

Journal of the
Madison Geographical Association.
V. 4. No. 1. April 1929.



152
U.S. National Museum
Geographical
196846



—THE JOURNAL OF—

The Madras Geographical Association.

VOL. IV]

APRIL 1929

[NO. 1

“ Our Gay Neighbours ”

An ordinary meeting of the Association was held at 5-30 P.M., on 26th October 1928 in the Lady Willingdon Training College, Triplicane, when Professor Rao Sahib T. S. Subramania Ayyar, M.A., L.T., Vice-Principal, Teachers' College, Saidapet, delivered a lecture on “ Our Gay Neighbours,” illustrated with lantern slides. E. W. Green Esq., M.A., Principal, Government Muhammadan College, occupied the chair.

Starting with an account of Burma, the lecturer dwelt at first on the lighter side of Burmese life, and put on the screen some pictures to show the national amusement of the people.

He then said :—

With regard to the fertility of the country there is no question. You may divide Burma into two parts—the lowlands and the uplands. In the lowlands they get rice and other cereals. In the uplands they get tea. The produce of that country is sent down the upper Irawady to the lower course of the river in a float which is made of bamboo. When the float reaches the destination, its contents are disposed of, and the float itself is dismantled and disposed of too. The people who come on it go back by train. It is in this way that the commodities are brought down the river Irawady.

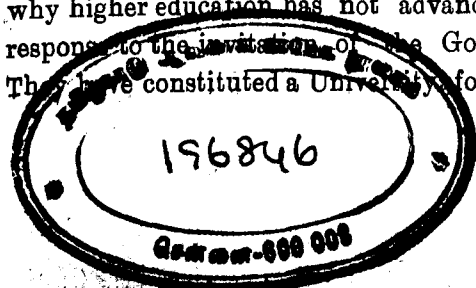
In Malaya the state of things is somewhat different. It is one dense forest throughout. There are only two roads ; one of these called the trunk road runs from Malaya to Singapore. The road construction in recent years has been very efficient in Java, Malaya and Burma. All the trunk roads are constructed of macadam and asphalt. It is only to facilitate transport that the roads are kept in

such an efficient condition and so much money has been spent on it. Even the Mount Road in Madras is not half as good as the roads in Malaya, Java and Burma. Here in the rainy season the road is cut awfully, and in the hot season the road melts awfully. In spite of the fact that they have rains in those parts for about 220 days in the year and it is subject to volcanic eruptions, the road construction there is very efficient. They are rich countries and the resources are fully utilised. Even villages there have roads and side-paths for pedestrians which are kept in excellent condition.

In Java there is universal telephone system. Surabaya is one of the commercially important cities. Pine-apple is cultivated largely in all rubber plantations in Malaya and Java; and America is the chief market for it. It is the Chinese that are chiefly engaged in it. It takes several years to yield in the case of rubber. Therefore, they grow pine-apple in extensive areas. Waggon loads of them are carried along the road.

People who can afford it go on motoring from Penang to Singapore. Malaya has recently been brought within the pale of European influence. Within the last fifteen years most of the prosperous towns have been brought into existence, and in the matter of rubber and tin production Malaya takes the lead. It is bigger than England and Wales, and is a very healthy country. People there do not care for Public Service. The Malaysians are experts in motor-driving, and they are proud of their trade and occupation. They consider it a mark of humiliation to be a public servant. The total population in Malaya is about 4 millions. They want to lead their lives in ease, because their wants are few. They live in the forests; and they can get what they wanted. They are satisfied with the little they get. The Chinaman is much in evidence there. There is no bargaining with him. All parts of a motor car are made by a Chinaman.

In Burma, Java or Malaya no attempt is made for higher education; and the several attempts that were made to convert schools into colleges had failed because no one desired to study in the college. People there are anxious to do some business. That is why higher education has not advanced rapidly. In Burma the response to the invitation of the Government was really grand. They have constituted a University for Burma, for which several



SL
Ugm 211 N 26MA
V28-41

lakhs of rupees have been subscribed. In Java the Dutch are making every endeavour to establish schools; but the conditions there are different. The Dutch have settled in Java and have made it their home. Chinamen learn English largely, because it is the language of the market; and they want to capture the business and trade. The richest men in that place are the Chinese.

At the close of the lecture there was a short discussion on the subject.

The chairman (Mr. E. W. Green) thanked the lecturer for his interesting lecture, and said:—The lecturer has brought out three important outstanding features which impressed him most. First is the roadways in Java; secondly, the extraordinarily good organisation there was behind the governmental action; and thirdly the love of organisation. The Dutch have done a lot to improve the natural fertility of the country. They take to business and thoroughly organise it. Their love of organisation can be seen in the wonderful irrigation system, which adds to the beauty of the natural scenery. Another remark which was made by the lecturer and which must impress everyone is the extraordinary fertility of the soil. One of the most interesting topics for the Indian scholar would be to consider the cultural effect of India upon Java.

With a vote of thanks to the Chairman and the Lecturer the meeting came to a close.

Some Results of Recent Upper Air Investigations

I am very thankful to the Committee of the Madras Geographical Association for having given me the privilege of speaking before the Association. As Geography is a cosmopolitan science including within its scope practically every other science, it would not be out of place if I say something to-day on upper air meteorology which can in a sense be considered as the geography of the free atmosphere.



It is a well-known fact that as we go up in the atmosphere the temperature generally decreases. The decrease is due to two causes. Dry air has little capacity for absorbing heat directly from the sun's rays; it can get heated by radiation only indirectly by mixing with air which has been in contact with the heated ground. Air at the level of the tops of hills has less chance of this indirect heating than air nearer the ground. The second cause is more important. The pressure of the atmosphere decreases with height. Therefore when we raise air from a lower level to a higher, it expands and cools, and *vice versa*, when we bring air from a higher to a lower level, it contracts and gets heated. From the physical properties of air we can calculate that a mass of *dry* air when raised through a height of 1 kilometre will cool by about 10°C . If the air is moist and on rising, cloud is formed, the latent heat of condensation of the water will go to raise the temperature of the air and consequently the rate of fall of temperature, or the lapse-rate of temperature will be less than $10^{\circ}\text{C}/\text{km}$. The actual decrease observed in the atmosphere varies with place and time especially near the surface of the earth, but is on the average about $6^{\circ}\text{C}/\text{km}$.

Can this decrease go on at all heights? How does the distribution of temperature differ in different parts of the world and at different times of the year? Are there layers in the atmosphere in which air can freely mix and other layers in which conditions are stable? With a view to answer these questions, experiments have been made in different parts of the world and very interesting results have been obtained.

The earliest method of obtaining data of free air conditions was by attaching instruments to kites. Soon after, with the invention of the hot air and hydrogen balloons, this was practically supplanted by the direct one of going up in a balloon with instruments like barometers, thermometers and electrometers and taking readings at different heights. Even now, these methods survive, though in a modified form. There are a few stations in the Continent of Europe and many in America where kites are regularly sent up with self-recording instruments for obtaining meteorological information. The place of manned balloons has now been taken by aeroplanes and the taking of meteorological observations from aeroplanes from one or more places is a regular feature in the

scheme of observations of most of the modern meteorological organisations of the world. In India, observations from aeroplanes are taken more or less regularly at Karachi, Quetta and Peshawar. The heights to which we can reach by kites and aeroplanes are however limited to 5 or 6 km. and for attaining greater heights, the method of "sounding balloon" is employed.

A 'sounding balloon' is a large hydrogen filled balloon (generally 1 to 2 metres in diameter) made of india-rubber or similar material to which an autographic instrument recording pressure, temperature and humidity is attached. When released, the balloon and instrument rise up in the atmosphere and the latter records the conditions of the different layers of air through which it passes. Being free, the balloon is also carried horizontally by the wind. It ascends to heights of the order of 15 to 20 km. and having by that time got considerably expanded by the decrease of pressure, it bursts or the hydrogen leaks out owing to the thinness of the envelope which then comes down. A label offering a small reward to the finder is attached to the instrument, and so, when it is picked up by anybody, it is usually returned intact to the place of release. There are now two sounding balloon stations in India, one at Agra and the other at Poona.

Fig. 1 shows a sounding balloon inflated and ready for an ascent, and fig. 2 a light meteorograph (after Dines) weighing about 90 gms. for recording pressures, temperatures and humidities. Fig. 3 shows the temperatures at different heights over Agra obtained from measurements of sounding balloon records. A striking feature of the diagrams is the more or less regular decrease of temperature with height up to 15-17 km. and the sudden increase thereafter. The lowest temperature reached varies from -65°C to -85°C .

All instruments reaching sufficiently high show this more or less sudden change of temperature. From ascents made in different parts of the world this phenomenon is recognised as a characteristic feature of our atmosphere. We can therefore broadly divide the atmosphere into two regions, a lower region where the temperature normally decreases with height and an upper region where it either increases with height or remains comparatively steady. The former region is called the troposphere and the latter the stratosphere. The region of transition between the two is called the tropopause.

Fig. 4 shows the temperatures at different levels over Agra during the three seasons, winter (November to February), hot season (March—May) and monsoon season (July—August) and fig. 5 the positions of the isotherms in the different months of the year. While up to 3 km. the temperatures in the free air change with season in the same manner as at the surface, between 4 and 13 km. the highest temperatures occur *not* in the hot season but during the monsoon. This is due to the large amount of heat liberated in the atmosphere by the condensation of the monsoon rains. The temperature, height and nature of the tropopause also show interesting differences. During the winter and early hot season, the stratosphere comes down to 14-15 km. and the mean temperature of the tropopause is about -70°C . The rise of temperature with height in the stratosphere during this season is also often small. Between June and October, the height of the tropopause is generally greater than 16 km. and its temperature lies between -80°C and -75°C . The inversion of lapse-rate at the base of the stratosphere is also very strong. The high temperatures between 4 and 14 km. during the monsoon and the simultaneous low temperatures of the tropopause suggest that the latter is a consequence of the former. In fig. 6 the temperatures at 10 km. are compared with the fall of temperature between 10 and 16 km.

It is interesting to compare temperatures over North India with those obtained in some other parts of the world. In fig. 7, the mean temperatures over Agra during the winter are compared with temperatures over Europe in summer and winter. The nearness of the North Indian winter temperatures with European summer temperatures up to 12 km. is noteworthy. The tropopause however is generally higher and cooler over North India. In fig. 8, the monsoon temperatures over North India are compared with temperatures over Batavia in summer and winter. The smallness of the annual variations of temperatures over Batavia and the marked *excess* of the Indian temperatures over those of Batavia are very interesting features. For comparison, two dotted lines are drawn showing how the temperature of a mass of air saturated at the earth's surface at 22° and 32°C (295 and 305 A) respectively would change as it ascends adiabatically (without exchange of heat with the surroundings) in the atmosphere. It is evident that the actual

temperature distribution over Batavia and over Agra during the monsoon comes very close to the condition of labile equilibrium for rising saturated air.

One of the facts which emerged from the study of the Agra sounding balloon records is that the rise of temperature in the lower layers of the stratosphere is the rule rather than the exception in our latitudes. Fig. 9 which shows the variation of temperature with height near the tropopause over Agra, Batavia and Fort Omaha (Lat. 40°N in U.S.A.) shows that this feature is present even over higher latitudes.

On the basis of results obtained from soundings in different parts of the world, Sir N. Shaw has drawn in his Manual of Meteorology Vol. II the probable latitudinal distribution of temperature over the terrestrial globe. There he has represented the temperature of the stratosphere in the vertical over any latitude to be uniform. In the light of fig. 9, this has to be modified and fig. 10 has consequently been prepared taking into account the available temperature data in the stratosphere also. While at the surface of the earth the coldest air lies over the poles, in the upper air it occurs over the equator. It forms a sort of anchor ring round the earth (a "Saturn's ring" of cold air as suggested by Dr. Normand) with warmer and warmer air surrounding it. While it is clear that this distribution of temperature is consistent with the general circulation of the atmosphere as we know it, the reason for it is still imperfectly known.

The above is an imperfect sketch of some of the broad features of temperature distribution in our atmosphere. The variations of temperature and humidity from place to place especially in the troposphere, their relations to winds and their connection with the seasonal and short period variation of whether in different parts of the world and the laws governing these variations are some of the problems which interest the meteorologist and, I hope, the general public as well. Some of these may perhaps be dealt with before you in future by other students of Meteorology.

Please accept my most sincere thanks for giving me this patient hearing.

Some Results of Recent Upper Air Investigations in India.

Under the auspices of the Association, Dr. K. R. Ramanathan, M.A., D.Sc., Meteorologist, Poona, delivered at the Presidency College on the 5th January, 1929 a lecture on "Some Results of Recent Upper Air Investigations in India," illustrated with slides. Dr. S. R. U. Savor, M.A., D.Sc., presided on the occasion.

The Chairman observed that Dr. Ramanathan had already been introduced to them by Dr. C. V. Raman, who had mentioned that the first observation of the Raman Effect had been really found out by Dr. Ramanathan. Investigations of the Upper Air were very valuable and important to the meteorologists and to navigators of the air. The conditions of upper air in all parts of the world would not be the same, and therefore with the introduction of air travels in India, the study of Indian upper air conditions should prove interesting.

(The lecture printed above was then delivered, and illustrated with slides.)

In the course of a discussion that ensued Dr. S. K. Banerjee observed that in Northern India the air conditions in October had a direct bearing towards rainfall in the subsequent months. It also would enable them to forecast storms. The whole work of studying upper air conditions need not be done by meteorologists alone. Others interested in the subject could also do the work. Indian geographical conditions favoured such a study, and instruments as were being used at Agra could easily be made at other places.

Dr. C. V. Raman spoke about the possible influence of free electrons in the atmosphere on the propagation of wireless waves and other connected questions which meteorologists would have to study in order fully to understand the mysteries of the upper air.

In the course of his concluding remarks the Chairman observed that the commercial value of the atmospheric conditions owing to the advent of air transport was responsible for the stimulus the subject had received in recent years. The more interest people took in the subject the greater would be the results and the advantages to humanity.

The meeting terminated with a vote of thanks to the Chairman and the Lecturer.

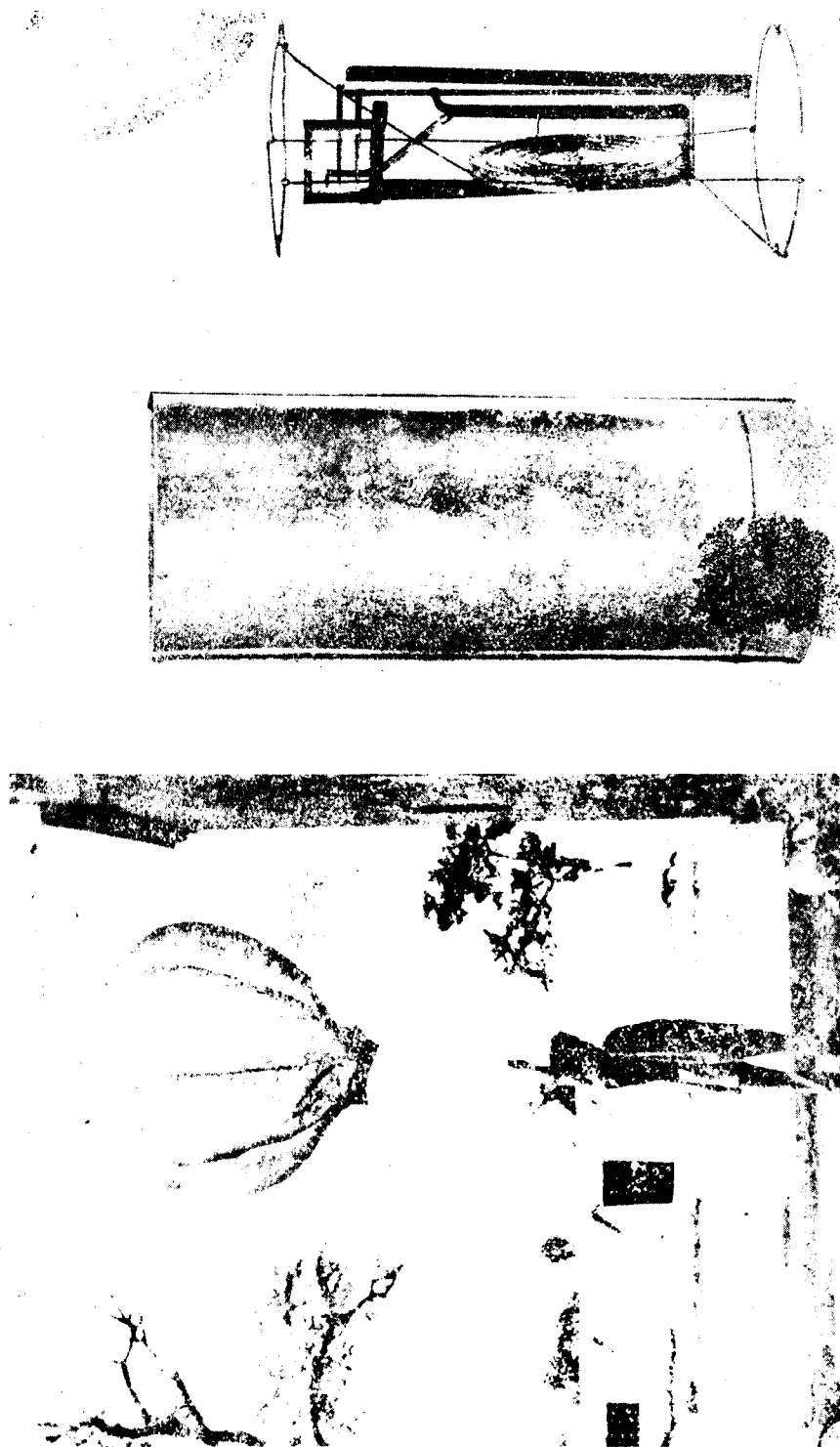


Fig. 2. Dines' Type Meteorograph.

Fig. 1. Sounding Balloon Ready for Ascent.

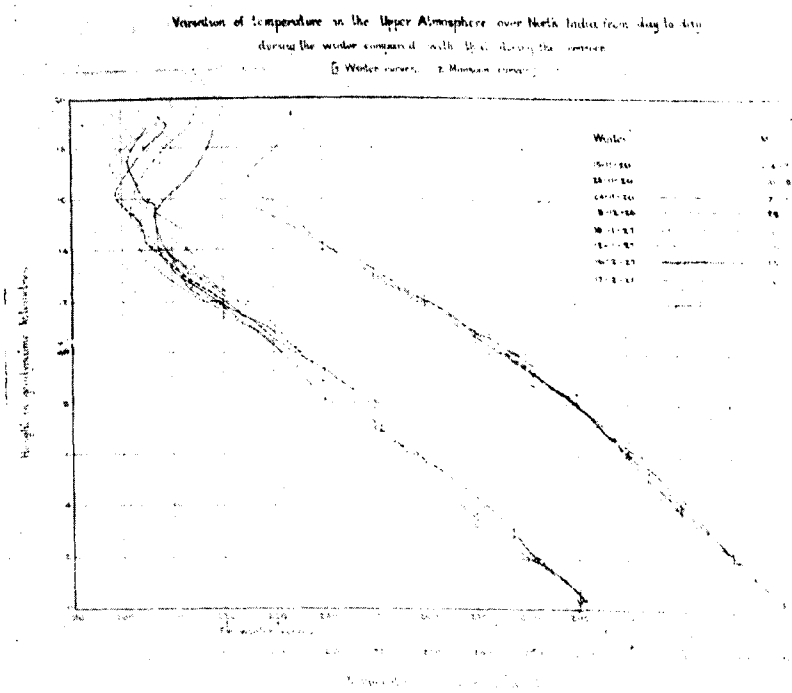


Fig. 3. Temperatures over Agra.

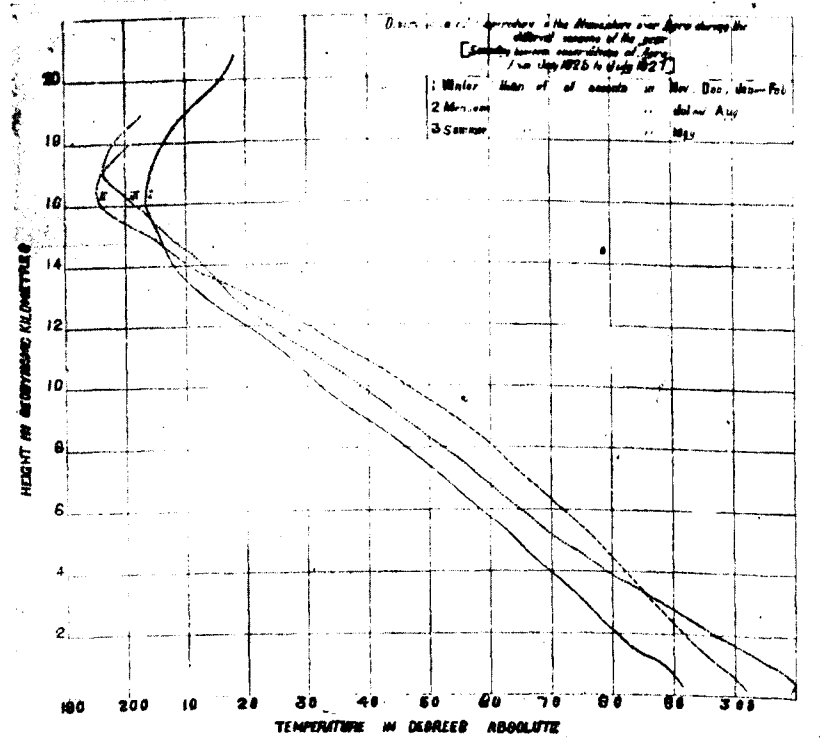


Fig. 4. Seasonal Variation of Temperatures over Agra.

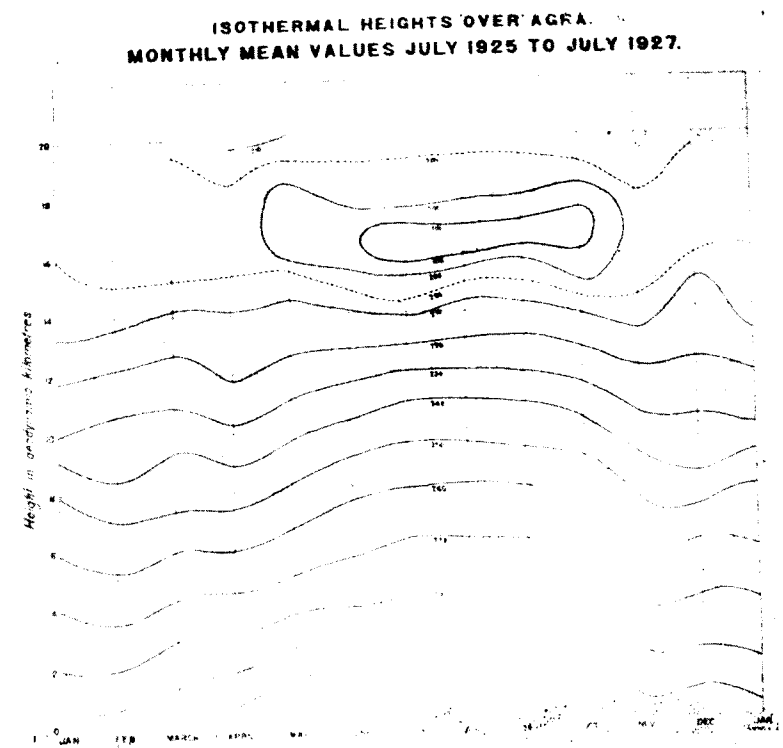


Fig. 5.

CURVES SHOWING TEMPERATURE OVER AGRA AT 10 KM CDKM
 AND DIFFERENCE OF TEMPERATURE BETWEEN 10 KM AND 16 KM
 THEY SHOW THAT A HIGH TEMPERATURE AT 10 KM IS ASSOCIATED
 WITH HIGH LAPSE RATE BETWEEN 10 AND 16 KM

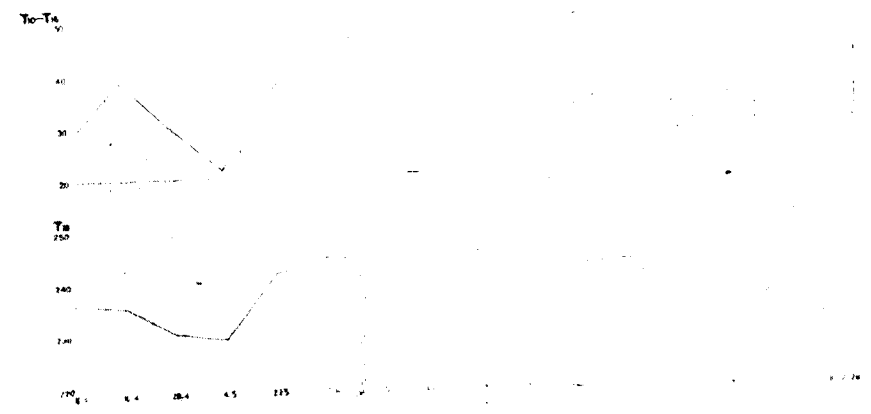


Fig. 6.

Vegetation of the Ganges Region.

Under the auspices of the Association, Professor S. P. Agarkar of Calcutta delivered at the Teachers' College, Saidapet on the 10th January 1929 a lecture illustrated with lantern slides on "the Vegetation of the Ganges Region." M.R.Ry., M. Subramania Iyer, B.A., B.L., Editor of the Journal of the Association, occupied the chair.

Professor Agarkar said that had he known of the existence of the Association called the Geographical Association in this city and that he would be called upon to give a lecture to its members, he would have come prepared to give more illustrations to elucidate the subject of his lecture. The Ganges Region had been the scene of the greatest changes in vegetation due to man's action. It had been alternately populated and depopulated by the activities of man. Areas which had been thickly wooded had been cut out and used for purposes of cultivation. After depopulation, owing to some cataclysm resulting from invasion and civil war, the country had been out of cultivation, and some kind of forest grew up in the region. In the area of the Ganges, some of the most complicated problems had arisen by the activities of man in regard to vegetation.

"The Ganges rises beyond the central range of the Himalayas, at a place about 17 miles beyond Gangotri, and flows through the Himalayas for about one hundred and eighty miles through various channels, through a course of different character than the one which is a thousand miles from it. The whole length of the Ganges is divided into three unequal parts. The longest is perhaps from Hardwar to the slope of the Gangetic delta; and the delta extends to about three hundred miles. The total length of the Ganges is a little more than a thousand eight hundred miles. The first part is a mountainous region, and the vegetation there is of a different kind from that prevalent in the plains. In the Himalayan tract the climate is different from that in the plains. They have intense cold and in summer they have monsoon and a fair amount of rain, and it is in those months they find the largest amount of water present in the stream. It is due to this fact that a good deal of snow gathers in the winter months, flows together and makes up the Ganges which emerges from the mountains to the plains at a

place known as Hardwar from which its course begins in the plains. That is why Hardwar is a great place of pilgrimage. Hardwar is a very healthy place, where the Ganges water is the clearest except during the monsoons when mud comes along with water. The character of the Ganges stream is torrential. The character of the river is different from that of the stream."

Illustrations.—The lecturer then threw on the screen pictures of plants belonging to the Tibetan type grown in an area where the monsoon would not penetrate and the climate is a dry one. The Ganges rises from a height of 13,000 feet, and when it comes to Hardwar it is very low. The next slide shown was that of the *Sangam* of the Ganges with the Jumna in Allahabad. The next picture was of the Sone river, a tributary of the Ganges. It is a shallow stream which in the rainy season becomes very wide with a bridge more than two miles in breadth. The deltaic region of the Ganges was next shown, and here flowed streams which were branches of the Brahmaputra, and formed the tract known as the *Sundarbans*. There are no roads in this area, and a very peculiar type of vegetation is produced here, and in the western part of the tract there is not much fresh water. The main streams of the Ganges flow through areas with a saline type of soil. Sundari forest was the scene of the next slide. This tree is used for various purposes, and it is 75 to 80 feet high; and below these trees are huge shrubs.

At the conclusion of the illustrations, the Lecturer said that his lecture was an attempt to give some idea of the types of vegetation in the Ganges region. The area divided into three unequal parts. The first is mountainous, and according as the locality is on one side of the Himalayas or the other they have different types of vegetation. In the extremely arid tract the vegetation is of the Tibetan type. Generally the plants are very small. Evidences are present of several cycles having taken place over the whole of the Gangetic area. When they come to the deltaic region, the hand of man is least felt. There are efforts to colonise this area, and the land which is under water is attempted to be reclaimed, and it is hoped to raise crops of paddy here. The Forest Department is also aiding in these efforts. Bengal is a thickly populated tract, and it is time to extend its population over other areas. A

large area in Assam is taken up by the people of Bengal, especially Muhammadans. Paddy is the most important crop. More important from the point of view of money is jute. While paddy is a food crop, jute is a money-making crop in which Bengal has monopoly.

The meeting terminated with a vote of thanks to the Chairman and the Lecturer.

Distribution of animals : A Comparative Study of the Past and the Present

Under the auspices of the Madras Geographical Association Dr. Baini Prasad, D. Sc., of the Zoological Survey of India, delivered a lantern lecture on Friday, January 11, 1929, at the Presidency College on "A Comparative Study of the Present-day Distribution of Animals with what it was in the Past". The Vice-Chancellor of the Madras University, Dewan Bahadur M. R. Ry K. Ramunni Menon, M.A., presided on the occasion.

The Chairman, in opening the proceedings, said :

I do not propose to inflict a speech on you at this late hour. The Madras Geographical Association is an institution of rather recent date, but it has already done very useful work in bringing into prominence the important side of Geography by arranging lectures by distinguished people on various aspects of the subject. I think the Association is to be congratulated on having secured such a qualified person as Dr. Prasad to speak on the subject of this evening's lecture. I understand that he is going to slightly alter the wording of the subject without materially altering its scope. Dr. Prasad is one of the senior members of the Indian Zoological Survey and a very important feature of the work of this department is the large amount of attention that is paid to the study of animal environment. I consider it therefore as particularly fortunate that we have such a highly qualified person to speak on the subject of this evening's lecture. I shall now without any further delay request Dr. Prasad to speak to us.

The Lecture.

Dr. Prasad said :

The unravelling of the very complicated distributions of animals in different parts of the world and the relationships of the different kinds of animals in adjacent or far off lands is not an easy matter and cannot be understood without the help of Geology, Palaeontology, Palaeogeography and other allied sciences. The workers in these allied sciences can give valuable help for understanding the relationship as also the probable courses of distribution of the different types of animals, but it is the Zoologists alone who can give the final verdict regarding the correctness of the solutions suggested ; and this is naturally as it should be ; for, after all, the Zoologists alone really understand the living animals and can decide whether the suggested solutions have any value whatsoever. That the 'faunas' of different parts of the world are different is a fact apparent to people who have travelled at all ; while for people who have travelled extensively and have observed the animal life of the different countries in which they have travelled it is a well-known maxim. Take, for example, the conditions in different parts of India. The animals of the Thar desert or Rajaputana are quite different from those of the Himalayas on the one hand or of Peninsular India on the other. But these differences are correlated not only with the physiographical differences of the areas concerned, but are intimately connected with the ancestral types of 'faunas' from which they are descended. The generic and specific differences between the animals of different countries are, as stated above, too well known to need a detailed consideration, but the differences between the animals of the different tracts of the same country need special reference. In South America, for example, which forms a single unit in the scheme of Zoogeographical classification there are such widely different Geological areas as the Pampas or the open grassy plains of the Argentine, the dense tropical forests of Paraguay and Brazil and the snow-clad upper reaches of the Andes. The animals of all these tracts are different; but they belong to closely allied groups most of which are not found in any other part of the world and, as their Zoological affinities prove, they belong to one Zoological realm only. The differences between the animals found in different tracts are due to the different

physical surroundings alone. On the other hand in a comparatively smaller area like India the faunistic conditions are very different. As in South America there are in India the open grassy plains as in several parts of the Terai of the Indo-Gangetic plain, the tropical forests as in the Malabar Coast tract, the snow-clad mountains as in the upper ranges of the Himalayas and even the true desert-tracts as in the Thar desert and parts of Rajaputana. The area from the faunistic point of view is not a homogeneous unit, but the 'faunas' of the different parts indicate that the different areas belong to at least two main Zoogeographical regions. The Himalayas above the forest range with Ladakh and Gilgit and a part of Tibet which we include in the Indian territory have to be referred to as what the Zoogeographers call Palaearctic region. The remainder of the Indian area on the other hand is a part of the Indo-Malayan region and its fauna is very closely allied to that of the Malaya Peninsula on the one hand and that of Southern China, Tong-King, Siam and Cambodia on the other. There are in addition to the Indo-Malayan element, however, remnants of the Pliocene Siwalik forms, certain relics of the Ethiopian fauna and a very important element for which Blanford suggested the name "Dravidian". This latter element appears to have inhabited the greater part of Peninsular India in the early Cainozoic times when Peninsular India was connected by a broad belt of land with Madagascar and South Africa. It would thus be seen that the differences in the 'faunas' of the different parts of India are to be explained not by the different physical characteristics of the areas only but are intimately bound up with the changes in the configuration of the continental mass in the past Geological ages, the influence of the rising of the Himalayas in the tertiary times as also the extraordinary changes which resulted from the glacial epoch. With these geological factors we have also to consider the independent migrations of animals from the various Zoological realms along the different routes of distribution and naturally at different times in the history of Indian Zoogeography.

A series of slides was then shown pointing to the probable changes in the configuration of land and water areas of the globe during the various geological epochs and illustrating how the various areas of land were connected with one another by continental

shelves or landbridges, in many cases over long expanses of the ocean. An attempt was made to correlate with these changes the various routes and lines of migration of different classes of animals.

Finally the importance of the study of the present-day distribution of animals was dwelt upon and it was shown how this study can be of help not only to Zoologists but also to Geologists and Palaeogeographers and workers in other allied sciences.

Chairman's Concluding Remarks.

The chairman in bringing the meeting to a close said :

I must confess that when I saw the notice of the meeting I was thinking of certain other aspects of the environment, the influence of environment on the evolution of animals. But I am not in any way disappointed. Dr. Prasad himself explained to us in the beginning of the lecture that the title did not actually describe what he was going to say and I think we are all indebted to him for the very interesting account that he gave us of the way in which the past configuration of the world's surface has influenced the present distribution of animal life. Of course this is a very important aspect of the study of animal life and it is equally an important aspect of the study of Geography ; and I have no doubt that if the study is pursued in a careful manner, even in an elementary manner, by the students of Geography and educated men generally, we shall have the satisfaction of coming to a better understanding not only of the distribution of animals that we see around us but of the different races of mankind. There can be no doubt that the study of the influence of the environment on the races of men, that is to say, how far the environment has influenced the development of the various characteristics of men, would tend to soften our feelings in regard to various races. Well, that of course is an out of the way remark more or less. I think I must convey on behalf of the Association to Dr. Prasad our very warm thanks for the very interesting lecture that he has given to us at short notice.

The meeting came to a close with a vote of thanks to the Chairman and the Lecturer.

"Vegetation and External Factors"

Dr. Agharkar's Lecture.

Dr. Agharkar of Calcutta, the Secretary of the Indian Science Congress, delivered a lecture on 4-1-'29 at the V. P. Hall on the "Dependence of vegetation on external factors". A large number of delegates to the Congress and the general public attended the lecture.

Dr. C. V. Raman, who presided, in his introductory remarks observed that strange trees and stranger beasts flourished in primeval forests. Man was but an inheritor of all that grew upon the earth. However civilised he might be to-day, he inherited a little of the spirit of those strange things and there was in him just that primeval instinct—that call of the world of the strange trees and stranger beasts—to go into the forest, and to go through the life of the forest, and feel the mere joy of living. "But," he said, "the more civilised zoologists and botanists who feel the primeval call, have sublimed it and have transformed it into a love of life for its own sake. That I would regard as a true definition of the sciences of zoology and botany. This artificial life is just a conventional life, one in which we are accustomed to live but if we wish to go back and realise the spirit of life, we must go back to the life as it was and not as it is now. Dr. Agharkar will put across to you a little of the spirit of the forest and I hope he will succeed in doing it."

Dr. Agharkar then delivered his address in the course of which he pointed out the dependence of vegetation on the climatic and edaphic factors with particular reference to India. The lecture was copiously illustrated with lantern slides, showing three typical areas of India—the Kasi Hills and Chirapunji in Assam, the Sunderbans of the Gangetic Delta, and the Krusadai Isles near Rameswaram. Vegetation, he said, was mainly affected to a large extent by the surroundings. The climatic factors consisted in the temperature of the place, the amount of moisture exhibited in the amount of precipitation of rainfall or dew and the amount of moisture contained in the shape of vapour. The amount and intensity of

light in the area were also factors which regulated and determined the kind of vegetation found in any area. Among the edaphic factors were the chemical composition of the soil and its physical properties, or its porosity and capacity to retain moisture. India had a very great variety in these respects. The rainfall of India varied from the 5 inches of Sind to the 400 or 500 inches of Chirapunji. The condition of the soil in India also showed great variety in different places. The surface elevation was also different in the several places, and so also the temperature. All these give rise to an infinite variety of local conditions which in turn are all responsible for the variety of types of vegetation.

The Kasi Hills in Assam and Chirapunji with its extraordinarily heavy rainfall showed forests combining tropical growths as also others requiring great moisture. But beneath the heights, in the plains, there was very little vegetation excepting some varieties of herbs, rough grass, etc. The phenomenal rainfall washes away all the soil and leaves behind a stony soil on which plant life hardly flourishes. But just above Chirapunji to the north, one would find luxurious forest growth, with heavy growth of the ferns and variety of tropical plants.

Coming down to Sunderbans in the Ganges Estuary, the salinity of the water in the river affects to some extent the vegetation. The Sunderbans or more correctly the 'Sundari Vana' takes its name from 'Sundari' tree which grows there in abundance. But as one goes up the river and the salinity of the water becomes less, the Sundari trees become more abundant while in the more saline areas, the "gema" tree replaces it. A notable feature of the Sundari tree as also of the other peculiar growths here is that the roots shoot upwards from the earth and this is supposed to be the means of respiration for the trees. These upward shoots render the forests impenetrable. There is also a peculiar type of tree here from which hang fruits wherefrom project long growths, which are also roots. They are generated by the seeds in the fruits and after some time these projections fall to the ground and spring up into trees.

The third typical area which was illustrated on the screen was the Krusadai Isle, near Rameswaram. The mangrove formation in this area was not so well developed as in the Sunderbans. The sands of the beach show a type of growth of the cyprus species, the

Salicornia, the Pandanus and a peculiar grass and a growth of the convolvulusian variety. The lecturer, in closing, thanked them for the honour done him.

Chairman's Remarks.

In bringing the meeting to a close, Dr. Raman said that the lesson of the lecture was the will to live shown by these plants. If they could not send their roots down in the earth they would send them up into the air (laughter), and if they could not throw the fruits towards the earth, they would keep them on the tree. It made them pause and think that in this mysterious force, called life, they had the expression of the same spirit which had guided human life, sustained human civilisation, viz., the will to live, and it had brought home to them in the most forcible way that fundamental unity of all life, of which they had heard so much and in a different manner. Dr. Agharkar had used his eyes well and he the speaker would not pay him a false compliment that he had also used his imagination. He for one would prefer to see nature as she was and record her truthfully. There was enough in nature to fill volumes. There was enough in nature and there was no need for them to put into her what was not already there.

He thanked the lecturer for his interesting discourse and the meeting then came to a close.

S. S. L. C. Syllabus in Geography

(As originally drafted)

GROUP A.

The scheme consists of three parts as follows:—

Part I—The Indian Ocean Basin : India : Africa : Australia.

Part II—The Atlantic Ocean. The Americas.

Part III—The Pacific Ocean. Eurasia.

The syllabus is based upon the fact that the Geographical unit is the World, and is intended to provide the pupil at the end of the course with a knowledge of the essential facts of World Geography, learned in systematically related order. An adequate

framework will thus be provided for fitting in the problems that may arise in later life, in their true perspective. Knowledge and application of fundamental principles and phenomena are therefore aimed at rather than an accumulation of detailed information about various regions.

It is expected that due emphasis will be laid on Practical Work (including map work) and Field Study in the teaching of the subject. Pupils will be expected to draw sketch maps or diagrams to explain or illustrate their answers, and may be required to insert from given data certain geographical features or to indicate distributions (e.g., rainfall, coalfields, population) on outline maps.

PART I.

The Indian Ocean Basin : India : Africa : Australia.

1. *The Indian Ocean :*

(a) *World position.*

(b) *Winds of the Basin :* Belt of calms at the equator. Seasonal winds in the northern half, and the south east trades and westerlies in the southern half. Relation between winds and currents.

(c) *Currents of the Basin :* Equatorial current and counter current. Direction and branches. Extent of its influence on the African coast. Monsoon drift: its effect on the coast line of India. West wind drift in southern half, and its effect on shipping.

2. *India :*

(a) *Climate :* Rainfall as a factor in climate. The rainfall of India the direct result of the monsoon winds. Its distribution, annual and seasonal. Effects of the seasonal character on the river flow. Contrast of the Deccan rivers with the Indo-Gangetic system.

Temperature : Continental character of the Indus Basin. Goal of the monsoon wind in summer. Effect of the Himalayas as a climatic barrier.

(b) *The Ganges Basin :* The importance of the Himalayas as a source of perennial water-supply. Work of tributary streams in adding water and silt to the main stream.

Detailed study of the middle course as an alluvial basin built up by the river. Advantages and disadvantages of alluvial formation. Effect of floods. Structure of the Delta Region. Divisions of the Basin based on climatic conditions. Crops of the region determined by rainfall, temperature, and possibility of irrigation. Location and development of important towns.

(c) *The Deccan :* Contrast with the previous region with regard to structure, climate and vegetation. An old crust block with an upturned edge to the west. Effect of this on climate, and direction and volume of the rivers. Value of the waterfall at the edge, e.g., Cauvery water-power scheme. Old volcanic lands of the north-western region. Study of the cotton lands of this region, and of Bombay as its outlet port.

(d) *The West Coast :* A faulted coast with a seasonal current, flowing past it, giving lagoons and backwaters, which are deep enough to be used for commercial purposes. Contrast east coast. Vegetation and occupations of mountain slopes and coastal strip, the direct result of the structural and climatic conditions.

(e) *East coast deltas :* Contrasted with the Ganges Delta, in the lack of a tidal river, perennial water-supply, and a rich hinterland.

(f) *Ceylon :* a tropical island.

(g) *Distribution of population :* Mainly controlled by rainfall.

3. *Africa :*

(a) *Climate :* Seasonal migration of the sun. Effects of greater land area in the north on temperature. Duplication of climatic and vegetation belts. Sahara and Kalahari deserts.

(b) *Structure :* Old crust block comparable with the Deccan but much larger. Faulted rift valley of the Nile and lakes. Folded Atlas mountains.

(c) *Study of the Nile Valley :* Contrast with the Ganges.

(d) *South Africa*: Terraced edge of the old block, resulting in the two Karroos. Relative value of agricultural, pastoral, and mineral wealth to the country. Compare minerals with those of the Deccan Plateau Mediterranean fruit-farming and the importance of the alternation of the seasons to that of Europe.

(e) *Rhodesia and Kenya*: Value of a plateau region within the Topics.

4. *Australia*:

(a) *Structure*: Two old blocks one of them higher than the other, with a shallow depression between. Effect of the Dividing Range on climate, human activities and distribution of population.

(b) *Climate*: Rainfall regions in the south of the continent dependent on the winds of the planetary system. Monsoon in the North: compare and contrast with India. Comparison of the desert with the Sahara and Kalahari. Importance of the seasonal distribution of rain.

(c) *Study of the east coast region* with regard to settlement and human occupations.

(d) *The Murray-Darling basin*: Early sheep-farming: latter attempts, at general farming. Irrigation by means of artesian wells, and now larger attempts at using the river as a source of supply.

(e) *The mining settlements of the west*: Comparison with Deccan and Africa.

(f) *The Mediterranean regions of the south-east and south-west*: comparison with Africa.

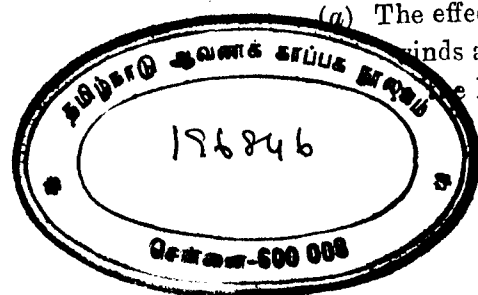
(g) A study of the *population* of the country treated historically.

PART II.

The Atlantic Ocean: The Americas.

1. *The Atlantic Ocean*:

(a) The effect of northward extension on the prevailing winds and currents, affording contrast with conditions in the Indian Ocean.



U 9 m 211, N 26 M 6
N 28.41

(b) Influence of the winds on the Discovery of the Americas.

(c) Effect of the tidal wave in the Southern Ocean upon the coasts of the shallow seas of the North Atlantic.

2. *South America*:

(a) *Structure and relief*: great fold ranges of Andes contrasted with the unfolded table-lands of the Brazil and Guiana Highlands; association of minerals, and effects on explorations and discoveries in the 16th century; present-day importance of mining in these regions; unfolded lowlands.

(b) *Climate*: comparison with that of Africa; effect of the mountain barrier; important effect of altitude upon temperature within tropics and consequent distribution of population of the Andean states.

(c) *Pampas Lands* of the Argentine and Uruguay; direct effect of structure and climate upon the economic development of this region.

(d) *Comparison of the three climatic belts of Chile.*

(e) *Lowlands of the Amazon*: effect of climate and soil; world's chief store-house of tropical products.

3. *North America*:

(a) *Structure and relief*: Cordillera of South America continuing with its fold ranges and plateaux into North America; old folded system of Appalachian; Laurentian shield; Plains of deposition.

(b) *Climate*: Influence of latitude, altitude, relation to the sea, prevailing winds and ocean currents on the distribution of temperature. Symmetrical distribution of rainfall north and south of the equator, west of the mountain barrier; decrease of rainfall towards the interior and the effect upon vegetation; absence of east to west barrier.

(c) *Natural Regions of North America*: based on the climatic belts, cool temperate and warm temperate, with their chief sub-divisions.

- (d) *North-western Highlands*; effect of structure—transverse and longitudinal valleys of sunken coast—upon its economic development.
- (e) *New England and the North-east* (including St. Lawrence) contrast in climate with that of (d) above; position on east of continent: the effects of structure upon the courses of the rivers and the distribution of soils; influence of the latter on the history of the settlements and movements.
- (f) *Coniferous forest belts*: occupations of the region.
- (g) *The Prairic Lands*: Cattle, maize and wheat belts importance of railways upon their development; the natural markets; Duluth, Detroit, Chicago, Winnipeg.
- (h) *Gulf Plain and Cotton Belt*: Comparison with production of cotton in India.
- (i) *Western Plateaux and Pacific Border*: Land forms, dry land and desert sculpture (Colorado Canyon, Mesas Bad Lands); winter rainfall on coastal margin, resulting industries; fruit-farming.
- (j) *Appalachian Region and Atlantic Sea-board*: Example of residual mountains and uplifted plain; sunken coast from Virginia to New Jersey; effect on rivers. Distribution of towns on the coastal plain dependent upon (i) advantage of water-power at the fall-line, and (ii) commercial importance of navigable estuaries. Industrial area of the Appalachian coal-field.
- (k) *Transcontinental Routes*: across Central and North America, important links in round-the-world routes.
- (l) *Growth of Canada and U. S. A.*

PART III.

The Pacific Ocean: Eurasia.

1. *The Pacific Basin*: greater steadiness of the planetary wind-systems, uninfluenced by land masses except on the land margin. Greater importance of the Asiatic sea-board: seas linked

with each other, and enclosed by fringes of volcanic islands. Activity of the coral polyp in the formation of islands in the South Pacific Ocean.

2. *Eurasia*:

- (a) *Structure and relief*: string of table-lands, enclosed by young folded mountains; contrast the Cordilleras of North America in direction and consequent effects. Northern lowlands. Block plateaux of Southern Asia and North-Western Europe. Alluvial plains of China, Northern India, Mesopotamia, Lombardy, and the Danubian plains.
- (b) *Climate*: General comparison with that of North America. Europe practically a region of westerlies; effect of the Gulf Stream Drift. Seasonal influence of the westerly in the Mediterranean. Effect of extent and structure in producing continental conditions over vast areas. Monsoons of southern and eastern Asia; effects of a large land mass, and of the mid-Asian barrier: contrast North America.
- (c) *Natural Regions of Eurasia*: based on relief and climate, studied in relation to the natural regions of the world as a whole.
- (d) *The British Isles*: structurally a part of the continent. Influence of the sea on the life and activities of the people. North Sea fisheries: compare Newfoundland fisheries. Navigable perennial rivers with deep estuaries. Distribution of coal fields and development of industries. Ports.
- (e) *Western Mainland of Europe*: Holland: carrying trade; reclamation; use of wind power; colonies. Franco-Belgian coal fields; St. Etienne coal field; vineyards; Paris basin; overland route to the East. Germany: the Rhine and the Elbe coal fields; sugar beet.
- (f) *Baltic Region*: The new border states, and their economic relation to Russia. Sweden: minerals; water-power. Denmark: co-operative farming.

- (g) *Central Highlands of Europe*: Czecho-Slovakia: minerals and industries. Mid-Danubian plain: agriculture. The Alpine region: water-power: manufactures of small articles of high value: Transport and routes.
- (h) *The Mediterranean Region*: influence of climate on plant adaptation and fruit culture. Sub-regions. Spain: mineral wealth without coal; effect on industry. Alluvial plain of Lombardy; use of water-power from the Alps. Peninsular Italy: influence of position on History.
- (i) *South-west Lands of Asia*: A region of plateaux and deserts, with one important alluvial plain. Highway between the East and the West through the ages.
- (j) *Central and Northern Eurasia*: Rumanian plain and Russian steppes, rich wheat lands and pasture lands. Prevailing desert conditions in the Aral Sea basin; Oasis along river banks: cotton. Climatic and vegetation belts of tundra, taiga and steppe: primitive occupations: contrast development in North America. Waterways and railways.
- (k) *The Monsoon Lands*:
- (i) *Revision of monsoons*: Sub-regions.
 - (ii) *Temperate*: Manchuria, North Japan, and North China: cold winters. Loess soil of North China. Soya bean; wheat.
 - (iii) *Sub-tropical*: South Japan and South China: mild winters, hot summers and greater rainfall. Teeming millions of industrious folk: rice, tea and silk.
 - (iv) *Tropical*: India and Indo-China: warm winters and heavy summer rains: double cropping. Chief crops of India and their distribution.
 - (v) *Equatorial*: East Indies and Philippines: Always hot with heavy rainfall. Spices, sugar and rubber. Tin of Malaya.

3. *World Commodities, Industries and Transport*:

- (a) *Chief World Commodities*: With reference to rice, wheat, tea, coffee, sugar, oil-seeds, cotton, jute: conditions favouring their production, relative supply, and chief markets. Special emphasis to be laid on (i) Indian, and (ii) other important sources of world supply.
- (b) *Chief Industries of the World*: Cotton, wool, silk, iron, ship-building: conditions favouring their growth. Indian industrial conditions. Potentialities of India and China. Distribution of world's power resources: coal, petroleum and water-power; India's resources in this respect.
- (c) *Communications*: Chief Indian railways connecting with the ports and the frontiers. Sea routes from the Indian ports to other parts of the world. Trans-continental railways. Caravan routes across Central Asia. Air route from India to Europe. Important cities and world ports.

C. GROUP.

1. *Detailed study of India.*
2. *Detailed study of a major natural region of the world (other than India), e.g., the Mediterranean, Australia and the Eastern Archipelago, South-west lands of Asia, Western Europe, North America east of the Prairies.*
(to be selected every year).
3. *Map-work*: Elementary map-making, map-reading and map-correlations.
4. *Physical Geography*: Major land forms; work of running water and other agents of denudation. Types of climate. The Daily Weather Report.

Geography (A-Group)

Amended Syllabus as finally passed.

(The Preamble of the Draft Syllabus is retained.)

PART I.

THE INDIAN OCEAN BASIN.

1. The World Position of India and the Indian Ocean.
2. The Winds and Currents of the Indian Ocean and their effects on the neighbouring lands.
3. The Climate of India and its effect on the human activities and the population of the country.
4. The Human Geography of the following areas together with such simple physical geography as shall be necessary for the understanding of the Human Geography :—
 - (a) The Ganges Basin.
 - (b) The Deccan Plateau.
 - (c) The West Coast.
 - (d) The East Coast Deltas.
 - (e) Ceylon.
5. The Climate and the resulting vegetation of Africa.
6. The Human Geography of the following areas treated as in (4) above :—
 - (a) The Nile Valley.
 - (b) South Africa.
 - (c) Rhodesia and Kenya.
7. Structure and Climate of Australia.
8. The Human Geography of the following areas :—
 - (a) The East Coast.
 - (b) The Murray-Darling Basin.
 - (c) The Mining Areas of the West.

- (d) The Mediterranean Regions of the South-East and South-West corners.

9. The Population of the country as a whole.

PART II.

THE ATLANTIC OCEAN AND THE AMERICAS.

1. The Winds and Currents of the Basin and their effects on the American Coasts.
2. The structure and relief of South America and its effect on the human activities of the country.
3. The Climate of South America and its effect on the human activities of the country.
4. The Human Geography of the following areas :—
 - (a) The Pampas Lands.
 - (b) Chile.
 - (c) The Amazon Lowlands.
5. Structure and relief of North America.
6. Climate of North America and its effect on vegetation and human activities of the country.
7. The Human Geography together with such physical Geography as shall be necessary for the understanding of the same, of the following areas :—
 - (a) The North-Western Highlands.
 - (b) The New England States.
 - (c) The Coniferous Forest Belt.
 - (d) The Prairie Lands.
 - (e) The Gulf Plain and the Cotton Belt.
 - (f) The Western Plateaux and the Pacific Border.
 - (g) The Appalachian Region and the Atlantic Border.

PART III.

THE PACIFIC OCEAN AND EURASIA.

1. The Winds and Currents of the Pacific Ocean and their effect on the coasts of Asia.

2. The Structure and Relief of Eurasia.
3. The Climate of Eurasia and the effect of 2 and 3 on the human activities of the continent.
4. The Human Geography of the following areas:—
 - (a) The British Isles.
 - (b) The Western Mainland of Europe.
 - (c) The Baltic Regions.
 - (d) The Central Highlands of Europe.
 - (e) The Mediterranean Region of Europe.
 - (f) The South-west lands of Asia.
 - (g) Central and Northern Eurasia.
 - (h) The Monsoon Lands.

BOOKS RECOMMENDED.

Text-books:—

Human Geography for Secondary Schools. The World by Fairgrieve and Young. (George Philip and Son).
 New Regional Geographies: Book IV. The World by Leonard Brooks. (University of London Press).
 Regional Geographies of India: Book IV, by L. Dudley Stamp. (Longmans, Green & Co.)
 India, World and Empire by Herbert Pickles. (Oxford University Press.)

REFERENCE BOOKS FOR TEACHERS.

Groundwork of Modern Geography—by A. Wilmore (George Bell & Sons).
 Principles of Geography—by E. G. Skeat (Oxford University Press.)
 The World—by Dudley Stamp. (Longmans, Green & Co.)
 General and Regional Geography of the World—by J. F. Unstead and E. G. R. Taylor. (George Philip & Son).

Some Notes and Comments on the New S.S.L.C. Syllabus in Geography

In the reorganised S. S. L. C. Scheme Geography has been accorded a place both in the A-group (as a compulsory subject) and in the C-group (as an optional subject). This is as it should be; for, while it is necessary that every pupil should have a general outline knowledge of Geographic facts and principles, the select few that desire to specialise in the subject in the University ought to be able to get the proper preliminary training in geographic methods in a fuller and more detailed manner. The new scheme is expected to come into effect in the fourth form immediately; and as specialisation will begin only in the fifth form next year, the syllabus for C group has not been worked out in detail now. My present remarks, therefore, apply to the A-group syllabus only.

In the A-group History and Geography have been thrown together with a single separate minimum of marks; and even so instead of the two subjects having an equal status and importance and an equal allotment of time and marks, Geography gets only a third of the time and importance, while History is magnified into two subjects "History of India" and "History of England" with a two-thirds allotment of time and marks. Public opinion seems to be still uninformed and apathetic, if not antidathetic, with regard to the importance of Geography as a school subject; and it is too much to expect sudden light after 'the Dark Ages' of nearly two decades for the subject. It is hoped that a proper and more reasonable readjustment as between the two subjects will be made before the scheme is in full working order.

The original draft of the syllabus was very carefully prepared by a sub-committee of experts, who knowing the local conditions, included under each main topic what practically amounts to notes for the guidance of the teacher, thereby swelling the size of the syllabus to what has been called "forbidding" proportions. This gave rise to the criticism that it was ambitious and heavy, and in response to it the last section on "World Commodities, Industries and Communications" as well as the details which were intended

to serve as teaching notes have been omitted in the syllabus as it has been finally passed.

The preamble consists of a very necessary and useful statement of the basis, aim and scope of the syllabus. Teachers trained in the methods of old Geography have to remember that "knowledge and application of fundamental principles and phenomena are aimed at rather than an accumulation of detailed information about various regions". Another point to note is the emphasis on Practical Work (including map-work) and Field Study in the teaching of the subject. In future issues of this journal it is intended to give specific suggestion on different types of Practical Work.

The scheme consists of three parts, which is expected to be covered in the three High School classes in order. The approach for each year's work is from a particular ocean which has tremendously influenced or is influencing the adjoining lands studied in that year. This method affords scope for proper treatment of topics, such as currents, winds, coral islands, etc., which cannot be so conveniently studied from the land point of view only. Moreover, the study of winds and currents in the Indian Ocean Basin gives a single, clear and comprehensive understanding of the subject in relation to India, Africa and Australia, and need not be repeated *in extenso* in connection with each of those lands. Some superficial critics of the syllabus, without understanding this and following the lead of a Professor of Geography, have raised the bogey of Oceanography and Tetrahedral Theory having been included in the syllabus, which cannot by the most searching examination be discovered in it.

Clipped of all guiding notes and details, the amended syllabus will be found to be really meagre, and not ambitious and over-weighted. Advisedly it has been so drafted as to contain only minimum essentials; and the emphasis is on geographic training and outlook rather than on facts, which have to be treated more as raw materials for the induction of principles. Each principle is meant to be developed in the region where it is most typically illustrated. Hence several regions which have not been considered essential have been omitted. For example, the Thar desert and the Punjab region have been omitted in India, but Sahara and the Nile valley have been put in their place as being the best types of a desert along

the tropics and of an alluvial irrigated region respectively. The equatorial rain forest region (the Congo region) is omitted in Africa, but the Amazon region has been included as better representing the type. In South America only two more regions, the Argentine and Chile (with its three sub-regions) have been selected for special treatment. All this shows the value placed on a knowledge of principles derived from a study of typical regions and the discounting of a mere knowledge of facts as such. It also shows incidentally the great solicitude of the framers not to overburden the syllabus. It is only in the northern continents, and in Eurasia especially, that a larger number of regions have been included for very obvious reasons.

Another feature of the syllabus is that it is graduated in its three parts according to certain definite principles on an organic plan. 'From the near to the distant' and 'from the simple to the complex' are two very important pedagogic principles that will be easily recognised in the syllabus in judicious combination. Starting from the Home Country in the fourth form, the pupil proceeds to study the continents of Africa and Australia across the highway of the Indian Ocean. He, then, reads of distant America in the fifth form, and returns to Eurasia in the final year. At the same time the simpler southern continents are finished first before the more complex continents of North America and Eurasia are taken up. In the same way, principles regarding land forms, climate and vegetation are emphasised in the earlier parts, while the human side is stressed more in the latter part of the second year and in the final year. The principles of climate, again, to take a specific example, are taken up for concrete study one by one, each being stressed in the region where it is most typical. For example, the monsoon wind and rain in India, the swing of the sun north and south of the equator and the symmetrical distribution of climatic belts in Africa, the influence of altitude in Kenya and the Andean states, and so on till they are all gathered up towards the end of the second year in North America for a complete and comprehensive treatment and for a final statement. A similarly graduated plan is in evidence with reference to natural vegetation and human life and occupations.

Another important feature of the syllabus is the provision for frequent revision in the shape of constant comparison and contrast

with regions already done. For example the deltas of South India are contrasted with the Gangetic delta; the Deccan region is contrasted with the Ganges Basin; the Nile valley with the Ganges valley; the South African and Australian blocks are compared with the Deccan block; the Australian monsoon area is contrasted with the Indian; the plateau of Kenya is compared with the Andean plateau; the Gulf Plain and cotton belt in North America compared with the Indian cotton region and so on. Again the winds and currents of Indian Ocean are revised and contrasted in the Atlantic Ocean as a result of the northward extension of the latter. The symmetrical duplication of the climatic and vegetation belts in Africa is revised and completed in the north-to-south gore of the Americas where the land extends to higher latitudes. Finally in Eurasia a full conspectus of the natural regions of the world is built up and the edifice is completed.

Great care and thought have been bestowed on the drafting of the syllabus, which is simple, clear, graduated, with facts and principles and physical and human sides evenly balanced, and on approved modern lines. It is, of course, meagre and of a lower standard than it ought to be; but, in course of time, with the provision of a larger number of trained and qualified teachers of geography and with general improvement of geography teaching in the middle school classes, it can be revised and the standard raised.

Meantime, three important lines of action have to be taken immediately. Firstly, to make up for the paucity of qualified teachers of Geography, the Educational Department, the Teachers' Guilds, or the Geographical Association should make early arrangements to hold a refresher course or summer school to provide for the needed training. Secondly, the S. S. L. C. Board should arrange to issue a bulletin explaining fully the scope of the new syllabus, and giving detailed hints and suggestions regarding the method of conducting Practical Work, equipment, references etc. Thirdly, it is urgently necessary that the departmental syllabus in Geography for the middle school forms should be revised and brought up-to-date to afford a proper foundation for the new S. S. L. C. Syllabus. The better plan would have been to prepare a graduated syllabus on an organic plan from the first to the sixth forms; but in the

absence of such a thing, let there be at least an early recasting of the middle school syllabus on proper lines.

N. SUBRAHMANYAM, M.A., L.T.

News and Notes

The Third Annual Report for the year ending 31st March, 1929 is presented in this number. But, the Annual Meeting, which was announced to be held on 19-4-'29, could not take place for want of quorum. The postponed meeting will take place in the third week of July, after all the schools and colleges re-open and settle down to work.

Films relating to some Scenes of Rural Life in South India were exhibited the same evening by Dr. A. Lakshmiapati in the Presidency College to the members of the Association. These referred largely to agricultural operations and some village industries, and were highly appreciated.

We are glad to note that the reorganised S. S. L. C. Scheme is brought into force in the present year for the fourth form. Part I of the new syllabus of A-group Geography has to be worked in the schools immediately. Though simple and meagre, the syllabus has to be handled on right lines with due emphasis on Practical Work. It is, therefore, a matter for gratification that the South India Teachers' Union has decided to arrange for short courses of training in Geography and Biology at a few selected centres during the next Michaelmas holidays.

Already the Madras Teachers' Guild had forestalled the Union in arranging in March last for a course of six lectures on different aspects of Modern Geography. All the lecturers are prominent members of the Madras Geographical Association. It was largely attended by teachers not only of Geography but of other subjects as well. The course which was suggestive and stimulating was highly appreciated. In response to a general request these have been gathered together in book form and published with a foreword

with regions already done. For example the deltas of South India are contrasted with the Gangetic delta; the Deccan region is contrasted with the Ganges Basin; the Nile valley with the Ganges valley; the South African and Australian blocks are compared with the Deccan block; the Australian monsoon area is contrasted with the Indian; the plateau of Kenya is compared with the Andean plateau; the Gulf Plain and cotton belt in North America compared with the Indian cotton region and so on. Again the winds and currents of Indian Ocean are revised and contrasted in the Atlantic Ocean as a result of the northward extension of the latter. The symmetrical duplication of the climatic and vegetation belts in Africa is revised and completed in the north-to-south gore of the Americas where the land extends to higher latitudes. Finally in Eurasia a full conspectus of the natural regions of the world is built up and the edifice is completed.

Great care and thought have been bestowed on the drafting of the syllabus, which is simple, clear, graduated, with facts and principles and physical and human sides evenly balanced, and on approved modern lines. It is, of course, meagre and of a lower standard than it ought to be; but, in course of time, with the provision of a larger number of trained and qualified teachers of geography and with general improvement of geography teaching in the middle school classes, it can be revised and the standard raised.

Meantime, three important lines of action have to be taken immediately. Firstly, to make up for the paucity of qualified teachers of Geography, the Educational Department, the Teachers' Guilds, or the Geographical Association should make early arrangements to hold a refresher course or summer school to provide for the needed training. Secondly, the S. S. L. C. Board should arrange to issue a bulletin explaining fully the scope of the new syllabus, and giving detailed hints and suggestions regarding the method of conducting Practical Work, equipment, references etc. Thirdly, it is urgently necessary that the departmental syllabus in Geography for the middle school forms should be revised and brought up-to-date to afford a proper foundation for the new S. S. L. C. Syllabus. The better plan would have been to prepare a graduated syllabus on an organic plan from the first to the sixth forms; but in the

absence of such a thing, let there be at least an early recasting of the middle school syllabus on proper lines.

N. SUBRAHMANYAM, M.A., L.T.

News and Notes

The Third Annual Report for the year ending 31st March, 1929 is presented in this number. But, the Annual Meeting, which was announced to be held on 19-4-'29, could not take place for want of quorum. The postponed meeting will take place in the third week of July, after all the schools and colleges re-open and settle down to work.

* * * *

Films relating to some Scenes of Rural Life in South India were exhibited the same evening by Dr. A. Lakshmipati in the Presidency College to the members of the Association. These referred largely to agricultural operations and some village industries, and were highly appreciated.

* * * *

We are glad to note that the reorganised S. S. L. C. Scheme is brought into force in the present year for the fourth form. Part I of the new syllabus of A-group Geography has to be worked in the schools immediately. Though simple and meagre, the syllabus has to be handled on right lines with due emphasis on Practical Work. It is, therefore, a matter for gratification that the South India Teachers' Union has decided to arrange for short courses of training in Geography and Biology at a few selected centres during the next Michaelmas holidays.

* * * *

Already the Madras Teachers' Guild had forestalled the Union in arranging in March last for a course of six lectures on different aspects of Modern Geography. All the lecturers are prominent members of the Madras Geographical Association. It was largely attended by teachers not only of Geography but of other subjects as well. The course which was suggestive and stimulating was highly appreciated. In response to a general request these have been gathered together in book form and published with a foreword

from Mr. R. G. Grieve, M.A., F.R.G.S., Acting Director of Public Instructions, Madras, as a supplement to the South Indian Teacher. It is priced annas eight only.

We are also glad to find that arrangements have been made to provide for training in Geography for graduate teachers in the Government Training College, Rajahmundry, from the current year. We have no doubt this step will help considerably towards improving the methods of teaching the subject on modern lines in the Andhra Districts.

The University of Madras, however, has been delaying long the inauguration of a proper Diploma Course. The scheme was about to be sanctioned in the March meeting of the University bodies so as to be given effect to in July, but has been referred back. A Diploma Course is urgently needed not only for the benefit of the lecturers of Geography in the Intermediate classes, but also for the prospective teachers of Geography in High Schools. L. T. students of Training Colleges find it a hard job to do both subject-matter and method in one year; and it will tend to more efficient teaching of Geography, if the students who come up for training acquire a knowledge of the subject before they enter the portals of the Training Colleges. At least until such time that a Degree in Geography is instituted, a Diploma Course in the subject is badly needed.

One important step has, however, been taken to advance the cause of Geography in Madras. The Government of Madras, on the recommendation of the University, have awarded an Overseas Scholarship for Geography, tenable for two years. We congratulate the recipient of it, Mr. V. S. Swaminathan, who is an Honours Graduate in Geology with some research experience; and we have no doubt he will make the best use of his opportunities.

The Editor.

Books and Journals Received

Scientific Indian and the Mercantile Guide, Vol. I, No. 1—January '29.

Rural India: Vol. IV, Nos. 2 to 4—February to April 1929.

The South Indian Teacher: Vol. II, Nos. 2 to 4—February to April '29 & Syllabuses Supplement.

Digest of Agricultural Operations in Madras: Nos. 79 to 81—January to March 1929.

The Educational Review: February to April 1929.

The Journal of the Travancore Teachers' Association: Vol. VIII, No. 1—March 1929.

The Geographical Review of New York: April 1929.

Our Home Magazine: April 1929.

Quarterly Journal of the Mythic Society: April 1929.

Indian Schools Improved Atlas: Published by the Calcutta Fine Art Cottage.

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.

The Journal is a good medium of advertisement for Geographical publications, apparatuses and appliances.

Advertisement Rates :—

Full page per insertion	Rs. 10
Half page „ „	„ 6
Quarter page „ „	„ 4

All correspondence to be addressed to the Secretary,

The Madras Geographical Association,
Gopalapuram, Cathedral Post, Madras.

Indian History

By M. K. Sundaravaradachariar, B.A., L.T., Head-master,
C. C. C's High School, Perambur.

			Rs.	A.	P.
Hindu Desa Charitra Kathaigal Part I Tamil					
		V class	0	6	0
do	do	Telugu	0	6	0
do	do	Part II Tamil I Form	0	7	0
do	do	Telugu	0	7	0
Hindu Desa Charitram Book I		Tamil II Form	0	10	0
do	do	Telugu	0	12	0
do		Book II Tamil III Form	0	10	0
do		Telugu	0	12	0
History of India Part I for Senior classes Tamil					
		IV Form	1	0	0
Civics by M. K. Sundaravaradachariar Tamil			0	12	0
Elementary Civics by	do	do	0	6	0
Balar Civics by	do	do	0	5	0

Geography—Tamil

By K. Sivasubramanya Iyer, Asst., Municipal
High School, Mayavaram.

Book I (for I Form)	0	9	0
Book II (for II Form)	0	10	0
Book III (for III Form)	0	12	0

Geography—Telugu

By G. V. Sitapati, B.A., L.T., Lecturer in History,
Raja's College, Parlakimedi.

Book I (for I Form)	0	10	0
Book II (for II Form)	0	10	0
Book III (for III Form)	0	12	0

THE INDIAN PUBLISHING HOUSE LTD.,
Sunkurama Chetty Street,
G. T., Madras.

The Third Annual Report of the Madras Geographical Association, 1929.

The Working Council has the honour to present the Annual Report for the year 1928-29:—

The third year has been one of consolidation of the position reached so far.

More colleges, which were keen about it, could not open Geography classes in the Intermediate Course for want of qualified staff; and the University of Madras has, consequently, decided to constitute a Department of Geography and to provide for a Diploma Course.

But in the High School it is that the year marks an advance in the position of the subject. Relegated to the B-Group (the non-examination group) in the S. S. L. C. Scheme at its inception in 1911, and dropped as a separate subject in the higher classes of the High School in 1916, for the last twelve years it has been practically neglected in the schools. In the re-organised S. S. L. C. Scheme, Geography has been accorded a place as a compulsory subject, and may be studied further as an optional subject. The syllabus has been framed on modern lines. In view of the fact that this syllabus was not published till quite recently, the Working Council of the Association felt that a Summer School for the teachers of Geography in the High School might be run with benefit some time next year instead of in the present month (April 1929) as in last year.

The strength of the Association reached a maximum of 245 members, of whom 31 were admitted during the year, one of them becoming a Life Member. 10 members resigned,

The Journal has been publishing mainly the Proceedings of the Association, including full reports of the papers read. To meet the requirements of the teachers of Geography, it is proposed to include articles on the teaching of the subject from the next number onwards.

The financial position as seen from Appendix A will show that the Association is just able to make both ends meet, with no reserve funds built up.

Appendix B contains a list of lectures delivered and papers read during the year.

Appendix C contains the list of members during the year.

Gopalapuram,
Cathedral Post, Madras,
15th April, 1929.

(By order)
N. SUBRAHMANYAM,
Secretary.

APPENDIX A.

The Madras Geographical Association, Madras.

Statement of Receipts and Disbursements for the Year Ending 31st March 1929.

RECEIPTS.		Rs. A. P.	Rs. A. P.	DISBURSEMENTS.		Rs. A. P.
<i>Opening Balances.</i> —						
Cash	...	10 0 0		Paper, Printing and Binding, Blocks, etc.,	...	718 15 9
Indian Bank	...	93 11 0		Artist & Photo charges	...	11 8 0
Do. No. II	...	5 0 1		Charges at meetings	...	7 12 0
Imprest a/c	...	103 6 7		Audit fee	...	10 0 0
Postage a/c	...	0 13 6		Conveyance charges	...	12 11 0
				Stationery	...	20 8 3
				Postage	...	90 6 6
Interest from Bank			212 15 2	Miscellaneous charges	...	0 4 0
Subscriptions for—				Refund of excess collection	...	3 0 0
Ordinary Membership	...		254 0 0	Repayment of advances	...	141 0 0
Life Membership	...		20 0 0	Part-time temporary clerk	...	30 0 0
The Journal	...		575 0 0	<i>Closing Balances.</i> —		
Sale of copies (Journal)	...		2 0 0	Cash	...	7 0 0
V.P. charges recovered	...		7 10 0	Indian Bank	...	26 12 10
Excess collection	...		3 0 0	Imprest a/c	...	0 0 7
				Postage a/c	...	0 7 0
						34 4 5
Total ...				Total ...		
			1,080 0 11			1,080 0 11

RECEIPTS.		Rs. A. P.	Rs. A. P.
<i>Opening Balances.</i> —			
Cash	...	10 0 0	
Indian Bank	...	93 11 0	
Do. No. II	...	5 0 1	
Imprest a/c	...	103 6 7	
Postage a/c	...	0 13 6	
Interest from Bank			212 15 2
Subscriptions for—			5 7 9
Ordinary Membership		...	254 0 0
Life Membership		...	20 0 0
The Journal		...	575 0 0
Sale of copies (Journal)		...	2 0 0
V.P. charges recovered		...	7 10 0
Excess collection		...	3 0 0
Total	...		1,080 0 11

DISBURSEMENTS.		Rs. A. P.
Paper, Printing and Binding, Blocks, etc.,	...	718 15 9
Artist & Photo charges	...	11 8 0
Charges at meetings	...	7 12 0
Audit fee	...	10 0 0
Conveyance charges	...	12 11 0
Stationery	—	20 8 3
Postage	...	90 6 6
Miscellaneous charges	...	0 4 0
Refund of excess collection	...	3 0 0
Repayment of advances	...	141 0 0
Part-time temporary clerk	...	30 0 0
<i>Closing Balances.</i> —		
Cash	...	7 0 0
Indian Bank	...	26 12 10
Imprest a/c	...	0 0 7
Postage a/c	...	0 7 0
Total	...	1,080 0 11

The Madras Geographical Association, Madras.

Income and Expenditure Account for the Year Ending 31st March 1929.

EXPENDITURE.	Rs. A. P.	INCOME.	Rs. A. P.
To Paper, Printing & Binding, Blocks etc.,	872 11 9	By subscriptions for—	
„ Artist & Photo charges	11 8 0	Life Membership	100 0 0
„ Charges at Meetings	7 13 0	Ordinary Membership	296 0 0
Audit fee	10 0 0	The Journal	601 0 0
Conveyance charges	12 11 0	By Sale of copies (Journal)	2 0 0
Stationery	20 8 3	„ V. P. Charges recovered	7 10 0
Postage	90 6 6	„ Interest from Bank	5 7 9
Miscellaneous charges	0 4 0	„ Balance c/d	45 14 3
Part-time temporary clerk	30 0 0		
Expense (last year)	2 2 6		
Total	1,058 0 0	Total	1,058 0 0
Balance b/d	45 14 3	By Balance being the Deficit for the	
Irrecoverable subscriptions written off—		year carried to Balance Sheet	274 14 3
Ordinary Membership	162 0 0		
Subscriptions for the Journal	67 0 0		
Total	274 14 3	Total	274 14 3

Balance Sheet as on 31st March 1929.

LIABILITIES.	Rs. A. P.	ASSETS.	Rs. A. P.
Advance Subscriptions—		Subscriptions outstanding.—	
For ordinary membership	3 0 0	Ordinary Membership—	
Advance Account—		for 1927—1928	17 0 0
Mr. M. Subrahmaniam	18 0 0	for 1928—1929	83 0 0
Bills Payable—		Life Membership	100 0 0
As per last balance sheet	177 4 0	Journal Subscription—	80 0 0
Amount paid since last balance sheet	135 0 0	for 1927—1928	36 0 0
		for 1928—1929	364 0 0
Balance	42 4 0	Cash and other balances—	400 0 0
Add amount due since last balance sheet but not paid	289 1 0	Cash on hand	7 0 0
		Indian Bank	26 12 10
		Imprest a/c	0 0 7
		Postage a/c	0 7 0
			34 4 5
M. G. Association Fund—			
Adjusted balance on 1st April 1928	536 13 8		
LESS DEFICIT, as per income and Expenditure Account	274 14 3		
	261 15 5		
Total	614 4 5	Total	614 4 5

AUDITOR'S REPORT.

I have examined the above Balance Sheet with the books and vouchers kept by the Secretary of the Association, and have obtained the information and the explanations I have required. In my opinion, such Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of affairs of the Association according to the best of my information and the explanations given me, and as shown by the books of the Association.

Gopalapuram Madras,
Dated 4th April 1929.

G. L. NARASIMHAM, G.D.A.,
Honorary Auditor.

APPENDIX B

Date.	Lecture.	Lecturer.	Chairman
1. 17-10-'28	"The Buckingham Canal: a Survey-Historical, Geographical, and Economic."	V. K. SOURIRAJAN, M. A., L. T. Teacher, Hindu High School, Madras.	C. W. E. COTTON, C. I. E., I. C. S., Chief Secretary to Government.
2. 26-10-'28	"Our Gay Neighbours."-Illustrated with lantern slides.	Rao Sahab T. S. SUBRAMANIA AYYAR, Vice-principal and Lecturer in History, Teachers' College, Saidapet.	E. W. Green M. A., Principal, Government Muhammadan College, Madras
3. 5-1-'29	"Some Results of Recent Upper Air Investigations in India"-Illustrated with slides.	K. R. RAMA-NATHAN, M. A., D. Sc., Meteorologist, Poona.	S. R. U. SAVUR, M. A., D. Sc., Professor of Applied Mathematics, Presidency College, Madras.
4. 10-1-'29	"Vegetation of the Ganges Region,"-Illustrated with slides	S. P. Agarkar, D. Sc.	M. SUBRAMANIA IYER, B. A., B. L.
5. 11-1-'29	"Environmental History and Animal Life". Illustrated with Slides.	Baini Prashad, D. Sc.	Rao Bahadur K. RAMUNNI MENON, M. A.
6. 15-2-'29	"Geographical History of Some Common Commodities."	V. RANGACHARYA, M. A., L. T., Professor of Indian History, Presidency College, Madras.	P. T. SRINIVASA AYYANGAR, M. A., L. T., University Reader of Indian History, Madras.
7. 28-3-'29	"Geography of Disease, with special reference to South India."- Illustrated with slides,	Captain A. M. V. Hesterlow, I. M. S., Professor of Hygiene, Medical College, Madras,	Col. J. W. D. MEGAW, C. I. E., V. H. S., I. M. S., Surgeon-General with the Government of Madras,

APPENDIX C.

Abdul Khadir, Mr. A., B.A., L.T., Headmaster, Govt. Islamia High School, Trichinopoly.
Ananthanarayan, Mr. S., Teacher-Manager, Teppakulam, Trichy, (Life Member).
Anstead, Mr. R. D., M.A., C.I.E., Director of Agriculture, Madras.
Appadorai, Mr. A., M.A., Research Fellow, University of Madras, (Treasurer).
Appa Rao, Mr. P, Teacher, Board High School, Kollur.
Baker, Miss F.A., Principal, Ewart School, Vepery, Madras.
Barrie, Miss M. W., M.A., Lecturer, Lady Willingdon Training College, Triplicane, Madras.
Birdseye, Miss E.D., B. Sc., Dip. Geo., Lecturer in Geography, St. Christopher's Training College, (Vice-President),
Champion, Mr. H., M.A., Principal, Teachers' College, Saidapet.
Clarke, Miss M.I., Dip. in Geo. (Wales) Teacher, Saifabad, Hyderabad, Deccan,
Cousins, Dr. J.H., M.A., D. Litt. Principal, Brahma Vidya Ashrama, Adyar, Madras.
Dandapani Aiyar, Rao Sahib Mr. S. B.A., Superintendent, Chief Secretariat, Madras.
Dann, Mr. R., Director of Town-Planning, Madras.
Dann, Mrs. R., Victoria Crescent, Emore, Madras.
Darling, Miss P. S., Wesleyan Missions, Mylapore, Madras.
Dinker, Miss F., B.A., Sub-Assistant Inspectress of Girls Schools, Kurnool.
Duraiswami, Mr. W., Manager, Messrs. Longmans Green and Co., Madras.
Edington Miss H.A., Dip. in Geo., Church Park, Cathedral, Madras.
Ekambaram, Mr. C.S., B.A., B.L., Avocate, Rangoon.
Ekambaram, Dr. T., M.A., L.T., Ph. D., Lecturer in Natural Science, Teachers' College, Saidapet.
Ekambara Mudaliar, Mr. C.N., M.A., L.T., Lecturer in History, Teachers' College, Saidapet.
Ekambara Rao, Mr. M. S., B.A., L.T., Headmaster, Ganapathi High School, Mangalore.
Fyson, Mr. P.F., M.A., Principal, The Presidency College, Madras.
Ganesier, Mr. K., B.A., L.T., Superintendent of Municipal Schools, Kumbakonam.
Gerrard, Miss J. M., M.A., Principal, Lady Willingdon Training College, Madras.
Gopalakrishna Rao, Mr. N., B.A., L.T., Assistant Master, Board High School, Puttur, South Canara.

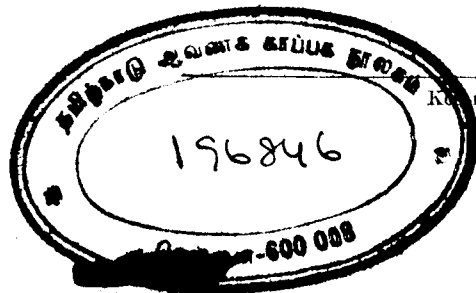
Gopalan, Mr. N., B.A., Teacher, National High School, Mannargudy.
 Gopalan, Mr. R., M.A., Assistant Librarian Connemara Library, Madras.
 Gopalswami Naidu, Mr. R.V., Artist, Purasawakkam, Madras.
 Green, Mr. E.W., Principal, Government Muhammadan College, Madras.
 Harihara Ayyar, Mr. V.R., B.A., L.T., Headmaster, Sri Manthiramurthi High School, Tinnevely.
 Hari Rao, Mr. R., M.A., L.T., East Iyen Street, Kumbakonam.
 Heiberg, Rev. K., B.A., B.D., Danish Mission, Madras.
 Hesterlow, Capt. A.M.V., I.M.S., Professor, Medical College, Madras.
 Howard, Miss R.E., Principal, Sarah Tucker College, Palamcottah.
 Jayarama Ayyar, Mr. V. B.A., L.T., Assistant, Municipal High School, Villupuram.
 Jayaram Rao, Mr. A., B.A., L.T., Headmaster, Board High School, Kavali.
 Joseph, Mr. P. Kuruvilla, B.A., L.T., Teacher, St. Patrick's High School, Adyar.
 Jogayya, Mr. K., 39, M. K. Ammenkoil Street, Mylapore, Madras.
 Kachapeswara Aiyar, Mr. V. B.A., B.L., Advocate, Madras.
 Kalyanaraman, Mr. V., B.A., L.T., Assistant, Government Institute of Commerce, Madras.
 Karunakara Nair, Mr. K. B.A., L.T., Teacher, Kunnankulam High School, Cochin State.
 Krishna Rao Bhonsle, M. R. Ry. Rao Bahadur R., Secretary to the Commissioner for Government Examinations, Madras.
 Krishnamachari, Mr. N., B.A., L.T., Teacher, T.T.V. High School, Madras.
 Krishnaswami, Mr. N. M.A., L.T., Junior Deputy Inspector of Schools, Tindivanam.
 Krishnaswami, Rao Bahadur Capt. P., M.B., C.M., Professor of Physiology, Medical College, Vizagapatam.
 Krishnaswami, Mr. S. S., B.A., L.T., Teacher, Ramakrishna Residential High School, Mylapore.
 Krishnaswami Sastri, Mr. C., B.A., B.L., Advocate, Arni.
 Krishna Ayyar, Mr. K. V., M.A., L.T., Lecturer in History, Zamorin's College, Calicut.
 Krishna Rao, Mr. V. N., M.A., B.L., Advocate Chittoor.
 Krishnaswami Aiyar, Mr. K., M.A., B.L., Chief Interpreter, High Court, Madras.
 Krishnamurthi Ayyar, Mr. V., I.V.S., Professor of Pathology, Veterinary College, Madras.
 Lakshmana Iyer, Mr. S., B.A., L.T., Emeritus Lecturer in Geography, Teachers' College, Saidapet.
 Lakshminarayanan, Mr. C., M.A., Senior Lecturer in Zoology, Christian College, Madras.
 Loganathan, Mr. P.S., M.A., University Reader of Economics, Madras.

Lowe, Miss I.H., M.Sc., F.G.S. F.R.G.S.,
 Deputy Directress of Public Instruction, Madras.
 (Vice-president.)
 Mahadevan, Mr. C., M.A., 210, Bow-Bazar Street, Calcutta.
 Mahadeva Sastri, Mr. V.K., B.A., B.L., Advocate Madras.
 Mahadevayya, Mr. G., B.A., L.T., Assistant Master, H. T. High School, Madras.
 Manavikraman Rajah, Mr. K. C., B.A., Student, Teachers' College, Saidapet.
 Mellor, Miss. E. G., Wesleyan Mission, Dharapuram.
 Michael, Mr. D., B.A., L.T., Assistant Master, Mission High School, Tiruvalloro.
 Murthi, Mr. M. L. N., M. Sc., Indian Institute of Science, Bangalore.
 Muthukrishnan, Mr. S., M.A., L.T., Headmaster, Secondary Training Section, Teachers' College, Saidapet.
 Muthuswami, Mr. T. N., M.A., L.T., Assistant Instructor in Science, College of Engineering, Guindy.
 Narasimham, Mr. G., G. D. A., Gopalapuram, Madras.
 Narasimhachari, Mr. K., Teacher, P. S. High School, Mylapore.
 Narayana Iyer, Mr. C. V., M.A., L.T., Research Scholar, University of Madras.
Narayana Rao, M. R. Ry. Rao Bahadur H., M.A., Emeritus Professor of Geology, Presidency College, Madras.
 (President.)
 Narayanaswami Mr. G., M.A., L.T., Asst. Prof. of History, Presidency College, Madras.
 Natarajan, Mr. S., B.A., L.T., Science Assistant, P. S. High School, Madras.
 Natesa Iyer, Mr. C. A., B.A., L.T., Headmaster, Board High School, Hosur.
 Natesa Aiyar, Mr. S., B.A., L.T., Lecturer, Maharajah's College, Pudukkottah.
 Palit, Babu Indra Mohan, B.A., Deputy Inspector of Schools, Jeypore.
 Palocaren, Rev. J., Principal, St. Thomas College, Trichur.
 Parameswaran, Mr. T. M., B.A., L.T., Teacher, Ganapathi High School, Mangalore.
 Parthasaradhi, Mr. S., M.A., L.T., Lecturer, Mrs. A. V. N. College, Vizagapatam.
 Patricia, Sister, Principal, Church Park Training School, Cathedral, Madras.
 Raghavaçhari, Mr. V., M.A., L.T., Dy. Inspector of Schools, Chingleput.
 Raghavacharya, Mr. K. K., B.A., Government Secretariat, Madras.
 Raghupati Sarma, Mr. T. L., M.A., L.T., Headmaster, Board High School, Uthamapalayam.
 Rajagopalachari, Mr. P., B.A., B.L., District Munsiff, Rajahmundry.
 Rajagopalan, Mr. C. S., B.A., L.T., Teacher, Board High School, Rayadrug.

Rajaratnam, Mr. S., B.A., L.T., Assistant Master, London Mission High School, Coimbatore.
 Ramachandra Rao, Mr. B., M.A., L.T., Headmaster, Town High School, Guntur.
 Ramakrishnan, Mr. K. C., M.A., University Lecturer in Economics, Madras.
 Ramachandramurthi, Mr. V., Dip. in Econ., Teacher, Board High School, Gulivada, Kistna District.
 Ramamurthi, Dr. C., B.A., M.B. B.S., B.S. Sc., Professor of Hygiene and Bacteriology, Medical College, Vizagapatnam.
 Ramanatha Ayyar, Mr. A. S., M.A., Superintendent, Rev. Secretariat, Madras.
 Ramanatha Ayyar, Mr. N., B.A., Teacher, Model School, Teachers' College, Saidapet.
 Ramanatha Iyer, Mr. P., Luz, Mylapore.
 Ramanatha Rao, Mr. A., B.A., Teacher, St. Aloysius College School, Mangalore.
 Ramanatha Rao, Mr. V. N. B.A., B.L., District Munsiff, Markapur.
Ramaswami Aiyar, The Hon'ble Sir C.P., B.A., B.L., K.T., C.I.E., The Grove, Teynampet, Madras (*Vice-Patron*).
 Ramaswami Ayyangar, Mr. N., B.A., L.T., Assistant Master, T. T. V. High School, Madras.
 Ramaswami Iyer, Mr. S., B.A., L.T., Teacher, Hindu Theological High School, Madras.
 Ramaswami Iyer, Mr. T. S., Dubash, Messrs. Best & Co., Madras.
 Rangacharya, Mr. V., M.A., L.T., Professor of Indian History, Presidency College, Madras.
Rangaswami Aiyangar, Mr. K. B.A., L.T., Lecturer, St., Joseph's College, Trichinopoly, (Mofussil Member, Working Council).
 Rangaswami Ayyangar, Mr. C. S., B.A., L.T., Headmaster, Municipal High School, Villupuram.
 Ratnam Pillai, Mr. G., B.A., L.T., Headmaster, G. N. S. School, Madras.
 Sama Rao, Mr. V. N. B.A., M.L., Advocate, Egmore, Madras.
 Sabhesan, Mr., M. S., M.A., Lecturer in Botany, Christian College, Madras.
 Sanjiva Rao, Mr. B. B.A., L.T., Teacher, Christian College School, Madras.
 Sankaranarayanan, Mr. N., B.A., L.T., Teacher, St. Paul's High School, Vepery, Madras.
 Sathasiva Ayyar, Mr. T. S., B.A., L.T., Headmaster, Tirthapathi High School, Ambasamudram.
 Satyanarayana, Mr. K., Geography Teacher, Rajah's College High School, Parlakimidi.
 Selvaroyen, Mr. G. D., B.A., L.T., Assistant, Board High School, Pattukottai.
 Seshadri Sastri, Mr. P., B.A., L.T., Teacher, Stall Training School, Guntur.

Seshagiri Rao, Mr. P. V., M.A., B.L., Lecturer, Hindu College, Masulipatam.
 Seshagiri Rao, Mr. R., Chief Educational Representative, Messrs. Macmillan & Co., Madras.
 Seshagiri Rao, Mr. Ryali, B.A., L.T., Teacher, Municipal High School, Ellore.
 Sarma Mr. K. J., B.T., Teacher, National Theosophical College, Adyar, Madras.
 Simkins, Miss. E. B.A., (Liverpool), Clarke University U.S.A.
 Sitaraman, Mr. M.P., B.A., L.T., Headmaster, Govt. Training School, Madras.
 Smailes, Rev. R., M.A., Principal, Findlay College, Mannargudi.
 Sourirajan, Mr. V. K., M.A., L.T., Assistant Master, Hindu High School, Triplicane, Madras.
 Srinivasa Ayyangar, Mr. P. T., M.A., University Reader of Indian History, Madras.
 Srinivasachari, Mr. V. C., B.A., L.T., Manager, Oxford University Press, Madras.
 Srinivasachari, Mr. C. S., M.A., Professor of History, Pachaiyappas' College, Madras.
 Srinivasaraghavan, Mr. K., M.A., Teacher, National Theosophical College, Adyar.
 Subba Rao, Mr. G. V., M.A., Principal, National Theosophical College, Adyar.
 Subrahmanya Ayyar, Mr. K., Assistant Engineer, North Madha Street, Mylapore.
 Subrahmania Iyer, Mr. K., B.A., Teacher, Krishnan Coil, Nagercoil.
 Subramania Ayyar, Mr. Rao Saheb T. S., M.A., L.T., Vice-Principal, Teachers' College, Saidapet.
 Subramania Pillai, Mr. A., B.A., L.T., Head-master, Board Secondary School, Kamuthi.
Subramaniam, Mr., M., B.A., B.L., High Court Vakil, Madras. (Member, Working Council).
 Subrahmanyam, M., K. V., M.A., L.T., Head-master, Board Secondary School, Sulurpet.
Subrahmanyam, Mr N., M.A. L.T., Lecturer in Geography, Teachers' College, Saidapet (Secretary).
 Sundaram Ayyar, Mr. T. S., B.A., Geography Assistant, Tirthapathi High School, Ambasamudram.
 Sundararaja Rao, Mr. T. K., B.A., L.T., Teacher, The Kellett High School, Triplicane, Madras.
 Sundararama Aiyar, Mr. Assistant Master, Sri Mahant Devasthanam High School, Vellore.
 Sundaresan, Mr. A. V., B.A., Headmaster, Hindu Secondary School, Salem.
 Sundaresan, Mr. L.R., M.A., L.T., Geography Assistant, Model School, Teachers, College, Saidapet.

Sundaresan, Mr. S., B.A., Teacher, Board High School, Poonamallee.
Swaminatha Ayyar, Mr. A., B.A., Retired Deputy Collector, Madras.
 (Member, Working Council).
 Swaminathan, Mr. N., B. Sc., A.I.I. Sc., Sewage Analyst,
 King Institute, Guindy.
 Teresita, Sister M. B.A., L.T., Principal, Presentation Convent,
 Georgetown, Madras.
 Thambusawmi, Mr. D., B.A., L.T. Assistant Master,
 Kellett High School, Triplicane, Madras.
 Veeraraghavachari, Mr. S., Teacher, Pachaiyappa's High School, Madras.
 Velayudha Marar, Mr. V. M. A., B.L., Todhunter Nagar, Saidapet.
 Vellodi, Mr. M. V., B.A., Deputy Collector, Cuddalore,
 Venkatarama Iyer, Mr. K., B.A., Teacher, Native High School,
 Chingleput.
 Venkatarama Iyer, Mr. N.V., Teacher, P. S. High School, Mylapore.
 Venkataraman, Mr. S. K., R.A., L.T., Assistant,
 Government Training School, Tinnevely.
 Venkatarama Sastri, Mr. V., B.A., L.T., Assistant Master.
 Board High School, Vundi.
 Venkatarama Ayyar, Mr. A.V., M.A., L.T.,
 Curator, Central Records Office, Madras.
 Venkatarama Iyer, Mr. P.N., B.A., Teacher, N. E. High School Alatur.
 Venkatarama Iyer, Mr. V., M.A., L.T., Assistant Professor of History,
 The Presidency College, Madras.
 Venkata Rao, Mr. D., M.A., L.T., Lecturer in History,
 Ceded Districts College, Anantapur.
 Venkataraghavachari, Mr. K., B.A., L.T., Teacher, Board Secondary
 School, Ponnori.
 Venkatadri Iyer, Mr. T. S., Teacher, Sirkar Training School,
 Trichur, Cochin State.
 Venkatacharya, Mr. S., M.A., L.T., Assistant Professor of History,
 The Presidency College, Madras.
 Victor, Mr. Balraj M., B.A., Teacher, Findley College, Mannargudy.
 Viraraghava Ayyangar, Mr. R., Deputy Inspector of Schools, Ponneri.
 Viraswami Aiyar, Mr. A. S., B.A., B.L., Subordinate Judge, Rajahmundry.
 Visvanatha Rao, Mr. Rao Bahadur V. N., M.A., B.L.,
 Deputy Collector, Tanjore.
 Wolfenden, Mr. D. W., B.A., L.T., Headmaster,
 Bishop Corrie's School, Madras.



K. S. Printing Works, Madras.

SL
 U g m 2111, R 26 M 9
 R 2-8-61