. We find references also to the Kekaya kingdom, which was ruled by Kārtaviryarjuna. The Ramayana says that Satrughna killed Lavanasura and established the town of Mathura (*Muttra*) on the banks of the Jumna.

In the description of Rama's journey from Ayodhya to Lanka we find a clear description of the geography of Middle India and of South India. Rama lived for a while on the Chitra Kuta Hill and for ten years in the Dandaka forest. Janasthana was ruled by Ravana's vassals as an outpost.

Sugriva's description to the Vānaras in regard to the search to be made by the search parties gives us valuable details about Indian geography. We hear in it about the Kaveri and the Tāmraparni rivers. In short the Ramayana shows and gives us a clear knowledge of the geography of India.

Extracts from Periodicals

SCHOOL EXAMINATIONS SURVEYED—GEOGRAPHY

By

MR. C. E. THURSTON.

As an examination subject, the position of Geography is rather unique. Of the eight examining bodies conducting examinations at the School Certificate stage, four place Geography in both of Groups I and III, three others place it in Group I only, and the remaining body regard it as Group III subject. This is a reflex of the difficulty that Geography has had till quite recent times in securing recognition as an important subject in the Secondary school course. Most of those concerned with the conduct, inspection, and examination of schools, having themselves been trained in either the arts or the science side of the University, seem to have regarded as an interloper, a subject which has obvious links with both and yet which could not clearly be identified with either. So Geography has had few friends at Court. It is, however, this double-sided character of the subject which gives it its great, if not unique, educative value in the school curriculum, and is slowly but surely gaining for it the position that it deserves. After long centuries of neglect, the "Mother of the Sciences" is coming once more into her own. The many branches of knowledge, scientific and human into which the single world study of the Greeks has since become divided are once again being brought together by Geography to give a unified outlook upon the world and its peoples.

Its popularity as a school subject is shown by the fact that, although it is still poorly provided for in the matter of University scholarships, about three-quarters of all the candidates taking the school certificate examination offer Geography as one of their optional subjects. This too, in spite of the fact that according to the Report of the Investigators, there is "a tendency to look for more detailed knowledge in Geography than can reasonably be expected of candidates of 16 who are being examined on a wide syllabus," and also "a more exacting standard of distinction is required in Geography in most of the examinations."

The more important aims that a modern teacher of Geography has in view may be summarised as follows:—

- (a) To train pupils to observe and record accurately in their home region the factors of physical and climatic environment and their influence upon human activities thus teaching them to avoid hasty and prejudiced generalizations based on insufficient data, and enabling them to understand other regions at home and abroad, studied with the help of books, maps, pictures, and statistics.
- (b) To encourage a sympathetic understanding of the lives of people in other regions as influenced by their differing environments.
- (c) To build up a knowledge of the inter-dependence of peoples in all parts of the world.
- (d) To show how Geographical factors have influenced human development in the past, and in what ways they may be expected to continue to influence it.

It will be fairly obvious that, however successful teaching along these lines may be, much of the resulting product will not come within the possibility of ordinary mass examination. That is scarcely the fault of this subject, and Geography is certainly none the worse for that. At the school certificate stage, most of the examination material of the usual type will have to be based upon work done by the candidates in pursuing the first aim set forth in the preceding paragraph. Probably, success or failure in the wider or more definitely cultural aims cannot be judged at all by examination as generally understood; and it is therefore desirable that the examination in Geography should not make such demands as to involve sacrificing them in order to concentrate entirely upon teaching which may produce visible results. Geography seems to present a very definite case for the attitude taken up by Sir Philip Hartog in the introductory article of this series, when he says: "I would strictly limit the field of school examinations in such a way that a considerable part of school time is entirely free from their influence, and I would trust the teachers to use that time in the best way possible."

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Now as to the examinable portion of our school Geography Course; what might a candidate reasonably be expected to know and to do after a five years' course at a Secondary School?

There is a fairly general agreement that one question out of the six or seven usually asked to be done, should be based upon an ordnance map. Some examining bodies make this question compulsory but having regard to the difficulties presented to some candidates in actually deciphering the rather indistinct symbols, words, and figures upon some sheets of these maps, it is doubtful whether such a course is fully justified. In any case, it is of first importance that examiners should select sheets where the test will not be unduly trying to the eyesight, and the questions upon it should be upon points which would interest any intelligent user of the sheet; such as distances, routes, gradients, scenery, and view-points. Section drawing may be a useful teaching device, but is not suited to a school certificate examination in Geography.

Many teachers would like to see among the questions one dealing with the local region, upon the study of which the best real Geography teaching is based. The difficulty of setting such a question in a public examination for candidates from a wide area is almost insuperable. A question dealing with a whole country is not really a question in local Geography for any school in it; for anything like a complete study of such an area would take all the time allocated to Geography throughout the course; while the answer to a really "local" question could only be accurately assessed by an examiner who knows each locality very well. This is a point for those who consider that it would be more fitting for school certificates to be awarded by the school authorities and not by an external examining body.

All Geography teachers are agreed that it is important that the whole world should be studied at least in outline. Otherwise, indeed, Geography would belie its name. It is probably in this section of the work that examination papers come in for most criticism. Owing to limitations of time and the special interests of different teachers, it is natural that in different schools various foreign countries come in for unequal treatment. If a candidate finds in the paper a question bearing on some country of which he has learned little, he and his teacher sometimes are apt to consider the question hard, while in another school the same question may be expressively hailed by the boy, if not by

his teacher, as "Jammy," because the subject matter of it has recently been discussed in class work. It is obviously impossible for the examiner to set questions dealing with all parts of the world, not only because of the inordinate length of the paper that this would entail, but because it would defeat its own end in tempting some teachers working under pressure to confine their teaching to very few regions, knowing that their candidates might then be relied upon to make a good showing on these in the examination. But until there is a much more general agreement among teachers as to the connotation of the phrase "the rest of the world in outline," it would be equally unfair to set only a few questions in this section of the paper and make them compulsory for all candidates. An examiner is therefore bound to cast his nets wide enough to give all candidates a reasonable chance, but not so wide as to enable a pass in Geography to be secured with a very limited knowledge of the world in general. Questions in this section should deal preferably with whole continents, and in any case not with a smaller unit than a whole country or region of comparable size.

If the examination is to be well balanced some of these questions should continue to be of the "essay" type, such as call upon the candidate to marshal his facts and conclusions in clear logical language. The notorious difficulty of marking such answers should not be allowed to exclude this type of question from the examination, especially as this subject gives many opportunities for the questions of the short answer type. In the very interesting new style of examination paper devised by the largest examining body in the country, the essay type of question is reduced to a minimum. Candidates are not only given the "heads" under which to arrange their answers, but they are allotted for each paragraph a space which cannot be exceeded.

Although this will undoubtedly curtail the masses of irrelevant matter, which are the bane of the marker, it would seem likely to cramp the style of a good candidate and to make it difficult to test the power of selection and correlation of data which are among the best results of good geographical teaching. For example, candidates were given just ten lines in which to "Discuss the characteristic industrial activities of New England." One wonders what sort of discussion could be squeezed into so small a space.

The present writer is of opinion that in the "rest of the world" section, besides one or two essay type questions there should always be a compulsory question in which the candidates should be expected to indicate on an outline map of the world a large number of facts that could definitely be marked right or wrong (e.g.,) the position of certain oceans and seas, well known capes and bays, mountain ranges, rivers, lakes and islands, countries and cities of world interest or importance, important routes by land, sea, and air, latitudes and longitudes that should be well known, the main sources of supply of products of world importance, well defined climatic and vegetation regions, important ocean-currents, etc. It is obvious that such a question could be prepared for, but the preparation would be all to the good in correcting the "Wooliness" that sometimes results from too much descriptive work. And if, as might occasionally happen, a good candidate should secure full marks on such a question, so much the better. No one complains of this happening in mathematics.

The British Isles naturally receive the most detailed treatment in most school geography courses in this country, and at least one question from the section of the paper dealing with the home country is, and should be, compulsory in all examinations. As a rule, little complaint is heard of these questions. Occasionally, there is reason to believe that the examiner has not visualised the length of time that would be required to give an adequate answer to his question. When illustrative sketch maps are asked for, it often means that if the maps are to be at all well done more time than that allowed will inevitably be required even by candidates to whom such work comes easy. Ability to draw sketch maps is also not always an index of geographical ability. In existing circumstances many examination sketch maps are examples of gaudy irrelevancy, rather than of the simple neatness and accuracy that should characterise this work if it is to be of any value. The practice of providing outlines for some of the sketch maps required from the candidates, as is done in the new style paper referred to above, seems to be commendable.

As extensive travel, which is, of course, the best method of studying Geography, is at present impossible in School Geography Courses, great use is made of various pictorial aids in the teaching of the subject. It is therefore becoming increasingly

common in examinations to test the candidates' ability to gather accurate impressions from pictures. This seems to be excellent, provided the pictures are all well chosen and clearly reproduced. In a recent examination, candidates were asked, among other things to deduce the nature of the surface rock of the district shown in a photograph and also the season of the year in which the photograph was taken. As a large body of teachers and examiners, after study of the picture, were far from unanimous on these points, it would scarcely be surprising if numbers of quite satisfactory candidates were unlucky in their guesses.

Much good geographical teaching is based upon the study of various statistics, especially such as relate to climate, population, production, and commerce. Questions to test this work are fairly easy to set, and the answers relatively easy to assess. It is usual to give a set of figures, and to ask the candidate to make suitable deductions, but sometimes the candidate is expected to know the figures as well. In the latter case, only very widely known statistics should be asked for, or otherwise a good candidate might be debarred from showing that he is quite able to draw accurate conclusions from given data. The drawing of graphs or maps from statistics, although useful as a teaching exercise, is scarcely suitable for a question in a general examination.

(From the "Journal of Education.")

CITIZENSHIP THROUGH GEOGRAPHY

By

MR. W. O. LESTER SMITH,

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WHAT BRITAIN IS DOING

In one of his "Fallodon Papers," the late Lord Grey discusses Representative Government and observes that of all forms of polity, our own is the best from the individual's standpoint because it cherishes the "asset of personal liberty" more than any other. He then proceeds to consider how our own democracy, as the best of its type, can be "strengthened and improved," and he concludes that its essential need is education of a kind that will create a sound public opinion. Here I propose to indicate in what way geographical teaching to-day is helping to prepare the mind of the younger

generation for the kind of world in which it will live and vote; and as space is limited, I will confine myself to what it is doing to shape public opinion about foreign affairs. What, for example, is it doing about the League of Nations? About two years ago, the Board of Education prepared a report upon "The Instruction of the Young in the Aims and Achievements of the League of Nations."

"The approach," the Preface states, "to the teaching of a subject like that of the aims and achievements of the League is necessarily cautious. Direct or dogmatic methods might arouse the opposition of the parent, and in some cases the resistance of the pupil who, in this country, is reserved about giving any outward expression to his convictions."

The Report itself reveals that, with characteristic diversity of method, there is a large volume of education upon the aims and achievements of the League of Nations in the schools and everyone familiar with English education will agree that both in and out of school hours, on corporate occasions and by individual study, the schools in making known the work of the League are doing a great work for international goodwill. Undoubtedly, the most effective work is that done naturally in the class-rooms, for when "League Instruction," as it has been termed, falls within the curriculum as part of the normal syllabus, children appreciate in a way not otherwise possible that the League of Nations is not some abnormal excrescence, but an integral part of our system of government. I do not intend to suggest that it is not a suitable subject for the school on corporate occasions, but rather to stress the view that it is no less for that reason the concern of the normal curriculum. The abnormalities of school life tend to produce reactions, and, like Christmas pudding and simnel cakes, can be indigestible. The progress of the study of world citizenship depends largely upon how far teachers succeed in finding it a place in their syllabuses and upon what that place is. Since opinion appears to be strongly against its inclusion as a separate subject, the question resolves itself into its incorporation into existing subjects of the curriculum, or, more correctly, the assumption by one or more of those subjects of an international bias.

POLITICAL AND CULTURAL SIDE OF GEOGRAPHY

The growing tendency of the geographer at the present time to introduce this bias is one of the most hopeful signs that has yet

appeared of a satisfactory method of forming an internationally minded citizenship. The tendency is natural and unforced. The teaching is not extra to the curriculum; nor does it rely for its creation of international outlook upon pamphlets, occasional talks in the assembly hall, or an exceptional share of the school notice board. It is a movement of the class-room and is an unrestrained evolution of geographical method. In a paper written last year by Mr. Donald Gray on the teaching of geography, he puts the position as follows:

Hitherto geography has tended to stop after physical and economic questions have been dealt with. Only very recently has the political and cultural side begun to receive adequate treatment under such teachers as Professor Fleure of Manchester. The interdependence of nations in trade is obvious, but respect for our neighbours will be assured by recounting their contributions to civilisation as well as to trade of the world.

The movement is strong in many elementary and secondary schools, and, where it flourishes, the geography room is not only a hive of intellectual activity but also a miniature Chatham House in which information about world affairs, pictorial, statistical and literary, is carefully docketed and readily obtainable.

Outside the class-room, the most valuable ally of the geography teacher is undoubtedly travel. As John Locke advocated the grand tour for the young ruling classes of his aristocratic age, so should we urge forward the well-prepared school journey and the interchange of teachers as essential parts of the educational system from which our young citizens derive their philosophy. At present, travel and interchanges are incidental, a sort of extra arranged only "by special requests," but it seems likely that they will become in time, a regular feature of everyone's education and of every teacher's training. It is encouraging to note that, in 1931, over 60,000 British children travelled under the auspices of the Scotland Journey Association, of whom 10,000 appear to have visited Europe or gone even further afield.

INTERNATIONAL RELATIONS AND THE SCHOOL CURRICULUM

A word may usefully be said as to the danger of introducing international relations as a separate subject in the schools. Enthu-

siasm may encourage some in that direction, but not if they reason it out. In the first place, let them remember that in the hands of any but a profound student of foreign affairs—a Wickham Steed or A. E. Zimmerin—it can become a most arid theme, a medley of petty detail about constitutions, assemblies and treaties. In like manner, it can relapse into the other extreme, an abstract study lacking that reality which children demand. On the other hand, there can be no question that, in efficient geography class-rooms, pupils are to-day receiving an education which gives them an insight into world problems almost as sure as the knowledge which pupils of an earlier generation had of Caesar's exploits. We may know more about the Gallic wars than they ever will, but they, in their turn, will not share our ignorance of Central and Eastern Europe, they will know why China and Japan are unfriendly, they will understand the implications of a White Australia, they will be alive to the significance of the Monroe Doctrine in the New World, and they will realise, as we do not, the mighty significance of an awakening Africa. Such knowledge must, at least, help to stimulate an intelligent public opinion in international affairs, and it should tend to give the nation balance in times of international stress. It is premature to speculate as to whether far-reaching consequences may evolve from it, but, if this new learning through geography should ever permeate the classroom of the world, civilisation will be much better equipped for that "last ascent" which Kant declared mankind could only hope to climb after "a long and intensive education of the spirit for all citizens in every country."

(From the "Education for Citizenship.")

PROPOSED EXTENSION OF THE MYSORE RAILWAYS

Shorter Route to South Indian Towns.

LINKING OF AGRICULTURAL AND COMMERCIAL CENTRES

The Government of India and the Mysore Government are considering a proposal to connect the Mysore Railway system with the South Indian Railway via Chamarajanagar and Satyamangalam, as stated by Dewan Bahadur N. N. Ayyangar, Chief Engineer of the Mysore Government, at the recent session of the Mysore Legislative Council. The projected line will be 56 miles long.

It is estimated that the total cost of the scheme will be approximately Rs. 2 crores. The section connecting Chamarajanagar and Satyamangalam has to pass through the ghats which separate the Mysore plateau from the plains in the Madras Presidency to its south, and this accounts for the high cost estimated. But in spite of the high cost of construction, the traffic survey made by the authorities shows that the railway will be profitable and that return of 6 per cent. on the capital outlay may be expected within five years after the opening of the railway.

The outstanding features of the proposed railway, from the point of view of engineering, are :

There will be no less than 28 tunnels on the ghat section of 21 miles between Chamarajanagar and Kottamangalam.

There will be a fall in gradient of 2,172 feet in 31 miles.

The total length of the tunnels will be nearly three miles.

The line will run through primeval forests in the ghats almost rivalling in richness and beauty the forests besides the ghat railway in Travancore.

The establishment of direct connexion between the metre gauge of the South Indian Railway and the Mysore Railways has been under consideration for over 30 years. Originally, it was proposed to extend the Mysore railway line so as to make a junction with the South Indian Railway at Erode. This was before the Trichinopoly-Erode section was converted from metre gauge into broad gauge.

A CONTINUOUS LINE

On the conversion of this section into broad gauge, however, the original idea was abandoned and proposals were mooted to connect the Mysore Railways with the South Indian Railway at Tiruppur via Satyamangalam. This idea has been strengthened by the proposal for construction of a metre gauge line connecting Dindigul, Palni, Pollachi, Tiruppur and Satyamangalam. When this connexion is completed it will provide a continuous metre gauge line between northern and southern India and from western India through Mysore. The various projects have been surveyed at different times by the Mysore Railways and the South Indian Railway.

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According to the present proposal, the existing Mysore-Chamarajanagar metre gauge line is to be extended to Satyamangalam in the Madras Presidency. The distance between Chamarajanagar and Satyamangalam by the proposed route is 56 miles, of which 11 miles will be within the Mysore territory and 45 miles in the Madras Presidency.

The Mysore section of the extension is estimated to cost Rs. 8.36 lakhs, while the British section will cost about Rs. 163 lakhs. The extension will also necessitate radical improvements to the existing line between Mysore and Chamarajanagar and these will cost an additional Rs. 8.5 lakhs. These estimates are exclusive of the rolling stock required for the construction.

The construction of the line will be an engineering achievement, as there are various natural obstacles to be overcome. As the Mysore plateau is, on an average, 2,000 feet higher than the level of the plains below the ghats any line connecting the two areas has to negotiate a steep incline. The whole range of hills surrounding the Mysore District has been investigated for railway outlets at various times, and the alignment now proposed has been chosen as the best. In fact, it is stated that hardly any alternative is possible.

THE ROUTE

The alignment of the proposed link will be as follows: The line, after leaving Chamarajanagar station, will skirt round the eastern side of the town and run parallel to the Satyamangalam road for five miles, reaching the site of the Hardanahalli station. Thence it will cross the road and run south-west to Talavadi station, crossing the Mysore frontier at the 11th mile from Chamarajanagar. At the 27th mile the line will reach Talamalai, a station on the top of the ghat. Over this section of 27 miles, between Chamarajanagar and Talamalai, the line will take an up-gradient, rising 660 feet between the two points named.

The descent of the ghat will begin at Talamalai (2,958 feet above sea level). Between this point and Kottamangalam, on the plains below, a distance of 22 miles, the line will lose 2,100 feet in height and another 56 feet in the eight-mile run between Kottamangalam and Satyamangalam. It is the middle section of the line, which has a fall of about 100 feet per mile, that is estimated to cost

most. A ruling gradient of 1 in 45 will be adopted for this ghat section and there will be 28 tunnels, varying in length from 190 feet to 1,820 feet, their total length being 14,320 feet (nearly three miles).

The proposed connexion will bring the numerous towns and cities in South India and Mysore much closer, benefiting trade, commerce and intellectual and social intercourse.

For example, the distance between Mysore and Ootacamund by railway will be reduced from 398 to 153 miles. Similarly a great reduction will be effected in the railway distance between Mysore and other towns like Coimbatore, Erode, Tiruppur, Trichinopoly, Madura and Tuticorin, and the public will benefit by the reduced fares.

TRAFFIC SURVEY

Detailed surveys have been made of the commercial possibilities of the proposed extension and all reports on the subject contain the assurance that the new link will prove a commercial success and that the net return on the capital outlay will be about 4 per cent. in the first two or three years after completion of the line, increasing to about 6 per cent. after five years.

The extension of cultivation in the Cauveri valley and the rapid growth of sugarcane cultivation and sugar manufacture in the Irwin Canal area are arguments in favour of the railway extension. There is also the fact that the cotton areas in the Coimbatore District will be brought much nearer to Mysore with its cheap electric power. Without any expansion of the existing agricultural and industrial activities in the State the proposed link will more than pay its way, considering the traffic now available. And the advantages are greater when the extension of trade and commerce, following the opening of the line, is taken into account.

Promising forecasts of the passenger traffic have been made on account of the fact that such well-known places of pilgrimage as Rameswaram, Palni, Madura, Kumbakonam and Srirangam will be brought much nearer to Mysore by the proposed link.

Among the seaports which will benefit by the proposed connexion are, of course Tuticorin and Cochin. Traffic to Cochin will have a break of gauge at Tiruppur, but there will be an unbroken

metre gauge connexion between Tuticorin and Mysore. From Mysore there will be a break of gauge both to Madras and to Cochin, but Cochin will be nearer than Madras.

Thus the shortening of the distance between many places in South India and Mysore, the stimulus to trade and commerce between such centres the avoidance of the inconvenience which traffic between such centres is experiencing now, and the fact that there will be an unbroken metre gauge connexion between north and south India through Mysore (from Poona to Tuticorin) are the principal arguments in favour of the proposed metre gauge link between Chamarajanagar and Satyamangalam.

A MADRAS PROPOSAL

It would appear that the Government of Madras have called for an estimate for the construction of a light broad gauge line from Kottamangalam to Tiruppur via Satyamangalam. But the construction of such a line would deprive the country of the continuity of a metre gauge long distance connexion between Poona and Tuticorin—a single gauge continuity which will prove advantageous also from a strategic point of view, should necessity arise. The object of the proposed light broad gauge line is not so apparent, while its disadvantages, viewed in the light of the proposed extension of the Chamarajanagar line to Satyamangalam, are obvious. On these grounds, therefore, the Government of Mysore have, I understand, protested against the proposed gauge for the Kottamangalam-Tiruppur railway and pointing out the desirability of having a metre gauge line over this section. It is hoped that the question will be considered from the wider point of view presented by the Government of Mysore and that a continuous metre gauge connexion between north and south India, through Mysore will be made possible.

EXTENSION TO KOLLEGAL.

Allied with the proposed connexion between Chamarajanagar and Satyamangalam, there is a proposal for the construction of a branch line between Chamarajanagar and Kollegal, which is situated in Gobichettipalayam taluq, Coimbatore District. The distance of this line is about 22 miles and the scheme is estimated to cost about Rs. 15.75 lakhs. The Government of Mysore have been permitted to construct and work the entire length of this line, the last four miles of which will run in the Madras Presidency.

—“*The Madras Mail*.”

Excursions

THE MICHAELMAS TOUR OF THE MADRAS GEOGRAPHICAL ASSOCIATION

Thousand Miles by Bus

By

T. B. RANGANATHA DAVEY, B.A.,

Under the auspices of the Association a ten day's geographical tour by bus was organised and conducted during the Michaelmas Holidays (19th to 18th September) by Messrs. N. Subrahmanyam (of the Teachers' College) and George Kuriyan (of the University Geography Department)—the places visited being Oorgaum (K. G. F.), Bangalore, Sivasamudram Falls, Mysore, Kannambadi Dam, Seringapatam, Pykara, Ootacamund, Coimbatore and Mettur. The party, which included three ladies, consisted of students of Geography from the Teachers' College University Geography Department and the Lady Willingdon Training College.

At 2 p.m., on Wednesday the 19th September 1934 our party left the Teachers' College by Bus; and after about an hour's run reached the *shale beds* near Sriperumbudoor, about quarter of a mile away from the 27th mile 1st furlong. Here a half hour was spent in examining the shale beds that were exposed along one side of a water course. After splitting some of them to get at fossil imprints and taking a few specimens the party continued the journey. We reached Wallajah about sunset and Chittore at about 7 p.m. where we halted for the night.

Early next morning we started at about 4 a.m., and resumed our journey; but owing to the darkness, missed the splendid view of Mogali gorge. After daybreak, however, we could well appreciate the scenery of the Mysore Plateau which we had now entered and found the changed aspect of the country. By 7-30 a.m., we reached Robertsonpet. After an hour's preparation we were ready to accompany the Inspector of Mines who was deputed to take us round one of the best mines in the locality, namely, the Nandydoorg mine. Here we were first taken to see the workshop and then the different processes of gold extraction. From the

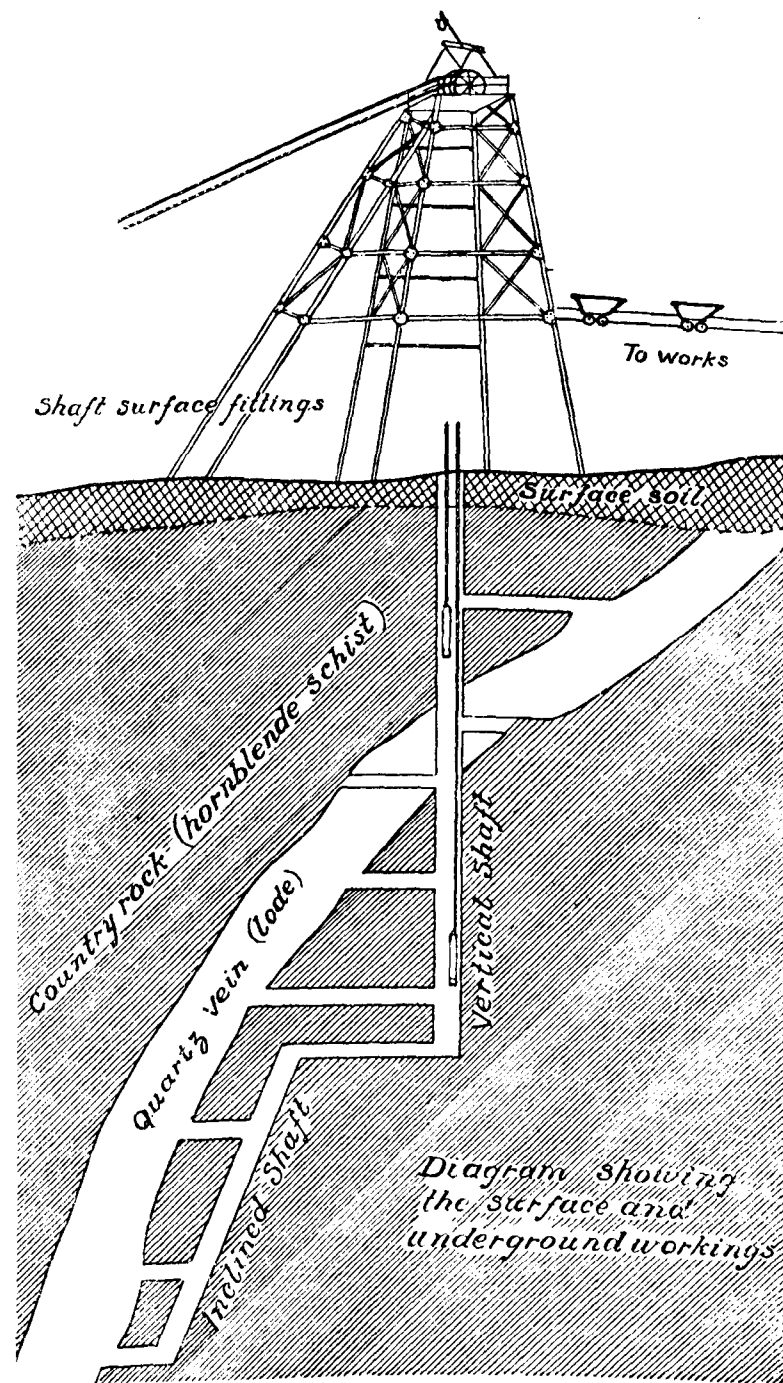


Fig. 6. Diagram showing the surface and underground workings in a gold mine.

stage of powdering and washing the quartz on through the various processes of separation of gold including the cyanide process to the final stage of smelting the ore in the crucible and making it into bricks.

We next had the thrill of being taken about 5000 ft. down the mine by means of an electric lift which did the whole of the descent in about 4 minutes. We walked through some of the corridors and were shown the quartz reefs *in situ*. The pit props put in position, the rails and the trolley, the pumps always at work and several other details impressed themselves very strongly upon our minds and thus we got a real idea of a gold mine.

After leaving the mine we took our midday food at Robertsonpet and drove *via* Kolar to Bangalore which we reached about 5 p.m. Greeted on our entry by gentle showers, we reached the Central College Hostel which was our lodging during our stay at Bangalore. At this stage I cannot but refer to the immense advantage of the bus journey over the train journey for educational touring parties such as ours. Not only could we enjoy the scenery right along the route, stopping wherever we wanted to, to examine a rock or a river bed, but we were also saved the nuisance and the expense of removing our heavy luggages at every stopping place incidental to a rail journey. Moreover there was no need to go in for any other conveyance when we had to visit places and institutions at Bangalore the next day, as well as at Mysore later on. In fact all our sight-seeing in all the big towns through which we passed was fairly complete as we could take the bus through every nook and corner.

On Friday the 21st September we went about visiting in Bangalore the Imperial and Agricultural Dairy Farm, the Imperial Survey of India Office, the Tata Research Institute, the Government Porcelain Factory, the Government Soap Factory, the Bull Temple at Basavangudi and the Lal Bagh, besides driving through the important parts of the City and the Cantonment. Out of these places, special mention has to be made of our visit to the Map Survey Office. Here the Assistant Director of Survey, Bangalore Circle took us round and explained with demonstrations the various stages in the preparation of the one inch O.S. map. One of the Junior Officers in this Office, Mr. Thomas, narrated to us in detail his thrilling experiences near Chitral in the North-West Frontier when he was there for six months on official duty, doing

triangulation work, illustrating the same with his album of Photos. All this interesting programme at Bangalore due to the care and fore-thought of Mr. G. K. Krishnamurthi, B.A., L.T., the Secretary of the local branch of our Association.

On the morning of Saturday the 22nd Sept. we left Bangalore after our *Chota*; and after a couple of hours' drive reached the Government silk factory at Chennapatna where we spent a useful half hour learning about the attempts made here to improve the condition of one of the most important industries of the State, one which is practically a bye-industry for the peasant.

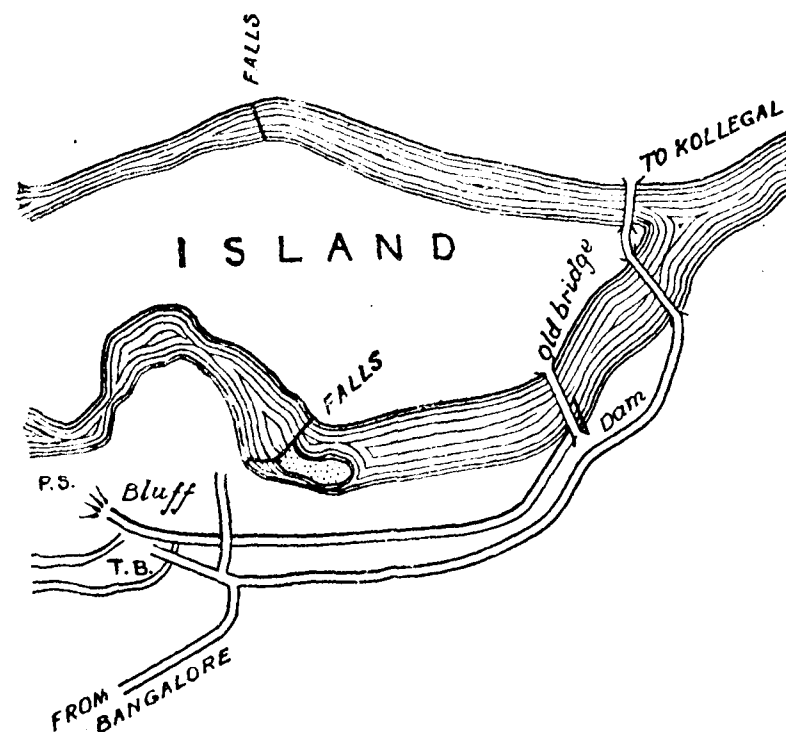


Fig. 7. The Island, the Bluff and the Falls.

Resuming our journey, we reached the Bluff at about midday, when without even caring for the hot sun we rushed down to the foot of the falls and feasted our eyes with the glorious spectacle of the falling watters. After refreshing ourselves at the Rest House, we went down by the trolley to the Power House, where we were shown the penstokes by which the water was led down from the re-



Fig. 8. The Falls. Penstokes and Power Station.

servior, the huge turbines and Dynamos and the stepping up of Power to high voltage before transmission etc.—all of which gave us a real peep at how Electricity was produced from falling water. We saw the machinery run by this power at the Kolar Gold Fields, and we saw the electric insulators made at Bangalore from Kaolin brought from the neighbourhood; and here we saw the production of the power itself. At Mysore, we saw the very same power transmuted into a panorama of light decorating Sri Chamundi hill and the fountains of Krishnaraja Sagara Works.

Leaving Sivasamudram in the afternoon, we arrived at Mysore about 8 p.m. Next morning we drove up Chamundi Hill in our Bus, while some of us for the mere fun of it climbed it by the

steps. From the hill-top we got for the first time a commanding view of all the country round for miles and miles together; and it was a joy to trace the features which we actually saw around us on the one inch map which we took with us. The ribbon of

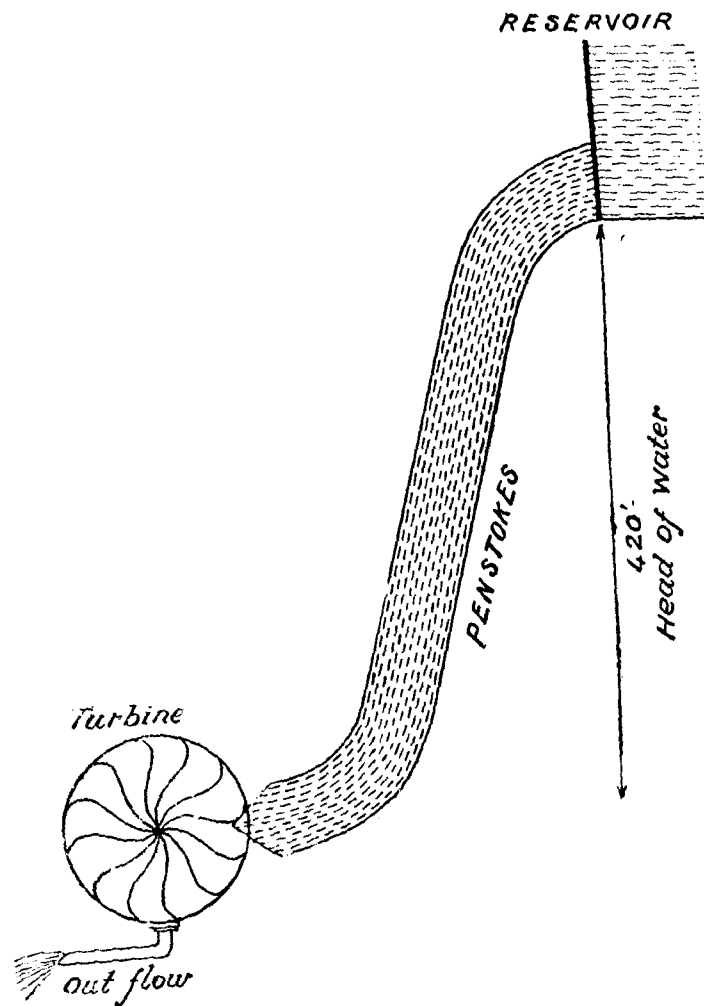


Fig. 9. Reservoir Penstokes and Turbine.

verdure along the river valley, the pattern of cultivated fields, the scanty vegetation of rising ground, the blue haze of the distant hills, the vast sheet of the Kannambadi Reservoir, the bright minarets of Seringapatam mosque and several other land marks interested us immensely. Coming down from the hill, we visited the Zoo which was a much grander one than what we have in Madras.

That evening we visited Seringapatam and Krishnaraya Sagara works. At Seringapatam we had an opportunity of appreciating the greatness of Tippu Sultan from the remains of the fortifications, from his Summer Palace "Daria Dowlat", the Goli Gumbaz, De Haviland's arch etc. But the glorious sight of the illuminated fountains at the Krishnaraya Sagara works was something unique: and we had to tear ourselves from the place most unwillingly. We felt it was worth while to come all the way at least to see this alone.

At 10 a.m., on Monday the 24th September, we left Mysore for the Nilgiris. After leaving the Mysore Frontier beyond Gundlupet, our journey along the Moyar valley and through Gudalur forests was very interesting and enjoyable. But the joy and thrill was much greater indeed when we were making the continuous ascent from the lower plateau of Gudalur up the Nilgiris proper. The temperature was visibly changing, as it were, every minute. Though we got a peep at the Pykara lake and the Pykara slope we were too late to go down the trolley that evening, and so reached Ooty to have a welcome rest—snug and warm. Next morning we returned and went down the 11000 ft. incline by trolley and saw a replica of Sivasamudram here again, but with a sort of feeling that it was our own, that in some of our towns we have already got the power from here and that we would be getting it in others sooner or later. The lady members of our party, who were not permitted to go down the trolley, were compensated by boating in Pykara Lake—a beauty spot, quiet and serene.

Our lodging at Ooty was so very nice and comfortable and the weather was so very bracing that we were tempted to stay a day longer, contrary to our original programme; and we had to pay the penalty for it by cutting short most of our items at Coimbatore the next day. The journey across the Nilgiris was a unique experience for so many of us for whom this was the first visit. The night temperature of 68°F and 56°F tried the mettle of some of us. The vegetation and the scenery were unlike any that some of us had seen before.

On the morning of Wednesday the 26th Sept. we left Ooty after Chota about 7 a.m., and drove down the Hills through Coonoor valley where the scenery was most gorgeous. When we reached Coimbatore at midday we were feasted with a sumptuous dinner by Mr. Rao Saheb C. M. Ramachandra Chettiar, the President of the Coimbatore branch of the Association and by Mr. T. S. Krishnamoorthi Ayyar, District Educational Officer, Madras.

Leaving Coimbatore after dinner at about 2 p.m., we reached Peelamedu in a few minutes where we visited the Spinning Mill (where Pykara Power is used) and the Industrial Institute belonging to Mr. Rangaswamy Naidu. Resuming our journey and driving through Avanashi, Perundurai and Bhawani we reached Mettur at about 7 p.m. to enjoy a welcome rest at our lodging.

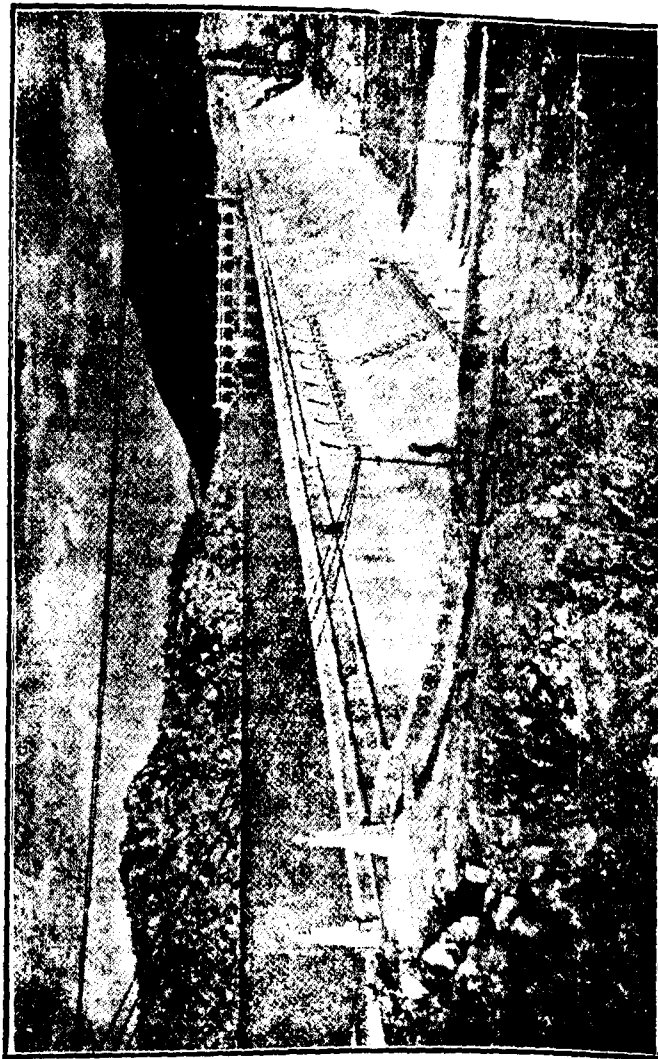


Fig. 10. The Mettur Dam and Reservoir.

Next morning (27th Sep.) we visited the Dam, the water works, the surplus Weir, the Pavilion, the infiltration gallery, etc., spending nearly three hours at it and taking photographic views.

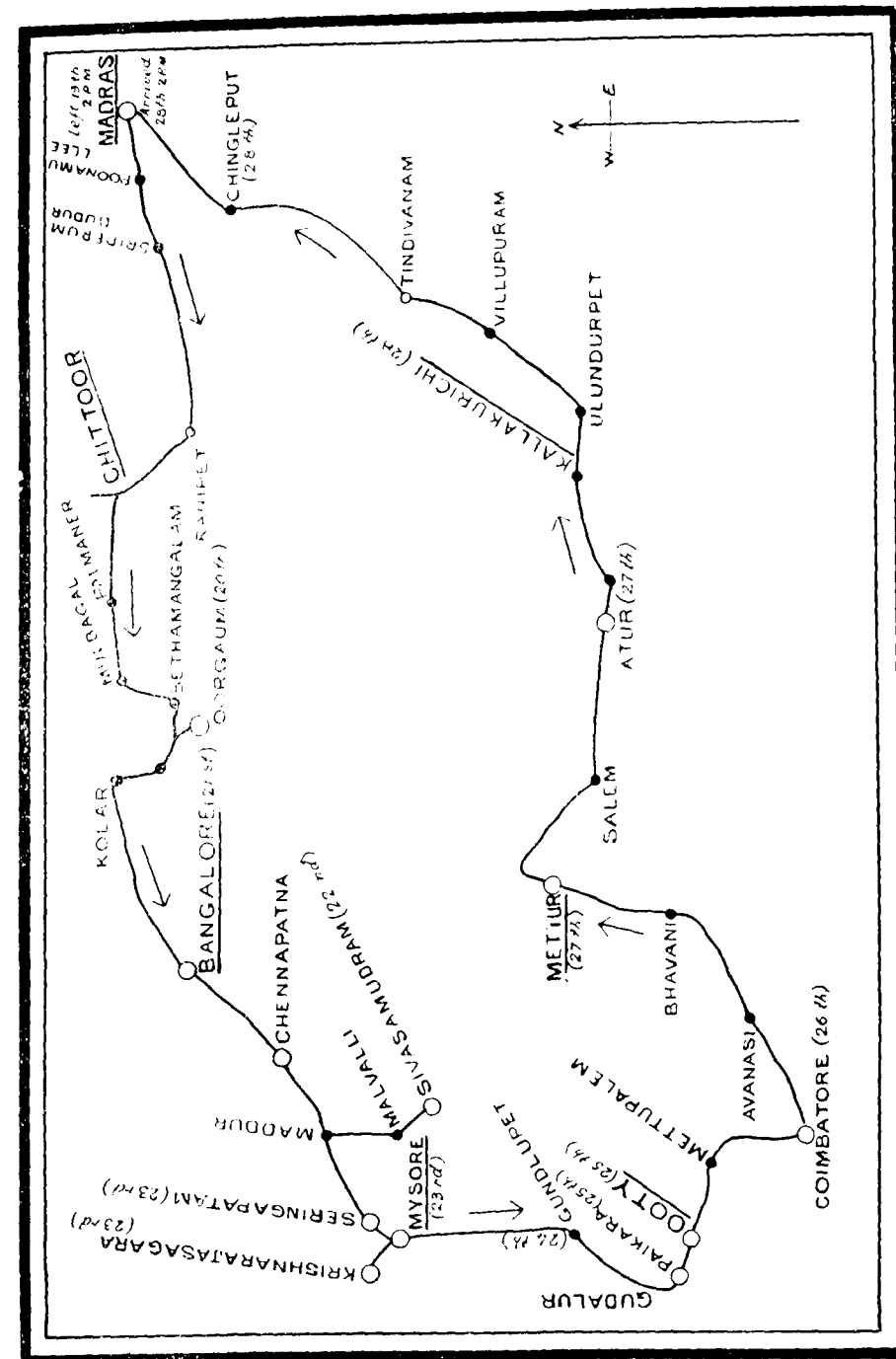


Fig. 11. Map showing Route of the Michaelmas Excursion.

After dinner we left Mettur and, passing through Mecheri, Omaloor, Salem (where we passed through the Magnesite fields) and Athur, broke our journey at Kallakurichi after sunset. Next morning the 28th Sept. 1934 we resumed our journey passing through Ulundurpet, Villupuram and Chingleput and reached Madras about 2 p.m., the exact hour when we left Madras on the 19th Sept. 1934.

The total distance travelled was just over a thousand miles in 10 days. Excepting one member, who was subject to malarial fever, the rest of the party were throughout in the best of health and spirits. The thoroughly safe and enjoyable run without even a single accident of any kind was due to a 1934 model Chevrolet in charge of Mr. Nair, a very experienced driver who had seen war service in the Army Transport Department.

This is the second long tour arranged by the Association, the first one having been conducted last year during Dasara by train and bus, the places then visited being K. G. F., Bangalore, Sivasamudram, and Mysore as also the Jog Falls and Bhadravathi. In place of the two latter, Pykara and Mettur were substituted this year. As in the last year, the total cost including food and transport has not exceeded Rs. 40 per member. The value of such organised educational excursions, especially to students, cannot be overstated; and it is to be hoped that they will become more common and frequent in the interests of sound education.

A SCHOOL EXCURSION TO KARNATGARH

A party of pupils of the E. L. M. Fabricius High School, Purasawalkam (Madras) under charge of their Geography master, Mr. S. J. Devasahayam, B.A., L.T., went on excursion to Vellore and Karnatgarh near Polur. The party left Madras on Friday night by Bangalore Passenger, and spent Saturday, the 1st August at Vellore, where they were lodged in the S. M. D. High School.

Starting early in the morning, the party, which was swelled by the addition of some of the teachers of the local school, climbed the main hill to the east of the town, and studied the ruins of the old fortifications as well as the prospect of the country round about as seen from the hill-top. The afternoon was spent in going about the town, and visiting important parts of it such as the fort, temple,

bazaar, etc. The same night the party together with teachers of the Vellore school left for Polur, where the Headmaster of the Board High School had made all necessary arrangements for climbing Karnatgarh, the next morning, besides getting his staff and students to join the excursion party, which now increased to over 120 persons.

Karnatgarh (3,180 feet) is the second highest peak of the Jawwadis, being exceeded by only one other peak a little farther west by about 200 feet. But, though slightly lower in elevation, it is the former that commands a splendid view of the central part of the Karnatic plains from Vellore in the north to Tiruvannamalai in the south at one sweep—a fact which easily explains why it was chosen for fortification (by Sivaji?). As the foot of the hill is about 650 feet above sea-level, the actual ascent was over 2,500 feet, which had to be done by a bridle-path in disrepair, walking over which, with or without shoes, was equally a penance. After an ascent of three to four hours the party reached the fortifications on the summit, where they finished their mid-day meal. They then went round examining the fortifications, which were overgrown with jungle in most places. The trigonometrical stations could be traced within the fort—one 3,180 feet and the other 3,139 feet. The masonry building of the powder magazine was intact; and the black powder, quite innocuous through age, was found heaped in a corner; while an old cannon about three yards long was found rusting in a bush by the side of the bridle-path near the summit.

But what interested the party most was not the historical ruins so much as the glorious view of the Jawwadi Hills behind and the panorama of the plains with its pattern of fields, tanks and villages as far as the eye could see in the east, stretching from Kailasgarh near Vellore in the north to Tiruvannamalai in the south. With the help of the one-inch map it was interesting to identify landmarks such as Gingee, Nedunkunram Hill, etc., as well as the communication-lines and important places. The pleasure and profit gained were felt by all to be worth the trouble and expense of getting to that inaccessible place. By about sunset the party got down the hill and reached the Polur Railway Station. The nucleus of it, consisting of the boys of the E. L. M. High School, Purasawalkam, returned via Villupuram, reaching Madras on Monday morning.

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The total cost for the Madras boys, who journeyed 300 miles by rail, was only Rs. 5 including food for two days and cartage. The success of the excursion was due mostly to the excellent arrangements made by the Headmasters and staffs of the S. M. D. High School, Vellore and the Board High School, Polur. The party was specially indebted to Mr. S. Srinivasa Iyer, Secretary of the North Arcot District Teachers' Guild, and to Mr. R. Kuppuswami Iyer, Headmaster of the Polur High School, who spared no pains to bring the excursion to success. The organisation and conduct of the excursion were by Mr. N. Subrahmanyam of the Teachers' College, Saidapet.

CHRISTMAS TOUR, DECEMBER 1934.

Another Thousand Miles by Bus

In connection with the Anantapur Geographical Conference it is proposed to organise a conducted tour for 10 days from the 19th to the 28th December 1934 from Madras to Anantapur and Hampi and back. In order to avoid the Christmas overcrowding in trains and to be able to visit quickly and conveniently a number of out-of-the-way places, the tour will be done by bus, especially as the Michaelmas experiment was found to be very satisfactory and advantageous. The following is the rough programme of the tour, which will give an idea of the route and the places proposed to be visited :—

19th December—Madras to Madanapalle.

20th December—Madanapalle to Kadiri, Lepakshi and Hindupur.

21st December—Hindupur to Penukonda (hill-climb), Dharmavaram and Anantapur.

22nd and 23rd—Anantapur to Bellary, Hampi, Gooty and back.

24th, 25th & 26th—Conferences at Anantapur.

27th December—Anantapur to Tadpatri (Alur water-fall) and Jammalamadugu (Gandikota gorge and fortress).

28th December—Jammalamadugu to Nellore via Penner route and thence to Madras.

The total trip will come to about 1000 miles, and it will take 10 days to complete. The total cost including food and transport is expected to come to about Rs. 35. Non-members of the Association will be charged a registration fee of rupee one. As there is only a limited number of seats available, those intending to join the excursion party are requested to register their seats by paying an advance of Rs. 10 before the 15th instant. The balance of the amount should be paid before the 18th instant. Details regarding kit etc., will be given to those that register themselves. Only a single bus is arranged for the present : but a second one can easily be got if there are sufficient numbers for it.

Gopalapuram, Cathedral Post,
Madras, 10th December 1934.

N. SUBRAHMANYAM,
Secretary.

News and Notes

As in last year, an Association excursion was conducted during the Michaelmas holidays, the places visited being Kolar Gold Fields, Bangalore, Sivasamudram, Mysore, Kannambadi, Seringapatam, Pykara, Ooty, Coimbatore, and Mettur. An experiment was made of doing the whole journey of 1000 miles by motor bus in 10 days. An account of it is given on another page.

It is pleasing to note that school excursions have of late been getting popular in several schools of the Presidency. But very often they are treated more as opportunities for outdoor enjoyment and picnic, as a change from the normal work of the school than as a means of observational study. It is, therefore, proposed to discuss the values of school excursion and suggest the means of achieving the best result from them in the next issue of the journal.

Single excursions and series of excursions of longer or shorter duration have had a new development in the Clark University, Worcester, Mass. where the Graduate School of Geography spends the whole of the autumn (September-December 1934) term in the field, studying the greater part of the Eastern United States at first hand. The party consisting of about 20 students is supplied with 7 motor cars, each furnished with a trailer to serve as sleeping quarters. From camps established at a series of points, intensive field work is carried out by means of local excursions round the selected points. Participation in this field school, followed by the satisfactory completion of maps and reports, would count as a full term's residence at the University. The prospectus sent to us includes a number of sketch-maps and illustrations, and explains the details of this interesting course.

The one-inch map of the school area has been included for study in the new syllabus in Geography for Form IV; and on a representation made by the Secretary in accordance with a resolution of the Working Council of the Association, the Surveyor-General of India (13, Wood Street, Calcutta) has decided that "single copies of Survey of India maps may be supplied at half-

rate to Educational Institutions which are likely to store them properly and then bring them to the notice of students and others." It is hoped that Schools and Colleges will take advantage of the concession. The Secretary will be glad to inform those that apply for it the index number of the map of the school area.

Attention is drawn to the section on Geography and Education which will form a new feature of the Journal from this number. Teachers who have successfully worked out any experiments in the teaching of the subject are invited to contribute the results thereof for publication. Difficulties in handling any particular topics may also be communicated to the Editor for elucidation.

High Schools in the Presidency will have to decide shortly about the subjects in the C. Group which they would like to provide for in the Vth form next year in accordance with the revised S. S. L. C. scheme. We would recommend to headmasters and managements the desirability of having Geography as one of the optional subjects in all High Schools, not only as a discipline but also for the creation of that world outlook so necessary for every citizen in this rapidly changing world. There is a vague and unfounded fear in several places that the opening of Geography would involve a very heavy expenditure on equipment. We can assure the school authorities that for the efficient teaching of the subject a very modest sum would be enough to start with; and that a competent teacher can easily improvise several items himself, besides arranging to get locally made some of the costly apparatus and appliances. In the next number a list of minimum equipment for C. Group Geography will be published.

Two meetings of the Association were held in this term. In the first one Mr. N. Subrahmanyam delivered a lecture on *Hill-Climbing in South India* with Miss J. M. Gerrard in chair; and in the second Mr. A. Wimbush, Chief Conservator of Forests, Madras delivered a lecture on *the Forests of Southern India* with Mr. S. V. Ramamurthi, Director of Agriculture in the chair. Both the lectures are published elsewhere in this issue of the Journal.

The Coimbatore Branch of the Association has shown fresh activity during the current year. At a meeting of the members held on 2nd September 1934, Rao Saheb C. M. Ramachandra Chettiar, B.A., B.L., was elected President of the Branch and

Mr. S. Natesan, M.A., L.T., Secretary. Under its auspices Miss Irene H. Lowe, M. Sc., F. R. G. S., delivered a lantern lecture on "My Trip up the Nile".

* * * * *

Nearly 800 geographers, representing 36 nations, assembled at Warszawa (Warsaw) in the last week of August 1934 for the 14th International Congress of Geography held under the auspices of the International Geographical Union under the presidency of Dr. Isaiah Bowman. A principal and most valuable feature of the Congress was the International Exhibition of Official Cartography in accordance with the tradition established at earlier Congresses. The previous Congress was held at Paris in 1931.

* * * * *

We have to record the sorrowful news of the demise of Dr. Marion I. Newbigin, the talented Editor of the Scottish Geographical Magazine for 32 years and the author of several well-known works on Geography, in which she has covered the whole field of the subject, apart from her short papers. An eminent Geographer, who approached the subject through Biology, Miss Newbigin was among the pioneers of modern British Geography. She was the first to apply geographical technique in all that she wrote.

Reviews

The Continent of Asia. By Lionel W. Lyde (Macmillan & Co., London). Price 16sh.

Mr. Lyde has produced this masterly volume "from the same standpoint, on the same lines and in the same way as *the Continent of Europe*," after having been at work at some parts of it at least for nearly two decades. The regional work was the outcome of twelve years' thought, the chapters being subjected to annual revision. As *peninsularity* has been made the key-note of the earlier volume, so *continentality* has been brought out as the main characteristic of *Asia*. The several regions are treated in different ways according to the peculiar human note of each of them; and the vigorous individuality of the author is throughout in evidence both in the suggestive ideas and opinions and in the turns of expression.

This theory of *continentality* has been developed in the first part of the book by means of elaborate discussions in the chapters

on physical features, climate and vegetation, being gathered up in the last chapter of this part entitled "Some Controls". Students of history, who are familiar with the movement of Central Asian hordes into China on the one side and India on the other can easily question his statement that "in Asia the immense variety of relief is masked under a still more fatal immensity of size, with its inevitable climatic results; and the difficulties of communication over the continent as a continent have hitherto been almost insuperable etc." Thus the generalisations and comparisons, of which there are plenty in the book, are sometimes sweeping and unconvincing, though they are brilliant and suggestive, as is characteristic of the author. Several examples may be quoted from the chapters on detailed regional treatment, in the latter part of the volume, as in the statement on P. 359 "The isolation of India by sea has been in some ways especially down to the 17th century, more complete than its isolation by land", made in the teeth of the recent historical researches regarding early Indian colonisation in the East Indian Archipelago and of the accounts of the old Roman and mediaeval Arab trade with the west coast. Another example of a glib and sweeping generalisation is to be seen on P. 365 under the caption 'Oriental Mentality':—"Perhaps 'passive' is a more appropriate word, for the one defect was a lack of real activity; and the mental attitude of Indians is still what it was then. They observe, e.g., abuses; they draw intellectual conclusions, e.g., about a situation; and then they accept anything and everything etc."

China and India naturally come in for a fuller treatment, which is however, characteristically subjective rather than objective.

There is a wealth of accurate and pertinent details that have been marshalled to support the description and the arguments; and a large number of sketch-maps illustrate this standard work of a veteran geographer, which ought to find a place in every library.

Observational Geography of the British Isles. By Herbert Hatch and C. R. P. Duckering. (Macmillan & Co., London). Price 2sh. 6d.

The sub-title of this book—"A Practical Geography with particular reference to the Home District"—points to the insistence on the approach to the study of Geography from the home region as the proper basis for the real understanding of the rest of the world. Believing that the mere drawing of maps, graphs and

diagrams could scarcely form the essential part of Practical Geography, the authors have rightly proceeded to emphasise the organised observation of streams, cliffs, roads, farms and other parts of the subject-matter of Geography as the real foundation for the proper study of the science.

The book falls into three roughly equal sections—physical, human activities, and regional; and in each of them there is great insistence not only on observation and doing, but also on correlation and comparison with the home region throughout. The children are thus given a real grounding in the main aspects of the physical and human geography of the British Isles together with an outline of its regional geography.

Though intended primarily for children of 11 or 12 years, studying in the lower part of Senior, Central or Secondary Schools of England, the material given is so complete that it can be used for revision work by candidates for School Certificate Examinations also.

Suggestive exercises at the end of each chapter and a copious inclusion of maps and pictorial illustrations enhance the value of this useful book, whose printing and get-up are neat and attractive.

Practical Map Books : Book 3—Asia. By S. J. B. Whybrow. (J. M. Dent & Sons, London). Price 10d.

This is the third book of the series of which the first two were reviewed in an earlier number of the Journal. Like the other two, this book also is intended to supplement the text-book and the atlas rather than to take their place. The working out of the given exercises on the blank maps is calculated to ensure a knowledge of topographical accuracy, besides helping the study of familiar material from fresh points of view. Starting with the study of the position and physical features of the continent, the exercises carry the student through the different natural regions of Asia and then finish up with a study of the density of population. The use of this series of books will prevent parroting in the study of geography, since the facts will be fixed in the mind as the exercises are worked out.

Bulletin of the Madras Government Museum—New Series : Vol. III, Pt. I. The Three Main Styles of Temple Architecture Re-

cognized by the Silpa Sastras. By F. H. Gravely and T. N. Ramachandran. (Superintendent, Government Press, Madras). Price Re. 1.

The object of this paper is to correct, in the light of the literal translations of the original texts, the current identification of the *Nagara*, *Vesara*, and *Dravida* styles of temple architecture, characterised by the quadrangular, circular and octagonal *sikharas* respectively. That the *Dravida* style is that of the Dravida (southern) country, the earliest existing remains of which are Pallava, is generally agreed. As regards the other two styles, which may be called northern, the connecting of the *Vesara* with the Telugu country is questioned. The *Nagara* style, which developed in the Chalukya country, is thought to have included the Kadamba style also.

Books and Journals Received

- Practical Map-books : Book III.*—By S. J. B. Whybrow.
Observational Geography of the British Isles.—By H. Hatch and C. R. P. Duckering.
Bulletin of the Madras Govt. Museum : The Three Main Types of Temple Architecture.—By F. H. Gravely and T. N. Ramachandran.
Report on the Operations of the Department of Agriculture. 1933-34.
The Educational Review—August, September and October, 1934.
Kalaimagal—August, September and October 1934.
The Educational Review—August, September and October, 1934.
The Indian Journal of Economics—July and October 1934.
Prachina Karnataka—April 1934.
Our Home Magazine—August 1934.
The Scottish Geographical Magazine—September 1934.
Geography—September 1934.
The Geographical Review—October 1934.
Educational India—October 1934.
Journal of Indian History—August 1934.
Indian Educator—August, September and October 1934.
Journal of the Andhra Historical Research Society—April 1934.

The Fifth Geographical Conference

At Anantapur, (24th to 26th December 1934).

The Fifth Geographical Conference has been arranged to be held at Anantapur from the 24th to the 26th December 1934 along with the Provincial Educational Conference, when papers on various aspects of the Geography of Anantapur District will be read and discussed. Dr. J. H. Cousins has kindly consented to preside over the Conference; and Prof. A. V. Venkatarama Ayyar of the Ceded District College is the Chairman of the Reception Committee. The following is the Programme of the Conference:—

24th December, Monday 3-5 P.M.—Opening Session.

25th December, Tuesday 8-11 A.M.—Second Session.

26th December, Wednesday 8-11 A.M.—Concluding Session.

The following are among the papers that have been arranged:—

1. *Historical Geography of Anantapur District.* By Prof. A. V. Venkatarama Ayyar, M.A., L.T., Ceded Districts College, Anantapur.

2. *Physical Geography of Anantapur District.* By Mr. R. Sridhara Rao, M.A.

3. *Geology of Anantapur District.* By Mr. V. D. Krishnaswami, M.A.

4. *Meteorology of Anantapur.* By Mr. C. K. Anantasubrahmanyam, M.A., Kodaikanal Observatory.

5. *Agricultural Geography of Anantapur District.* By the Agricultural Demonstrator, Anantapur.

6. *Economic Geography of Anantapur District.* By Mr. N. R. Subbier, M.A., L.T., Lecturer, Ceded Districts College.

7. *Communication-Lines and Town-Sites of Anantapur District.* By Mr. N. Subrahmanyam, M.A., L.T., F.R.G.S.

8. *Urban Geography of Anantapur District.* By Mr. R. Dann, Director of Town-Planning.

9. *Population of Anantapur District.* By Mr. K. Srinivasaraghavan, M.A.

10. *Public Health and Environment of Anantapur District.* By Mr. N. Natarajan, M.B., B.S., B.S.Sc., District Health Officer, Anantapur.

11. *Place-Names of Anantapur District.* By Dr. C. Narayana Rao, M.A., Ph. D., Lecturer, Ceded District College.

12. *Sub-regions of Anantapur District.* By Mr. G. Narayanaswami, M.A., L.T., Dip. in Geo., Model High School, Saidapet.

13. *Kadiri Region.* By Mr. T. Abdur Rahman, M.A., L.T., Dip in Geo., Board High School, Dharmavaram.

14. *Hindupur and its Environs.* By K. Nanjudappa, B.A.

15. *Gooty and its Environs.* By Mr. V. Koprasa Char, B.A., B.Ed., London Mission High School, Gooty.

After the Conference is over, excursions will be arranged for important places in the district such as Tadpatri, Gooty, Lepakshi near Hindupur, Penukonda, etc., as also to Hampi in Bellary district.

Members from all parts of the Presidency are invited to attend the Conference and make it a success. Arrangements for messing and lodging will be made in the College Hostel at rupee one per diem. The Secretary will be thankful if members who intend to attend the Conference will kindly intimate to him beforehand (not later than the 18th December 1934). A concession rate may be given, if the mess ticket is purchased for three days together.

Special concession rates for railway journey have been announced by the M. S. M. Ry., which with the usual Christmas concession allowed by other railways may be availed of by members at distant places for a visit to this district. The weather is generally, clear, cool and agreeable in December in the Ceded districts; and some warm clothing may be taken.

Members in far-off places in the Presidency, who have had no opportunities of seeing these parts (known as the Ceded dis-

tricts), will be amply repaid by a visit to Anantapur and the other important places in and about the district. In several respects it will be highly enjoyable and profitable to join the geographical tour which will be arranged at the time of the Conference.

Gopalapuram, Cathedral Post,
Madras, 10th December 1934.

N. SUBRAHMANYAM,
Secretary.

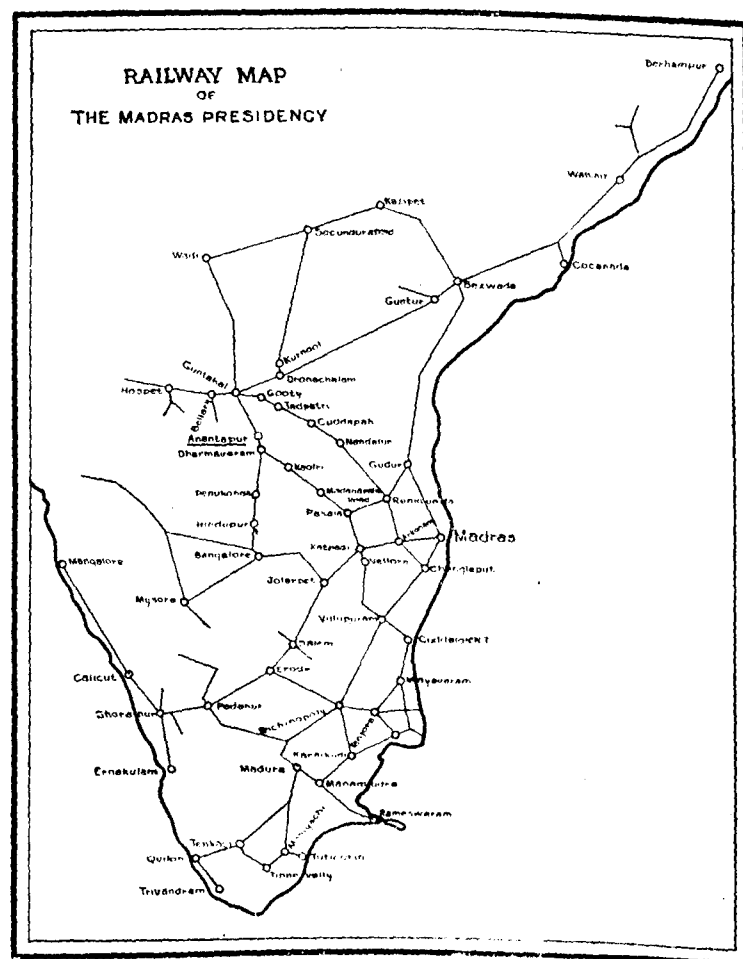


Fig. 12. Railway Map of South India.

Madras to Guntakal, Guntakal to Bangalore and Bangalore to
Guntakal, Bangalore to central section of M. S. M. Ry. and can be
covered in Rs. 10 at concession rate.



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THE MADRAS GEOGRAPHICAL ASSOCIATION RULES

1. The name of the Association shall be 'The Madras Geographical Association'.

Objects.

2. The objects of the Association shall be:—

- To promote geographical knowledge;
- To secure for geography its proper place in the High School, the University and its constituent and affiliated colleges;
- To help to improve the methods of teaching geography;
- To work for a school of geography being started;
- To promote studies about South India from various stand-points.

3. These objects shall be secured by:—

- Holding meetings and conferences, and publishing periodicals and occasional bulletins;
- Organizing geographical exhibitions and excursions;
- Helping in the preparation of geography books in the languages current in the Presidency;
- Forming a central library of geographical literature, and collecting maps, charts, plans, models, slides and instruments;
- Providing for circulation to members, of books, periodicals and other collections;
- And by such other ways as are deemed necessary to effectuate the objects of the Association.

Membership.

4. The membership of the Association shall be open to all those who are interested in the promotion of geographical knowledge or in the teaching of geography.

5. There shall be two classes of members, honorary and ordinary.

6. Honorary members are those who shall be so elected by the council by the majority thereof present at its meeting. They shall be exempt from liability to pay subscription, and shall have all the privileges of ordinary members, except voting.

7. A person shall become an ordinary member upon the proposal by a member, the assenting by another member and approval by the council by the majority thereof present at its meeting. He shall pay an annual subscription of rupees two, payable in full instalment or in two equal half-yearly instalments at his option.

8. Those who pay an amount of hundred rupees in two years become LIFE MEMBERS, and they shall be exempt from payment of any further subscription.

THE JOURNAL OF The Madras Geographical Association

The Journal is a Quarterly published every April, July, October and January. It contains mainly original papers read before the Association; but, it will also include articles, notes, reviews, etc., useful for the teacher of Geography.

The annual subscription is Rs. 4 for members (excluding the membership subscription of Rs. 2), and for non-members and institutions Rs. 8.

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