

South India Club



TWENTY-SIXTH
ANNIVERSARY
NUMBER

1952-53



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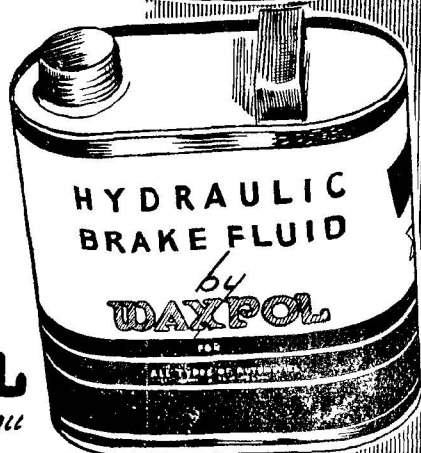
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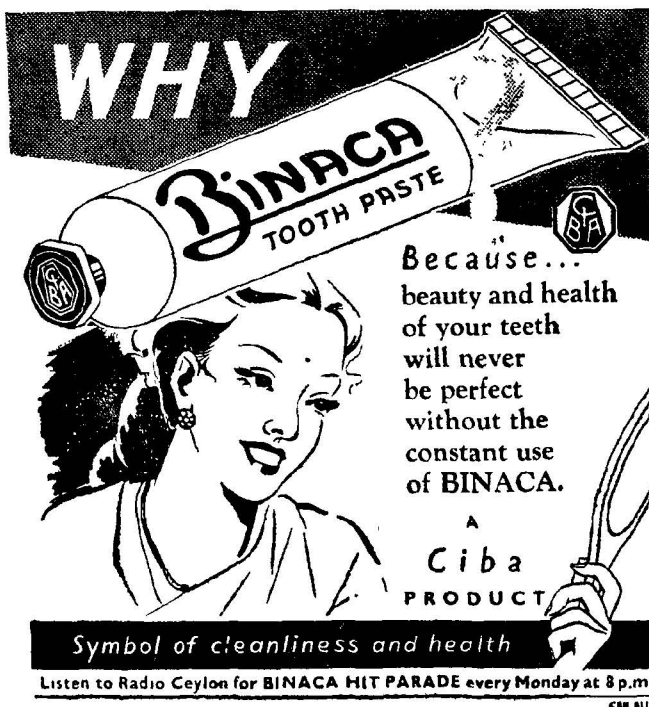
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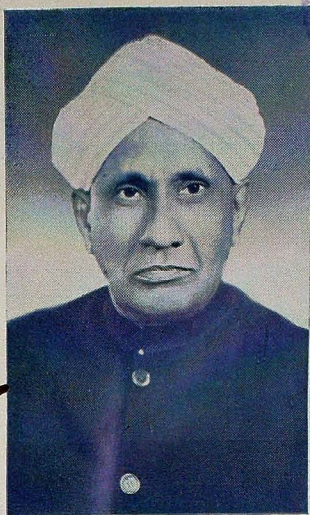
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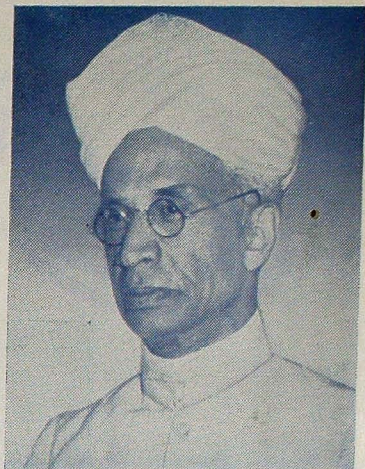
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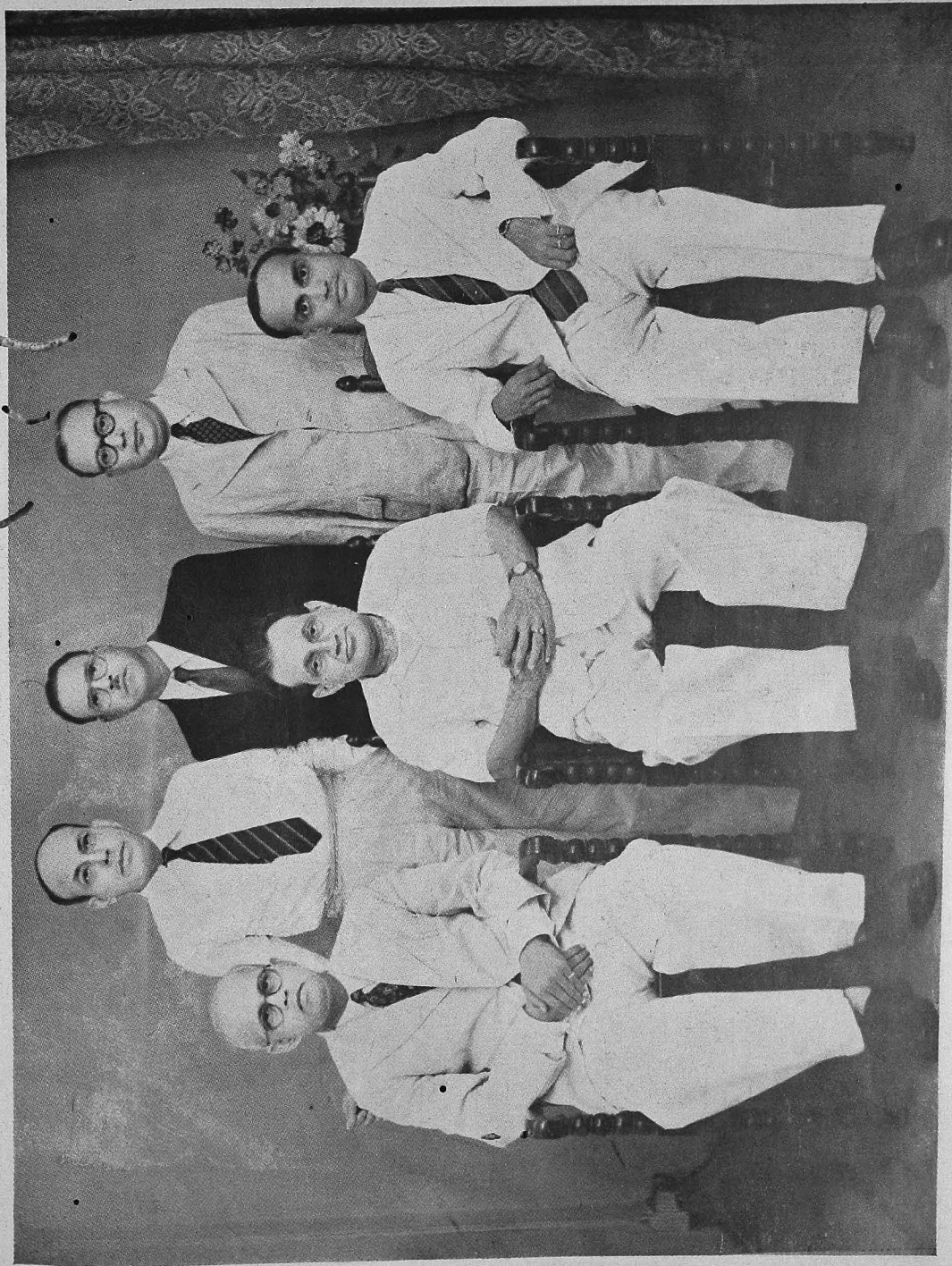
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The CLUB

"ORREN"

STARTED on Vijaya-Dasami Day in October 1926 almost as a Reading Room, the South India Club has grown today into a Club functioning in four autonomous Sections with membership well over 750, and occupies a distinctive position among the City's Clubs. Since Re-Organisation in 1948, the Club has had no occasion to look back, and one often wonders how the Club offers the various amenities and services all for a composite and meagre monthly subscription of Rs. 3. The objects and working of the Club have received greater appreciation from Club-minded people and other sister-Clubs in the city.

The Club shifted to its present premises in 1940. Though the present premises was found in 1940 to be very commodious with ample accommodation, we now find that in 1953 the accommodation is not adequate and further expansion is stalled for want of space. For the Club to continue its usefulness in the various activities undertaken by it, it is necessary that attempts be made at once for the Club to be housed in its own and bigger building. The Building Fund inaugurated last year remains at Rs 5,500/- only.

The activities of the Club, which have been mostly confined to Social Gatherings, Indoor Games, Music and Dramatic performances, in recent years have been diverted to more useful services to the Community. 1952 is a memorable Year indeed in that the Club added to its many activities, yet another Service i.e. the Medical Service. The Club had hoped to organise this Service for its Members from a long time and in 1952, it launched on this most popular and long-felt Health Scheme by opening a 'Popular Dispensary' and providing a Medical Service under expert advice and supervision.

It has been the Club's policy to develop friendly feelings and harmony not only among

its own community but also with other provincials in the City. It has always radiated this spirit of friendliness that it is looked upon today by sister clubs as friend and guide. It has availed itself of every opportunity to extend its cooperation to the other sister clubs and recently in cooperation with the English Speaking Union and the Rotary Club, a warm reception was accorded to Mr. Louis Fischer, that eminent Journalist.

The Club has helped many institutions to grow and gave shelter to number of them during their infancy. It houses now the South India Cooperative Bank. It has provided accommodation to South India Co-operative Stores for putting up a Show-Room for Textiles and Toilet goods. It might be remembered that at one time it housed the present National High School.

The Club readily responded this year to the wish of the School to construct the Third Floor without borrowing and played a great co-operative role by arranging a number of benefit performances and have contributed Rs 6,250/- towards the School Building Fund. We are glad to note that through the help thus rendered, the School Authorities have been able to complete the Steel Shell. They are now looking forward to our further co-operation with a view to complete the rest of the third floor of the School building and the Club will have contributed substantial amounts towards it in the next two months.

The Club has always in mind the many problems facing the South Indian Community as a whole and is always ready to launch into further fields of Service, necessary and desirable. Arising out of experience in the running of the Popular Dispensary, it has been noticed that number of persons suffering from serious ailments are neither members nor could afford the medical expenditure of the present day. It has been therefore decided that full facilities without payment would be made available for such deserving patients. For taking care of this service, a fund has been created towards which voluntary contributions are welcome. A nucleus of the fund has been found from contributions of a few friends and it is hoped that this scheme would serve the purpose for which it has been started with the kind cooperation and the charitable disposition of our members.

It is the fervant hope that the Club will continue to maintain its present rate of progress and go from strength to strength in its Second Five-Year stride after Re-Organisation.

"The social worker is eminently the person who,
in his desire for peace and harmony, is working
for an approximate equality between man and
man so that all sorts of conflict may end and
health and happiness, peace and prosperity,
may reign supreme in the life of man".

SRI SRI PRAKASA

Governor of Madras

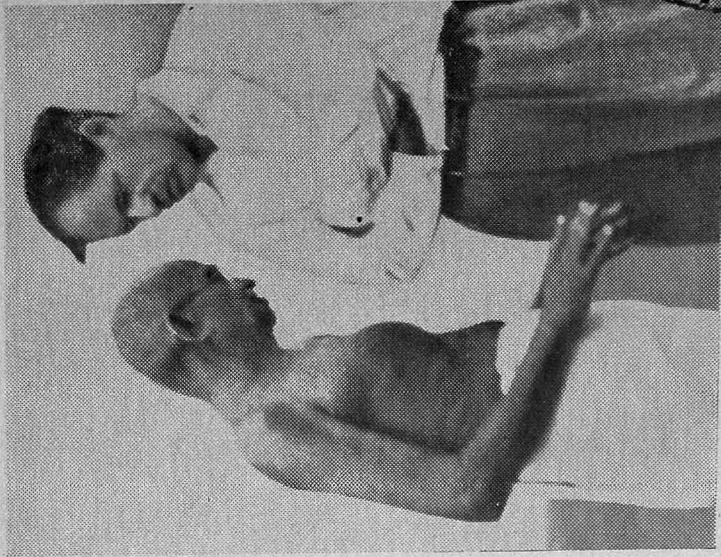
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Mr. Louis Fischer

FOLLOW GANDHIAN WAY— AND WORK FOR VILLAGE UPLIFT AND SOCIAL DEVELOPMENT

Says Louis Fischer

INDIA NEEDS A SOCIAL REVOLUTION FOR ACHIEVING PROPER DEMOCRACY

Extracts from speech delivered by Mr. Louis Fischer, one of the most serious and profound Journalists of our generation, to a gathering of Members of the South India Club, the Calcutta Branch of the English Speaking Union and the Members of the Rotary Club, Calcutta, on Saturday, the 27th September. 1952.

At the outset, Ladies and Gentlemen, I must thank you for your very hearty welcome and I must apologise to you for having arrived a bit late. I am grateful to the South India Club, the ESU and the Rotary Club to have given me this opportunity of meeting you this evening. I was approached by many clubs in Calcutta to give them a talk on the present world situation. I am sorry, I have not been able to accept all the invitations for shortness of time, and I do hope sincerely that I will not be misunderstood.

As you all know, I come from the United States, but I prefer to call myself a citizen of the world. I consider myself one with those with whom I am for the time being. I have no sense of nationality.

I was born in a poor family in the United States and having been a victim of poverty and suffering, I know what it is to be poor. Ever since then, I have avowed to do my best to erase from the face of the world poverty and suffering. I love India more than any other country because the people here are poverty stricken and are suffering from all kinds of wants. I have a particular admiration for India because of the extreme sense of tolerance and the quick way in which the people of this great country adopt themselves to the circumstances in which they are placed in spite of extreme suffering.

If you look to the standard of living in this world, out of a population of say two billion on the face of this planet, only half a billion or so have something to live in a decent way, while the rest of the 1½ billions live just like animals. I ask you—would there have been this state of affairs if there was only better understanding and appreciation of human values?

Your country which has been dominated by a foreign rule over hundred and fifty years, no wonder predominantly remains a backward country. Now what are you going to do to change this state of affairs. India has had her independence five years ago and she can no longer accuse other countries for her ills. I am very happy to find that the new Government which took over from the British five years ago have been able to consolidate and have actively set about working towards the amelioration and the improvement of the country; mind you only a beginning has been made and quite a lot remains to be done.

I had heard that the Russian people after the Russian Revolution of 1916 had successfully solved the problems of poverty and suffering therefrom and had provided an equal status for all. I was anxious therefore to see for myself the progress of that Country and I went to Russia in the year 1922. I was in Russia up to the year 1938 and made a close study of the Social, Economical, and Political system of that country. I have now been in India for some weeks and seen and heard the steps taken to improve the lot of the common man in this country. As one who has personally studied the working of the two independent states of India and Russia, let me compare the first five years' achievements of Russia with that of India. Although the modern Russia was evolved with the Revolution in 1916, I leave out of count the first five years as there was no development during these years due to internal civil war and the Great War. I, therefore, take the progress made by Russia in the years 1921 to 1925. Comparing that with achievements of India between 1947-52, I have no hesitation in saying that the progress in India has been remarkable. I would say that



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India has done far more than that of Russia (Hear, hear). I do not ask you, my friends to take what I say as gospel truth. If you like, you can verify my statements from the newspapers and other official literatures of Russia.

This vast country has plenty of man-power and quite a fund of mineral wealth. It only needs tapping. In spite of such natural advantages which India has, I ask you why is it then that it has remained a back number—not because that the men are not intelligent, not because there are not enough statesmen and leaders to guide and hold the realms of Government, but because, I am sorry to say, that ~~most of~~ the people in this country are not conscious still that the country's interest should take first place and before Self. What is needed for a country to rise up is that the people should have Self-Confidence. This is what you, Indians, are lacking. Every Indian is looking to the West for imitation without developing his own culture and his own faculties. This shows that he has no confidence in himself. I say, Look inwards for your latent strength and marshall it for the growth of this country with its ancient culture and the past heritage. Now is the time, therefore, for all of you to take stock and help the growth of the country. Independent India looks forward to your entire co-operation and unstinted support, otherwise the growth would be stunted. Many people I have met in India always complain that the Government did not do this and that, and that the Government failed miserably. This tendency must stop. What is Government? It is those people we elected and put into power to look after the State; if a right man is not there, it is in our hands to throw out and replace him by the right man. We the citizens have a part to play in the building up of the Nation and without us, it is impossible for any Government to make progress! I do not for one moment suggest that criticisms against Government are not to be made. Criticisms are welcome if they are made in the proper spirit, for they provide food for thought, besides showing the interest the people take in the State. A Democracy has to reckon with the emotions of the people. In America we criticise freely and we are not afraid of criticising Government actions. By all means, you can also criticise your Government as many times as you like. That is only possible in a Democracy; in Dictatorship, you criticise only once. (Laughter).

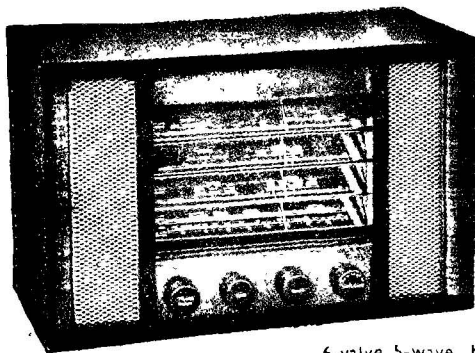
In India, there is a tendency for people to flock to the cities so much so, the villages

remain neglected. People in the cities who are more prone to western imitations have completely forgotten the villages. They merely talk aloud and waste all their energies. If India has to progress and build up fast enough, if India has to have a proper Democracy, I think, she needs a Social Revolution. Speaking of the villagers, it is appalling to find the way in which some of the villagers are kept in this country. In the huts where an Indian Farmer is staying, believe me, an American Farmer will not keep even his cattle. India's development and strength lie in the villages. That is why Mahatma Gandhi always told you to go back to the villages and work for their social development and uplift. That is why Gandhi had been laying stress on the villages and cottage industries. That is the reason why, the Madras Chief Minister, Mr C. Rajagopalachari is fighting for the handloom industries.

In Mahatma Gandhi, I found India. He understood and knew what was good for India. I do not believe that Gandhi was either an incarnation of God or immortal being to be worshipped. But since Jesus Christ 2000 years ago, Gandhi was the most dynamic and magnetic person on Earth. From the soil where he sat, he appeared to evolve things which appeared to be transmitted to him by some means of electricity from the very soil where he sat. He knew what was most needed for the uplift of India. By his cult of non-violence he had been able to shake the mighty British Empire out of their existence in India. When I came to India, I asked myself the question, "Is Gandhi dead?" If your answer is yes, then it is your loss. I would say he is not dead. You, tall-talkers of the cities, go back to the villages and do what you can for their development. The salvation of India lies in Gandhism. Some of the individuals to whom I had spoken to go to the villages for social work were surprised at my suggestion. Their answer was that it was impossible to solve the problems and disputes in the villages. I do not think so. Any well meaning person can surely enjoin the confidence of the villagers and work for their social development.

Speaking about 'ism, you are perhaps anxious to find out from me what 'ism USA has adopted. I do not know myself. As far as I can see, the American Foreign Policy aims at one world where there is room for everybody to live in his own way without fear or favour and with peace and prosperity. As you know, the Socialists who were in power in England received a lot of help from the States after the

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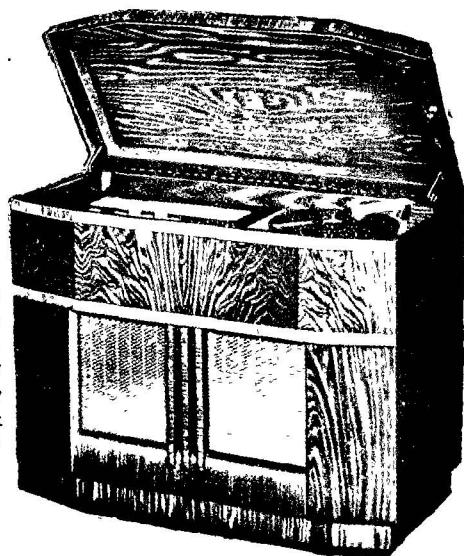
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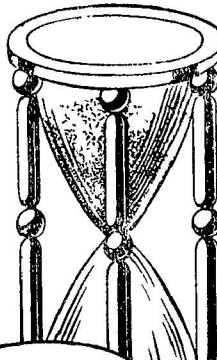
World War but for which England would have been far worse than what she is today. So the States were not opposed to Socialism. If United States were opposed to Communism, how do you explain the several billion tons of war materials supplied to Russia to help fight the German aggression? Then again Marshall Tito of Yugoslavia was helped similarly by the States. It seems to me, therefore, that the American Foreign Policy always aims at helping the aggrieved man. Isolationist tendencies will not help in the present context of world affairs.

Recently I had an interview with a Principal of one of the colleges in Calcutta. As a matter of fact I never refuse interview to any person, because I have always felt that I could learn something out of every person met. After the Principal had placed his credentials on the table, I asked him what he did in the college. The Principal replied "We prepare M.A.s". I asked him what is "M.A.", and how did it help the individual of the State. The Principal replied "Master of Arts" and he had no other answer to give, because he was fully conscious of the defective educational curriculum which neither brought out the innate qualities of the person or helped the person to be useful to the state. It certainly did one thing, that is, produced the Hall Mark to enter into a Government Job. You here rather prefer to enter into a Government job for Rs 5/- than to work in a factory and earn something more. Why? Because you feel it is below your dignity to work in a factory. Is there any meaning in this? Recently when I was at New Delhi, I was invited to a Dinner party. We had finished Cocktail (I drink only tomato juice). The hostess requested us all to adjourn to the dining table. I found some chairs short; I started lifting my own chair. Immediately the hostess ran up to me and asked me not to do that, and shouted for a bearer. Now I ask you, what is wrong with my removing my own chair? Is there anything wrong in washing my own dirt? This sense of false dignity should be wiped out. Again, at the hotel—the Grand Hotel where I stay—the bearer on the corridor gets up and bows every time I pass him. I quite often thought that I should refuse to pass unless the bearer sat down. This sense of complex, my friends, has no place.

Millions of Indians, as you all know, do not even get, one meal a day. Their permanent hunger and poverty undermines their physical health and the capacity in them. The brain, so to say, descends into the stomach. The Government are aware of this and have launched

on several ambitious schemes including the "Grow More Food" campaign. Well, unless the people help the Government, the Government can do nothing about it. Do not blame the Government—blame yourself. In a country like India where the population is growing at an alarmingly fast rate, and where the agricultural lands available are correspondingly inadequate, it is not practicable to solve the food problem unless more and more lands are brought under scientific cultivation. People should remain in the villages to till the land: this exodus to urban areas must be stopped. Then again, people should give up the conception that cereals were indispensable for existence, it is essential that the people should look to other forms of food, apart from cereals, such as fish, meat, eggs, poultry, etc. abundantly available and on which most of the world's population live. By all means have your quota of cereals but let there be no sentiment or scruple for augmenting with other forms of food. As you all know, only such types of food would help in increasing physical strength and you need that abundantly now to man your Defence Forces. Believe me, it is only people, who are physically strong, that could do hard work. In one other way, you can help your country—By family planning and you should also learn Birth Control, if necessary. Birth rate is correlated with wealth. The success of Birth Control depends on certain amount of education, and what for the average Indian would be expensive paraphernalia. Remember, fewer births would definitely improve the living conditions of Indians. I would go so far as to say when there is such acute shortage of food arising out of so many circumstances, I would not have any compunction or sentiment in getting rid of useless emaciated cattle and thereby save fodder being now wasted on them. In conclusion, it is my firm belief that unless there is a social revolution in India in the form of developments of the villages and uplift in the economic and living conditions of the villagers, India will not be able to derive fully the benefits arising out of independence.

I have started on a world tour and I have now completed 7 months of the tour, out of which I have spent nearly 7 weeks in this country. I have visited Italy, Yugoslavia, Israel, Turkey, and Pakistan. I am now proceeding to Burma, Thailand, Indo-China, Hong-Kong, the Philippines, Japan and Alaska before returning to the States. I am leaving early tomorrow morning and I, therefore, bid farewell to India through those present here. Thank you

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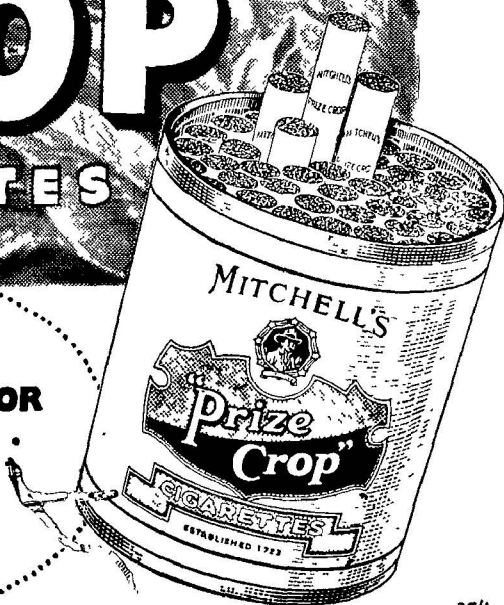
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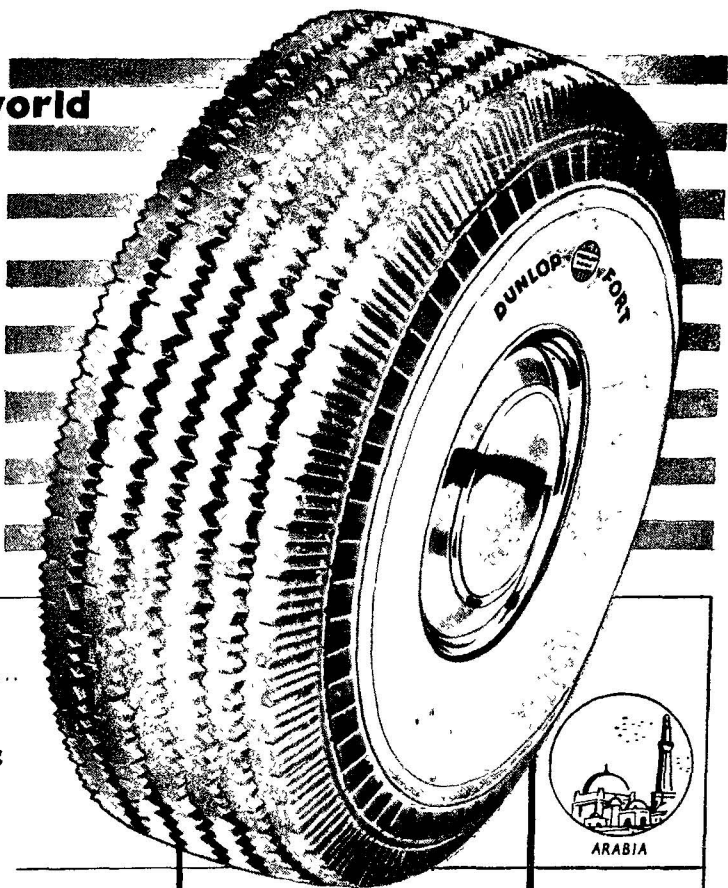
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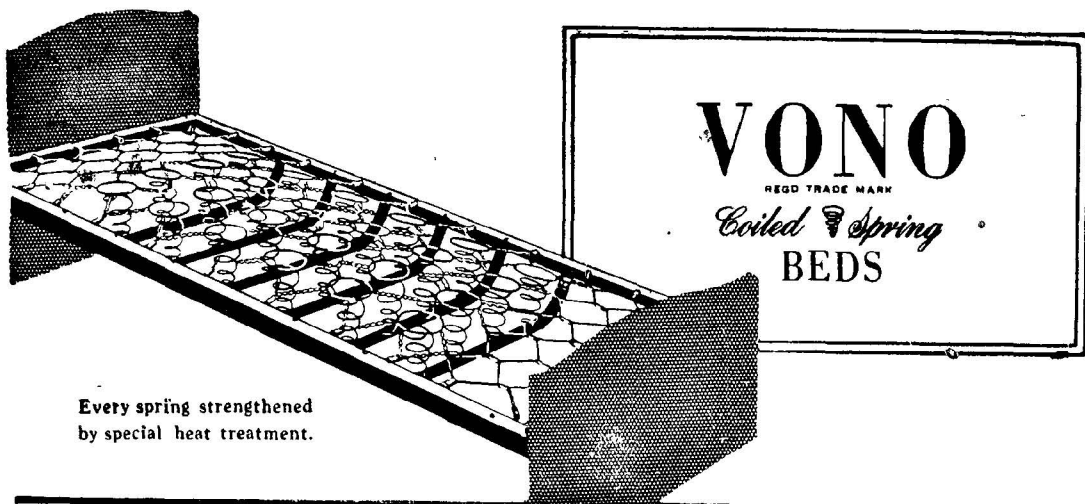
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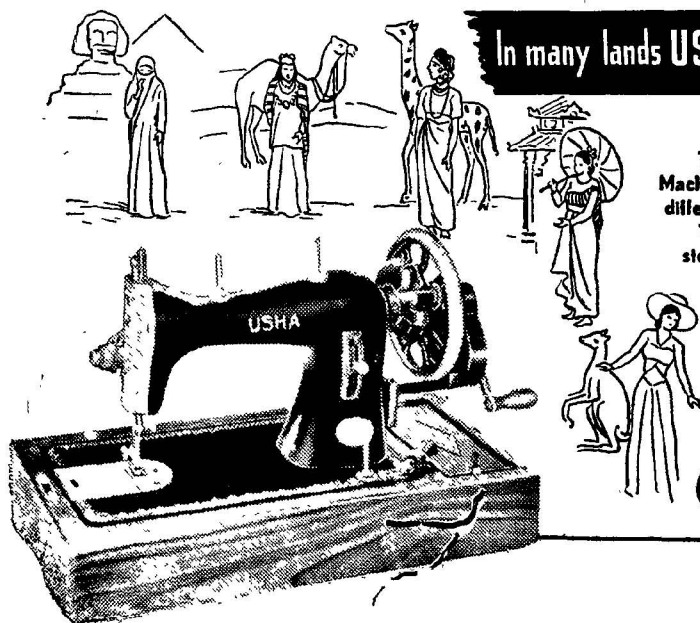
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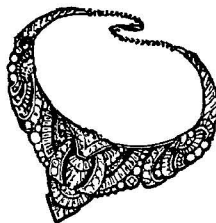
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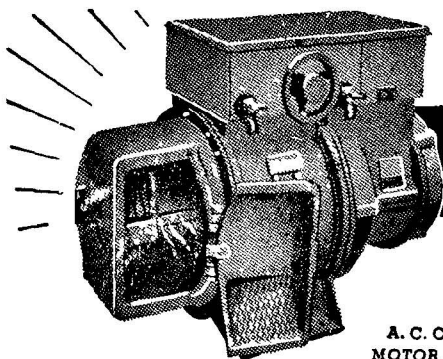


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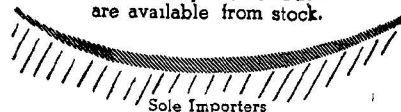
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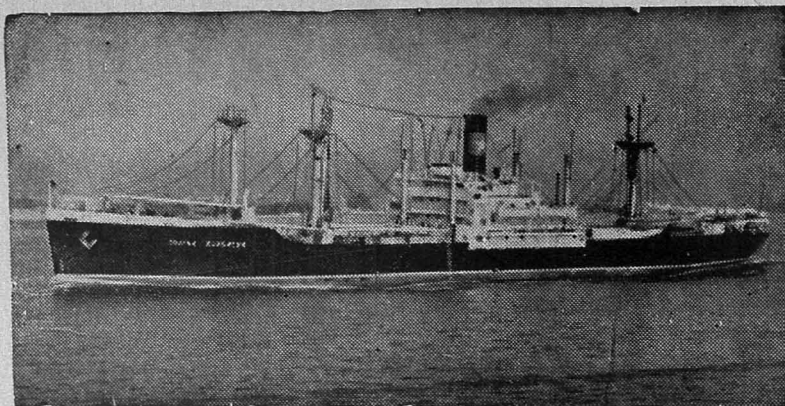
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In launching the current Souvenir, I must express my sense of gratitude to the distinguished writers who have all so correctly understood the policy and plan of this publication that they have successfully contributed to the gradual developing of a definite personality for the Annual Number.

1953 is the Silver Jubilee year of Raman Effect; and appropriately, the address delivered by Sir C. V. Raman at the time of announcing the discovery is published in this Number. It were trite to offer him our congratulations; but it will be proper on our part to feel gratified that the eminent scientist was actively associated with our Club during that momentous period.

Where the Club lacks in the pomp and glamour of wealth, it may be permitted to take pride in its roll of members including names of world renown in the realm of science, thought, and research.

Saraswati is the Goddess who presides over the destiny of our Community; and let us pray for Her continued favours.

As I said in the last Souvenir, shrewd advertisers know a good thing when they see it; and we applaud them and thank them for their undiminished interest.

A team of workers has, by their zeal and purposive efforts, played an important part in the Souvenir being a thing of beauty and joy for the reader and of profit to the Club. I am indebted to each one of them, who, I am sure, will readily understand my reticence in divulging the names of the colleagues to whom belongs the entire credit for the success of the Souvenir and its establishment as an annual institution.

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Some Thoughts

~~~~~  
Sir C. P. Ramaswami Aiyer  
~~~~~

on the Puranas

SEVERAL books have been published during the last few years by Western scholars which display great erudition and conscientious research dealing with the main source books of Eastern Scriptures (more especially the Buddhist and early Hindu texts). Some of our Indian scholars have also essayed a similar task departing in many respects from ~~the~~ orthodox methods of the Pandit and relying upon comparative studies of several civilizations and literatures. Unfortunately, however, many of the volumes published within the last decade have been vitiated by a priori theories and preconceived notions, the authors basing themselves upon some one or more fixed ideas, which they regard as basic to an epoch or to a literature.

Theories like those relating to the solar myth, the phallic cult, the fertility cult, totem worship, the deification of ancestors, the actual or notional consumption of the flesh and blood of selected animals or human victims and other ideologies may be instanced not only from such books as Frazer's 'Golden Bough' but also from Alan Llewelyn Powys' 'Pathetic Fallacy', Grant Allen's 'Evolution of the Idea of God' and innumerable other treatises.

Similarly, some of our scholars have stretched particular ideas to the breaking point. For example—the authors of the "Vedic Age" sponsored by the Bharathi Vidya Bhavan have concentrated upon the contrast between the so-called Brahminical and ritualistic preoccupations supposed to have been exemplified in the Rig and Yajur Vedas and the allegedly primitive pre-Aryan beliefs

and characteristic of a different race and culture.

So far has this process gone that such a learned and scrupulous writer as Zimmer has practically bisected the Indian scriptural heritage and drawn an amazing distinction between the Aryan contribution i.e. Rig Veda and the early Upanishads and the so called pre-Aryan doctrines of Yoga, Bhakthi and the Krishna cults supposed to have been founded on essentially different approaches to life.

It is time that Indian literature and thought began to be studied anew intrinsically, rather than extrinsically and that conclusions should be arrived at by a perusal of the original documents and contemporaneous literature and tradition uninfluenced by any preconceptions. Especially is such a mode of approach needed in the case of the Puranas, which are too often dismissed as unhistorical and exaggerated narrations of improbable myths and legends and as designed to strengthen the unthinkingly idolatrous tendencies of the Indian mind.

While on this subject, it may be instructive to remember that in no civilization and in no culture are abstract ideas easily realised or pictured. Idols, it may be emphasised, need not be only representations in stone or marble or fresco or on canvas and there may be idols in the shape of mental images or figments or they may even be merely conceptual.

It may be useful in this connection to remember Bacon's 'Novum Organum' wherein it is laid down that the human mind is almost invariably subject to one or other of the following tendencies, which too often hinder the



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application of the processes of induction and deduction of which Bacon was the champion. Bacon describes four types of idols—(a) Idols of the tribe having their origin in human nature itself e.g. the tendency to observe instances favourable to a pre-conceived opinion; (b) idols of the cave originating in the constitution and circumstances of the individual; (c) idols of the market place being verbal fictions and confusions arising from men's association with each other, and (d) idols of the theatre received into the mind from philosophical and other systems, which like stage plays represent worlds of their own creation often in an unreal and scenic fashion. In a very wise sentence Bacon concludes that 'forms constitute the alphabet of nature.'

It is in this spirit that it is stated in one of our philosophic poems:

अज्ञानां भावनार्थाय प्रतिमाः परिकल्पिताः

(Images have been fashioned for the purpose of aiding the thought of the un instructed.)

A very great Indian poet and philosopher Appaiya Dikshita has, in a stanza full of suggestive profundity, asked forgiveness for three cardinal sins committed by him daily, those sins being (1) the attribution of form to the formless and the worship of that form; (2) prayers and praises offered to the indescribable; and (3) the resort to temples and other places of pilgrimage in the quest of what is All Pervasive.

रूपं रूपविवर्जितं भवतो ध्यानेन यत्कल्पितं

स्तुत्याऽनिर्वचनीयताऽखिलगुरोर्दूरीकृतं यन्मया ।

व्यापित्वं च निराकृतं भगवतो यत्तीर्थं यात्रादिना

क्षन्तव्यं जगद्गोशं तद्विकलतादोषत्रयं मत्कृतम् ॥

If these aspects are borne in mind, the true objectives of the Puranas will be adequately perceived and the truth appreciated of the maxim that our Dharma is 'Sruti, Smriti, Puranoktha Dharma' including the Thantras in the Puranas. The Srutis are described as 'Prabhu Sammita' laid down by a lord or a master and the Puranas as 'Suhrit Sammita' declared by a friend. In other words the former partake of the nature of commandments, the latter of conversation and advice supported by stories and allegories and

designed for the purpose of instruction through example rather than precept.

When the early British scholars led by Sir William Jones and Colebrook performed their invaluable service in the matter of publishing and popularising specimens of our sacred and secular literature, they unfortunately discounted the value of the Puranas and persons like Macaulay spoke of their "wild chronology and weird stories". But, it is noteworthy that later writers have discovered that the Puranas, in the main, cannot be discounted even as historical material and a great controversy has been waged on this point between two learned antagonists—Berreidale Keith and Pargiter.

Be this as it may, one may plead for the inauguration of an intellectual palingenesis in this matter so that we may study and analyse our Purana from an essential and intrinsic, rather than a superficial or extrovert, point of view. Without the need for elaborate discussion, it may be granted that the Puranas and Upa-puranas, as their very names signify, embody pristine racial traditions and thoughts and they, taken in conjunction with the Ramayana or 'Adi Kavya' and the Mahabharata, were brought into existence as instruments of popular education and enlightenment and, as is well known, many of the Puranas include among their contents treatises on political economy, the art of government, law, medicine, archery, music and dance and so forth. Indeed, many of them may be regarded as compendious anthologies including cosmogony, ancient legends, nature lore, theological, astronomical and other hand-books.

The Srutis including the Vedas and Upanishads were carefully memorised from the beginning by the adoption of such devices as 'Ghana and Jata' whereas the Ramayana, the Mahabharata and the Puranas were chanted at various gatherings, during sacrifices or in assemblies convened in hermitages and towns and were not memorised with absolute textual fidelity and, therefore, underwent additions and translations and interpolations.

The Puranas, as they exist at present, are not wholly "Purana" or ancient, but are a combination of the very old and what is not so old. Viewed in this manner, the Puranas may rightly be described as the embodiments of the ideas and the growing traditions of the race. Some scholars, having proceeded so far, have attempted to push the enquiry to curious

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lengths. For instance, one writer has asserted that all stories and theories of transmigration, the ideas of 'Hiranyagarbha' of the avatars of Krishna and Rama, the stories of Naga, the Matsyagandī episode, the exploits of Hanuman and Ganesha are pre-Dravidian in origin and that the Rama story is a blend of three distinct legends, whereas the Mahabharata is more purely Aryan. Others have sought to introduce the rivalry between the Brahmin and Kshatriya into such narratives of those dealing with the 'Suta' as the witness of the 'Bharatha' war and with the 'Suta Ugrasravas' who made his recitals in the 'Naimisha' forest.

Putting aside such analyses and viewing the Puranas as literature, we shall do well to concentrate our attention on their being illustrative of national life and character and exemplifying national achievements and national shortcomings leading to varying results in the life of the nation and of individuals emblematic of the nation.

So perceived, the following root-ideas may be deduced from a survey of the Puranas as a whole:—

1. The gradual though chequered development of tolerance and reconciliation as governing factors as well as the steady growth of what Max Müller called, "Henotheism", by which he meant the attribution of absolute supremacy to each manifestation of Godhead that is contemplated for the time being the idea being as old as the Vedas.

एकं सत् विप्रः बहुधा वदन्ति

(The Supreme Being is one, learned men call it by different names).

So we find that Rama becomes a devotee of Siva and the pilgrim centre Rameswaram marks the spot where Rama invoked Siva before proceeding to fight Ravana. Moreover, Rama, for the purpose of facilitating the victory, is advised to worship 'Surya' or 'Aditya' the source of energy and the 'aditya hridayam' was recited by him. In this connection it may be recollected that Rama himself was almost a complete personification of the Divine Essence. So likewise Arjuna devotes his penance to Siva to acquire the 'Pasupatha Asthra'.

Siva himself, who is often described as 'Isuthosha' (speedily satisfied) grants boons to several Asuras, who misuse the powers granted to them and Siva himself and the other Gods appeal to Vishnu to incarnate himself from time to time to set things right.

The Vayu Purana sums up this position and declares, 'He who affirms the superiority of Siva over Vishnu or of Vishnu over Siva or of one 'Avatar' over another is a sinner'. From this point of view the Buddhist Jathaka stories may well be regarded as a part of the Puranic lore and Buddha himself came to be described as one of the incarnations of Vishnu.

The next point to be remembered is that Puranas observe truth to ideas rather than to chronology, chronology and history being regarded and treated as illustrations and examples. Perhaps, the Puranas may best be appreciated when we recollect that most of them were brought into existence at a period subsequent to the Upanishads, and as a reaction to what was regarded as the deleterious influence of that quietism and passivity which were associated, though mistakenly, with the Lord Buddha's doctrines.

The development of the Sankhya doctrine and the reconciliation between 'Purusha and Prakriti', which culminated in the magnificent animations of the Geetha, were practically exemplified in the Puranic stories, which were designed to place the doctrines of Karma and Samsara in proper perspective and proclaimed the consistency of a life of activity with the quest of the Supreme by stories illustrative of the value of the Varnas and Asramas rightly understood and of the significance of the several stages of life and their respective obligations.

Although the division of occupational functions and of stages of life were emphasised, it must be remembered that these distinctions were neither stereotyped nor rigid and the ideas underlying the following quotation are illustrated in several Puranic episodes.

गणिकागर्भसंभूतः वसिष्ठश्च महामुनिः

तपसा जातः सत्कारं स्तत्र कारणम्

जातो व्यासस्तु वैवर्त्यः श्वपाक्यास्तु पराशरः

बह्वोन्येऽपि विप्रत्वं प्राप्ता यः पूर्व भद्रिजाः

(The great sage Vasishtha was born of a courtesan. By his austerities and penance he became a Brahmin and his spiritual perfection was the cause of the transformation. Vyasa by birth was a fisherman, Parasara's parent was a dog eater and many like these have acquired brahmin-hood by their attainments although they were non-brahmins.)

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The Ekalavya story in the Mahabharata narrating how a person of the depressed classes by his devotion to Drona acquired a greater skill in archery than Arjuna himself and indeed the old 'Vrathya Sthoma' chronicle recited in the Sama Veda and dealing with the conversion of the non-aryan population into the Brahmin fold are illustrative of the comprehensive tolerance, which, alas, was lost sight of during the darker periods of our history.

One of the greatest lessons that the Epics and the Puranas teach us is the composite character of human nature. They bring to us the fundamental thought, that man is composed of good and evil elements and that not even the greatest is exempt from this alloy. Sita is tempted by the golden deer and thereafter is filled with uncharitable thoughts regarding Lakshmana, when he does not obey her hasty commands. On the other hand, Sita herself exhorts Rama on one occasion to banish vindictiveness from his mind. Rama's fear of gossip is described by Sita as approximating to the conduct of a 'Prakrutha', a very ordinary man, and her unforgettable reproach is thus couched—

मम भक्तिश्च शीलञ्च सर्वं ते पृष्टतः कृतम् .

(My loyalty and purity have been put on one side by you)

The Mahaprasthanika of Yudhishtira and the inevitable suffering that even the most righteous of men had to undergo for uttering a solitary, but conspicuous, untruth in life is a penetrating analysis of human nature and its inscrutable moods and variations. On the other hand, when Hanuman visits Lanka in his attempt to rescue Sita, what strikes him is thus described:—

अहो रूपं अहो धैर्यं अहो सत्त्वं अहो द्युतिः ।

अहो राक्षसराजस्य सर्वलक्षणयुक्ता ॥

(What beauty, what courage, what strength and what diligence, what a combination of great qualities in Ravana, this king of the demons!)

In other words, whether in the story of Ravana, or Bali Chakravarti, or in innumerable other instances, the Itihasas and Puranas, over and over again, stress that all animate beings are endowed with great potentialities for good and evil and it depends on them to

discipline themselves and to develop their possibilities aright.

When Chitrasena captures Duryodhana, who seeks to put Yudhishtira in the wrong during his incognito period, and when he brings the captive before Yudhishtira, he is asked to release Duryodhana, for it is said that "We may have quarrels in our family, but we shall not suffer the humiliation of any member of the family by a third party." This strong feeling for the family tie is a basic characteristic of Indian life and is illustrated in all its aspects good and evil in the Puranas.

The mystery of existence and the way in which men and women live their lives in apparent oblivion of their end is also a frequent theme of the Puranas. Yudhishtira in his answer to Yaksha when asked the question. "What is the most marvellous thing in this world, gives the answer:—

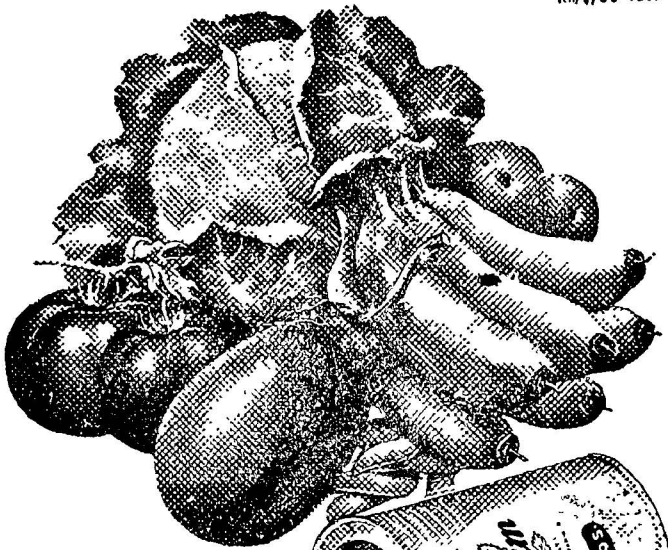
अहन्यहनि भूतानि गच्छन्तीह यमालयम् ।

शेषाः स्थावरमिच्छन्ति किमाश्चर्यमतः परम् ॥

(Day after day an unending series of living beings repair to the abode of Death. Those that remain behind behave as if they were eternal. What is more marvellous than this!)

The subtle intimacies of comradeship are nowhere better exemplified than in the anecdotes of Krishna and Kuchela. But what is most marvellous in the story is the reflection of Kuchela when he mistakenly thought that Krishna had forgotten his need for help in his miserable condition of poverty. He exclaims, to himself "This poor man, if rewarded with gifts, may turn arrogant and may forget his duties. Hence Krishna thinks that it is well to make him remain in poverty". It is only after he returned to his domicile that Kuchela found that innumerable gifts had been showered on him by the grace of Sri Krishna during his absence from his home.

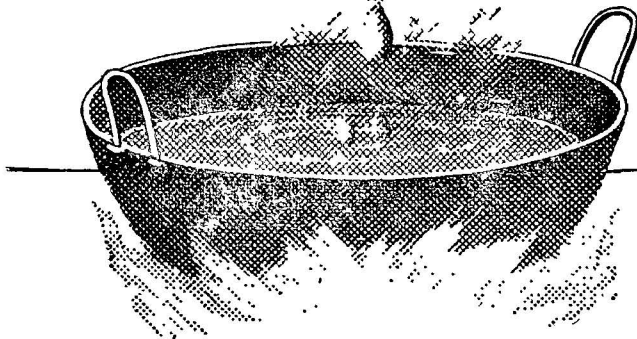
The value and the might of personality is indicated in the choices made by Arjuna and Duryodhana. Both of them visit Sri Krishna and both ask for his help during the Kurukshetra war. Krishna declines to fight on behalf of either party but offers to the parties the choice either of his entire armies or himself as charioteer and adviser. Duryodhana true to his materialistic attitude chooses Krishna's armies while Arjuna chooses Krishna himself, with results that are well known.



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The rules of chivalry in battle; the limits of the true doctrine of Ahimsa; the limitations on a ruler in the matter of punishment of crime; and the futility of wars of conquest are described in many Puranas and dealt with philosophically in the Bhishma Parva, Santi Parva and Anusasana Parva of the Maha Bharata. "Those who have withdrawn from the fight; those who are overcome by fright and are turning aside; those who have lost their weapons and their armour, should never be attacked". But, perhaps, the most wonderful exemplification of chivalry was the permission asked by Yudhishtira of Bhishma, his ancestral chief, before starting the Mahabharata battle in which Bhishma commanded the opposing army. Bhishma says that he had to fight against Yudhishtira on behalf of Duryodhana but utters this marvellous saying.

प्रतोऽहं पुत्र युधस्व जयमानुहि पाण्डव

(I am pleased with you, my son. Please do fight and obtain victory over us).

The episode of Sikhandi is an illustration of the temptations that overcome even great souls. Similar is Drona's treachery to Abhimanyu and Yudhishtira's treachery to Drona.

Nowhere in the world's literature are the temptations of absolute power so fully and vividly described and exposed as in the stories of Hiranya, Bali and Visvamitra.

The inviolability of the spoken word, sometimes even carried to quixotic lengths, is stressed right through our literature beginning with the dialogue between Yama and Nachikethas in Kato Upanishad and culminating with the life stories of Dasaratha and Kaikeyi; Rama and Bharatha, Harischandra and Visvamitra.

The Puranas are also not slow to demonstrate the evil effects of certain infirmities even in the great ones of the earth. The gluttony of Bhima, the drinking habits of Balarama, the addiction to dice of Nala and Yudhishtira are instances in point.

In truth, the Purana stories are intended to be a summation of national character and national life. The personages of the Puranas are thus woven into the fabric of our national life and the days associated with such heroes and incarnations are celebrated even today—e.g. Ramanavami; Naraka Chaturdasi; Krishna Janmashtami or Jayanti; Ganesh Chaturthi; Sivarathri; Dasra; Skanda Sashti and so on.

Through a narration of the difficulties and triumphs, the struggles and the victories of divine incarnations and by means of the life histories of men and women in all stations of life, the Puranas serve the purpose of elevating ordinary existence and giving it a higher purpose. Strong passions, greed, jealousy, sensuality, drinking and gambling are described. The discipline of suffering is delineated with great detail as in the stories of Savitri and Satyavan, Nala and Damayanthi; Sita and Droupadi.

The results of the politics of power are mercilessly analysed and criticized. This truth is never forgotten:

जीयमाना जयन्त्यन्ये जयमाना वरं जिताः

(Being defeated, our enemies are really conquerors. Having conquered we are really defeated).

This is a startling fact which the recent world wars have amply proved.

What could be more profound as a tenderly bitter appraisal of human attribute than the story of the 'Dwarapalakas' who, when they were cursed by a Rishi and doomed to forfeit their heavenly status and to be born on earth and when they asked forgiveness of Vishnu, were given two alternatives by their Lord. They were, that either they may be seven times incarnated as Vishnu's devotees before they came back to Heaven or thrice incarnated as His enemies. Puzzled by this statement, the 'Dwarapalakas' requested for an explanation. It was that a devotee too often thinks of God-head only in spare moments, while an enemy is constantly brooding over his opponent.

Over and over again with a wonderful knowledge of human nature, it is proved that the State and its governance are not ends in themselves, but that Government is a partnership of Dharma. Excesses are condemned in every direction and even in spiritual quest:

न प्रमादात् परमस्ति कश्चित्

(No one attains greatness or bliss by excess)

As already summarised all the Puranas seek to portray the Indian genius in its nobility and greatness as well as in its inefficiency and weakness. Over subtlety and slavery to ideas as in the case of the many curious and self-destroying boons demanded by the Asuras; the inability to say 'no' which is termed Dakshinya the evils of undiscerning partiality to relations; the tendency to exaggeration

of conduct as in the case of Sibi an Nahusha; the resort to verbal quibbling as a salve to one's conscience as in the case of Asvatthama and Sikhandi; the evil effects of internecine quarrels and the rivalry of kinsman which ultimately reduced India to a congeries of warring states and the unreflecting war mentality resulting in the destruction of the Kshatriya by Parasurama; these are indeed vivid object lessons and warnings.

In the great story of the churning of the ocean at the time of the Kurma Avathar, we are told, that from the same process were generated nectar and many supremely good things of life as well as an all destroying poison. The Puranas are mindful of the inextricable mixture of good and evil in the Universe and they seek by example, story and

allegory to trace the origins and the development of our qualities, expound the methods, secular and religious, by which a good life may be lived and evil tendencies uprooted and the potentialities of humanity realised. Directly and incidentally they preach the lesson, which was embodied in the immortal sermon of Sri Krishna, that for this life and the life beyond what matters is not the end but the means and the discipline to be followed in the implementation of the means in a spirit of dedication and detachment.

So viewed, and quite apart from every other consideration, the Puranas are an invaluable help towards the good life and they are also at the same time an epitome of the Indian genius, its possibilities and its shortcomings and triumphs, actual and possible.

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Significance of the Ramayana.

DESPITE its immense popularity over a period far beyond the reckoning of the modern historian, the Ramayana has been largely free from attempts at criticism or interpretation, such as can reveal its real social significance. In India, it has been regarded almost solely as a body of moral injunctions, which have been presented in the most fascinating form, which poetry, romance, the halo of a historic tradition and a rich inheritance of religious devotion can give to it. The story is replete with ideal perfections concretised in characters which, for all the profusion of the supernatural element in the story, are unmistakably human and retain in full an essentially human appeal. The average Indian thinks of the Ramayana only as a collection of ideal characters which give lessons to the individual by example or by warning. The massive unity of the story and the moral of the poem for men in the mass, as distinct from men and women as individuals, have tended to be more or less completely forgotten.

The reactions of the West to this great Indian epic are different, but no better. By training the scholarly and scientific mind of the West looks to a story so securely founded in the affections and homage of a whole people for some hints of its history in the remote past. It labours hard to assess the historicity of the Ramayana. Lured by the historical names, which through many millenia have come down even to our day and even more, by the apparently precise astronomical data about Rama's date of birth, the outbreak of the Epic war and other important events, it tackles the tasks which have more appeal. The failure colours to some extent the final attitude to the poem. While the literary merit of the Ramayana is conceded more or less grudgingly, there is what an Indian may be excused for thinking is really an attitude of supercilious unconcern towards the merits of the great work of Valmiki.

Neither within the country nor without has there been any disposition to regard the Ramayana from what may be called a broader social viewpoint. No great literary work was

Not Copybook Ethics, BUT A Treatise on Leadership

P. R. Srinivas

ever put out except as one of the fine fruits of a vigorous and rich civilisation and culture. People who live a poor life, whether materially or culturally, are necessarily incapable of producing amongst themselves a literary genius. For a poet is distinguished from others by his capacity for sensing vicariously the experiences, feelings and emotions of others, particularly the people among whom he lives. And if they are poor, he is poor too, and will never catch the attention even of his contemporaries, not to speak of posterity. The Westerner's idea that India has all along suffered from what he calls the poverty of internal history will not apply to the age of the great poets of Kalidasa or Valmiki.

What attempts have we made to conjure up before our eyes a picture of the conditions in which Rama and Ravana lived and ruled, extended their respective dominions and came to the inevitable clash? Our generation, more than any previous one, should feel naturally impelled to that thought and to probe into it for what it is worth. It is true Valmiki was no historian; and if he was, he was more the Laureate on the victorious side. But what a Laureate and what laurels? And what a hero for this epic ballad! It behoves us to ask what was the motive that impelled Valmiki to sing the glories of Rama, and Ravana too. What was the moral he intended to convey to posterity? Did Valmiki mean to hand down to us a set of copy-book maxims, ethical principles which by their very nature must appeal differently to different people? Was it his sole purpose to delineate in seemingly human features the Divinity that is Rama, and indulge in implicit exhortation to us to rise to those

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heights of perfection which reach beyond the ends of this expanding universe?

The average Indian is lamentably free from dissatisfaction with abstract or ideal ethics. He has unbounded faith in the possibility of establishing right or wrong in any situation actual or conceivable. And his faith has been impregably reinforced by the Hindu concept of Karma which, because of this faith, more than any other circumstances, has come to be invested—with fatal facility—with an immutability unknown to its classical or historical authors. Ethical dissertations have acquired through the ages an attraction which would surprise any one who is not a Hindu brought up in the orthodox ways. And this love of dissertation has given birth in its turn to ethical hair-splitting, quibbling, casuistry and legerdemain. Even in respect of the teachings of Mahatma Gandhi, one sees the same tendency to twist and turn his ideas, his speeches and writings, in order to annex the strength of the Mahatma's name for one's own purpose.

It is hardly surprising therefore that the prevailing notion of the Ramayana as a body of ethical injunctions has led to endless wranglings over the ethical aspects of many an incident in Sri Rama's life. In the popular exposition of the Ramayana, which is a combination of entertainment, instruction and sermonising and has the virtues and vices of all of these, by far the most attractive feature is the array of arguments for or against Rama in each such controversy. Was Rama right in killing Vali unseen? What was the motive in doing so? Was not Rama mean and cruel alike in telling Sita to go away, after he had defeated and killed her tormentor? Any one who has learned to admire the Ramayana or Rama as a grand monolithic piece, the preoccupation with misconceived ethical niceties is both surprising and distressing. For the controversies are carried on lines which ensure their being interminable. The rules of the game are not defined. The data and the evidence are unlimited. One can take his stand on an obscure spurious purana and claim for it equal weight with the words of Valmiki, even when they are most indubitably his own authentic writing. And another may call to his aid the most absurd extremes of Mayavada and contend that the faults are there, because they seem to be there!

This preoccupation with narrow ethical issues is the direct result of a wilful missing of the wood in the trees. What is amazing is not that it has been so widespread and strong, but

that it has received no check even from modern Indian scholars. The peculiar position of the Ramayana in our sacred literature is in part responsible for this. It is too often overlooked that the Ramayana is, in the orthodox view, only a Kavya. The great giants of our intellectual and religious world were content to give the work the love and homage due to the story of Sri Rama as told by the sage. But they were by no means eager to provide commentaries and critical interpretation of it such as they were eager to provide for the Gita or the Upanishads or the Bhagavatam. There was also to some extent a predominance of sectarian writing in the commentaries that were written. The ethical bias was thus strengthened by a number of adventitious circumstances. No broad synthesis of the teachings of the Ramayana was attempted.

The diversion into ethical niceties was perhaps made easy in this way. But, as has been indicated already, present conditions are such as may well lead to a new spirit of enquiry into the broad social significance of the Ramayana. The crisis in international affairs which began with the First World War and has not ended with the Second, the tragedy of the political career of Mahatma Gandhi, who, despite the nearest possible resemblance to Sri Rama in personal qualities, failed to overpower the forces arrayed against him, the confused state of ideas of social organisation even when it is considered apart from the political and economic aspects and the disintegration of social leadership in all strata of society and government, these should have urged the more thoughtful and learned sections of the public to delve into our ancient literature for some forgotten or faded light that might be opportune at this stage.

Of the vast mass of ancient Sanskrit literature that we have in this country, the Ramayana has the first and foremost claim to such purposive research. For not only was Mahatma Gandhi the nearest approach among historical characters to Sri Rama, but Gandhiji himself was avowedly a fervent Ramabhakta. By his own powerful personal initiative, he helped the people of this country to regard "Ramarajya" as a compendious description of all that is ideal to a State even under modern democratic conditions. The occasions on which he referred to Rama during the consideration of practical political problems have been numerous. And the last words that he uttered before he collapsed from the bullet wound in his stomach was "Hey Rama".

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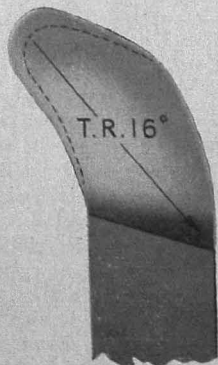
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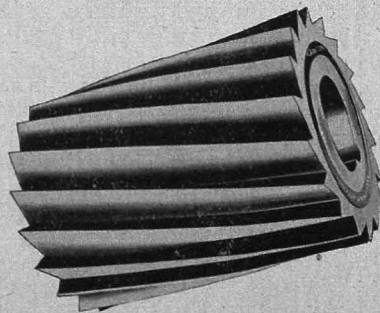
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Even those who might dismiss Gandhiji's devotion to Sri Rama as either an accident of personal predilection or a vestige of the inherited qualities of the educated Hindu, should have little difficulty in recognising the significance of the Ramayana, to the great crisis in civilisation through which the world today is passing. For it is an almost identically similar crisis in civilisation that is the central theme of the Ramayana. The charm and grandeur of Sri Rama may have pushed that vast social crisis into the background. The incomparable literary art and the irrepressible hero worship of Valmiki for Sri Rama may have prevented that background from being seen except as a foil for the hero who is set in the foreground. But that crisis is an integral part of the theme, and the heroic character of the hero is derived from the relation he bore to that crisis and the manner in which he resolved it.

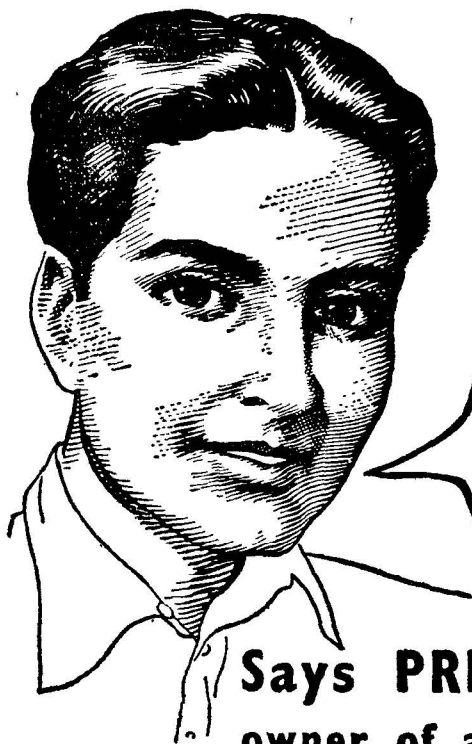
It would hardly be desirable to anticipate any of the more important conclusions of the social study suggested here. But it may nevertheless be pointed out that many of the ideas and phenomena which distinguish the present stage of national and international politics and of the evolution of world policy are to be found in remarkably similar form in this epic of thousands of years ago. The claims of one ruling house to a world dominion, buttressed by legalistic notions which at bottom must inevitably beg the question of the right to rule over other, or far off lands, the advance, each extending and consolidating its dominions and sphere of influence to the point of opening the Pandora's box of a common frontier, a striking equality between the two in point of material and intellectual development, but with striking differences in ideals of individual and social life, the great denouement of a terrific clash which, as Valmiki says, can be compared only with itself, as the sky with the sky and the ocean with the ocean and the overthrow of the Dictator whose relative weakness lay only in the proneness to evil—these are features which any one will recognise as common to both the ages, separated as they are by a long distance of time. It is impossible that the hero who was responsible for the overthrow of the vile pestilential Dictatorship of Ravana was conceived by Valmiki as a mere assembling of the qualities of a good individual. Qualities of leadership conceived in the best social sense of the term, are indispensable even for the saviour of an illustrious ruling house for resolving what in essence and in its outward manifestations was a crisis in civilisation. These

qualities leave room for more doubts and differences than is generally believed.

In India, at any rate, it is deemed more or less axiomatic that it is sufficient if the political leader, or the leader in any sphere of social life for the matter of that, is a paragon of all conceivable virtues. Little or no consideration is given to the social value of each virtue possessed by the leader and the impact of each such virtue on the social ideology which the leader will, as a result of these ideas, form for himself and begin to implement in practical policy. It does not occur to such people that virtues, conceived as matters of individual ethics, need not necessarily mean the same to the social as to the individual good.

The ethical problem is not the same for the individual and for society. The different planes on which the good has to be considered is a strong *prima facie* ground against it. In any case, even the strongest advocate of the identity of individual and social ethics must agree that, for a leader, the harmonising of his personal ethics with the just requirements of the society in his charge is a problem of great complexity and magnitude. It is even more so for the community he leads. But the community can get the initiative only in critical conditions and the consequences are unpredictable. The problem belongs in reality to the leader himself and his success is a measure of the extent to which he succeeds in effecting this harmony.

In our own time, we have seen numerous instances of this conflict in the career of Mahatma Gandhi. Those who think that Gandhiji was largely a political failure and is useful only as an example of the danger which a leader's scruples betoken in political life may be left to hug their own unverified ideas. The supreme value of the life of Mahatma Gandhi to this country and to the world as a whole, is his demonstration of the power of unflinching devotion to individualistic concepts of the good even in a highly distracted political and social condition. But it would be wrong—and it would be no justice to Mahatma Gandhi either—to claim that he effected a harmony between the two opposing standards and ideas. The conflict is there for all to see. And it is bound to reveal itself more clearly and in far bigger dimensions as national and international politics move forward to the crescendo of the supreme crisis. In all conflicts which have an ideological significance even of a partial kind, the need for one ideo-



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logy to bow to the other in order to conquer it will be invariably felt. Democracy has to be dictatorial and dictatorships have to make a desperate bid for popular sympathy and support. A similar battle has to be fought in the mind of the leader. Doubtless, his leadership rests on impeccable ethical principles, upon his claim to the support and admiration of men of culture and around goodwill. But that cannot obviate the need to distinguish between individual and social ethics and to effect a synthesis where there is already an innate conflict.

It is the delineation of this conflict, the manner in which it is tackled by Sri Rama and the crisis resolved by what seems to be concessions now to one side, now to the other, that is of surpassing social interest. Those who overlook this conflict and are unaware of the need to harmonise the conflicting principles naturally see in some of the actions of Sri Rama room for ethical controversies. The grand unity of Valmiki's characterisation of Rama as leader is destroyed. Sri Rama is surveyed and scrutinised as if he was a kind of moral mannequin in an ethical parade and admired or condemned for the frills of his costumery.

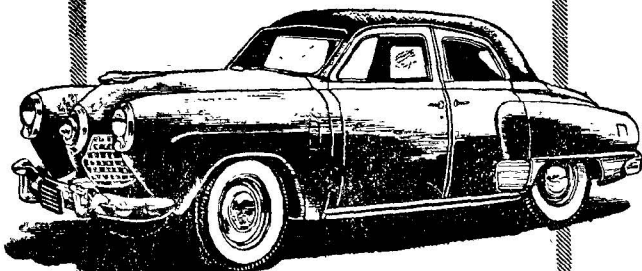
Such an attitude to the Ramayana and to Rama could have been avoided if some thought were bestowed on Valmiki himself and his approach to his theme, his motives and purposes. Unfortunately in Sanskrit literature, the great poets and writers have had a passion for virtual anonymity. Their personalities have been so completely hidden from posterity that the names of the authors are altogether unimportant. In the case of Valmiki, as in the case of Kalidasa, stupid stories have been allowed to gather about a low, ignoble origin. It is amazing how our love of contrasts and of sensational transformation of characters should have led us to regard a demoniac past as a necessary prelude to a saintly present. Whatever truth there may be in the story of Valmiki as a young bandit, it has no relation to his role as the author of the grand epic. His role within the limits of the story he narrates is the only important part of his life. That he was a sage of great spiritual attainment, there can be doubt. His sensitivity to the grief of the bereaved bird is the cause of our unique enrichment through the Ramayana. It was given to the world in the form of ballads sung by the sons of the hero, who at the time they learned it were living with Valmiki along

with their mother whom their illustrious father had forsaken. The Princes were to learn the identity of their father much later. But the Ramayana was composed just when the hero was presenting himself in the most uncomplimentary, unedifying aspect of a heartless, though by no means faithless, husband, one who was proof to the qualities of a Princess whom countless ages were to worship as the ideal wife. What Rama did to Sita was no hearsay for the poet. The question must, therefore, be asked: Was it in spite of, or because of, this painful knowledge of Rama's treatment of Sita that Valmiki chose to treat him as the hero of his epic and make the boys the minstrels of their fathers's, shall we say, misdeeds? Did the abandonment of Sita enhance or detract from Valmiki's admiration for Rama? For it is impossible that Valmiki could have treated the banishment of Sita as an insignificant incident in the career of Rama. Whatever might have been his view of Rama's conduct towards Sita immediately after his conquest of Lanka, he could not possibly have remained indifferent to the banishment, particularly as the victims were living with him, witnesses to the cruelty of a hero, who had revealed, not mere feet of clay, but the cloven hoof. If then, it was impossible for him to sit on the fence, on which side of it did he jump? And why?

The whole of the grand epic is witness to Valmiki's adoration of Rama as man and king. And if it is impossible that Valmiki intended Rama's action to be copied by all husbands of unfortunate wives, on what basis can we explain Valmiki's adoration of Rama, except that he was prepared to support in Rama the king what he would have condemned in the most forthright terms in any private individual? Valmiki's ethics, as he conceived it in Rama's case, was the ethics of a leader of men, of a king who was no mere individual, who indeed had to surrender some of the cherished and invaluable rights of the private citizen or the average man, in consideration of the public responsibilities which devolved on him either by inheritance or otherwise.

The ethical doubts which harass so many of the devout students of the Ramayana are doubts which arise from the oversight of the social aspect of Rama's position, or from a mistaken idea of the identity of individual and social ethics. Valmiki on his part was keenly conscious of the conflict between individual and social ethics. He was conscious,

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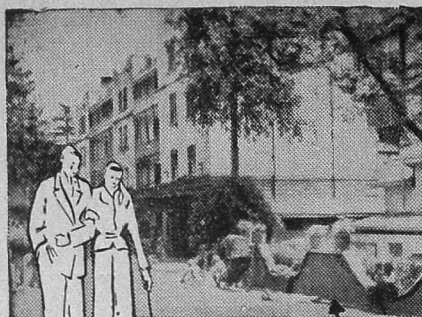
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too, of the danger of owning that conflict and presenting it in bald terms or in a naked form. For, small minds seek to make personal profit out of that conflict either by exaggerating that conflict or by importing it into contexts in which it does not exist. Great men, as the world understands them, are equally prone to deny or affirm the existence of that conflict, the identity of social and individual ethics and to sacrifice good causes in the name of supposedly higher ends. The synthesis of such anti-ethical ends is effected not in public discussions nor in the polemics of popular politicians or stern moral codes which think only of atomic individuals and not society as a real entity, but the mind and in the disciplined and realistic conscience and judgment of the true leader of men, one who is personally impeccable and incorruptible, supreme in his moral and intellectual qualities and able, by reason of his stern devotion to the public good, to protect himself from deflection and diversion, from his pursuit of it, on whatever ground or for whatever motive.

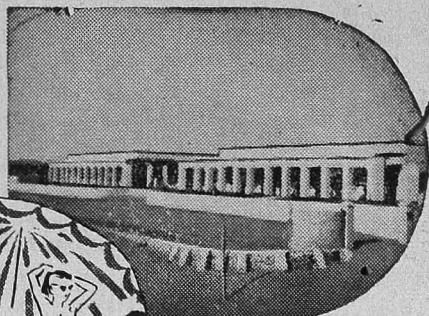
The crisis in civilisation, which is common to Valmiki's age and our own must have made patent to him the need for such a leader. Historically, crises in civilisation arise either from crude biological forces or from the clash of rival political and social systems. Crises of the former kind arise when the material prosperity of settled and highly civilised communities exercise the greed and cupidity of nomadic barbarian hordes which, in the past, had always hovered on the outskirts of civilisation and had oftentimes felt themselves strong enough to overpower it. In such crisis, there is little that the leader of the civilised community can do to check the inrush of the barbarian. The barbarians at the gate sooner or later prove too powerful for the civilised men inside the citadel, if only because of their superiority in numbers and in lack of sophistication. But in the case of the latter kind of crisis, the clash between rival social or political systems which are highly developed, the presence of a leader, such as Valmiki conceived Rama to be, is all important. Inevitably there is, morally, a hiatus between the two sides which come to a final clash. Materially, both are able to claim a high degree of development. It is not as if one side is civilised and the other barbarian. Both can claim a high degree of material development. Their material resources are more or less evenly balanced. The achievements, accomplishments and amenities of civilised life, they share in

more or less equal measure. But morally, a certain hiatus is inevitable. One side has an almost unbridled faith in the wisdom and justice of letting the immediate ends determine the wisdom and justice of the means to be employed. Repression and cruelty at home, espionage and sabotage abroad, a certain remorselessness in every thought or act, cynicism and callousness, all these are accepted without qualms and pursued without compunction. But the other side, though it may have its faults, is loath to shut the door of mercy on any section of mankind. It does not altogether lose sight of the fact that the test of a good society is the happiness of its constituent individuals and that for happiness, freedom is a prime requisite. If it had the choice, it would avoid a clash with the rival system, if only because a clash would involve a sacrifice of its cherished principles. But the clash is not left to its choice. The pressure of the other side steadily mounts up. Preparation for aggression has to be matched by preparation for defence. And once the war is on, the line cannot be drawn between defence and triumph over the aggressor. Once the crisis is afoot, the civilised sense of values is put on its trial. Not to match the enemy's wiles and guile is to invite defeat and extinction. To compete with him in an ignoble sphere is to ensure moral defeat well in advance of the material. The material conflict has its counter part in the innumerable moral conflicts in the minds of the comparatively civilised side. These conflicts are not such as to be settled in the mass mind. The ethics of using the atom bomb and the dangers of allowing the enemy superiority in armaments, the limits to which a civilised country can go in its attempts to protect itself from unscrupulous espionage or fifth column activity, the point where the freedom of the citizen has to give in to the requirements of security or organisation—these are all questions too nice to be debated in the open or decided by a show of hands.

The only arbiter, at once safe and sound, is the conscience of a leader who is not only morally conscientious, but also socially conscious. The position of the President of the United States of America is thus, excepting for its democratic trappings, exactly similar to the position of Rama in the crisis in civilisation, which was Valmiki's theme. That Rama was king in a regime of hereditary monarchy while the President of the U.S.A. is elected by the people is a point which, for all its bigness in



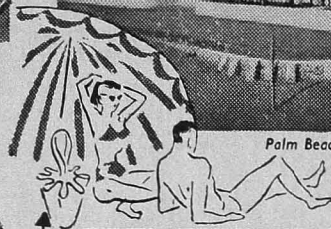
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the eyes of our contemporaries, should count for little in our appreciation of Valmiki's regard for Rama as the ideal leader in a great crisis in civilisation.

Valmiki was drawn to Rama, not for the qualities which evoke the approbation of old women, but for his qualities as a leader, the qualities which save the world for civilisation, which rob unrighteous tyranny of all its terrors, which put heart into the just and give Right a new lease of life. Much as he valued the virtues and qualities of Rama as an individual, he prized far more the combi-

nation of right and might, that unerring instinct for the harmony of personal and social ethics without which the world would have become a plaything to the whims of Ravana. It was not the docile son, eager to obey even the most implicit behests of his father, or the loving brother, or the well-behaved boy who was a son to every elder in the land, which attracted Valmiki, but the hero in Rama who set the public good above every other consideration, who spurned a kingdom to avoid the least risk of a war of succession, and who went into the wilds and risked his personal comfort to precipitate the war with Ravana.



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THE BEGINNING OF WRITING AND THE INVENTION OF THE ALPHABET

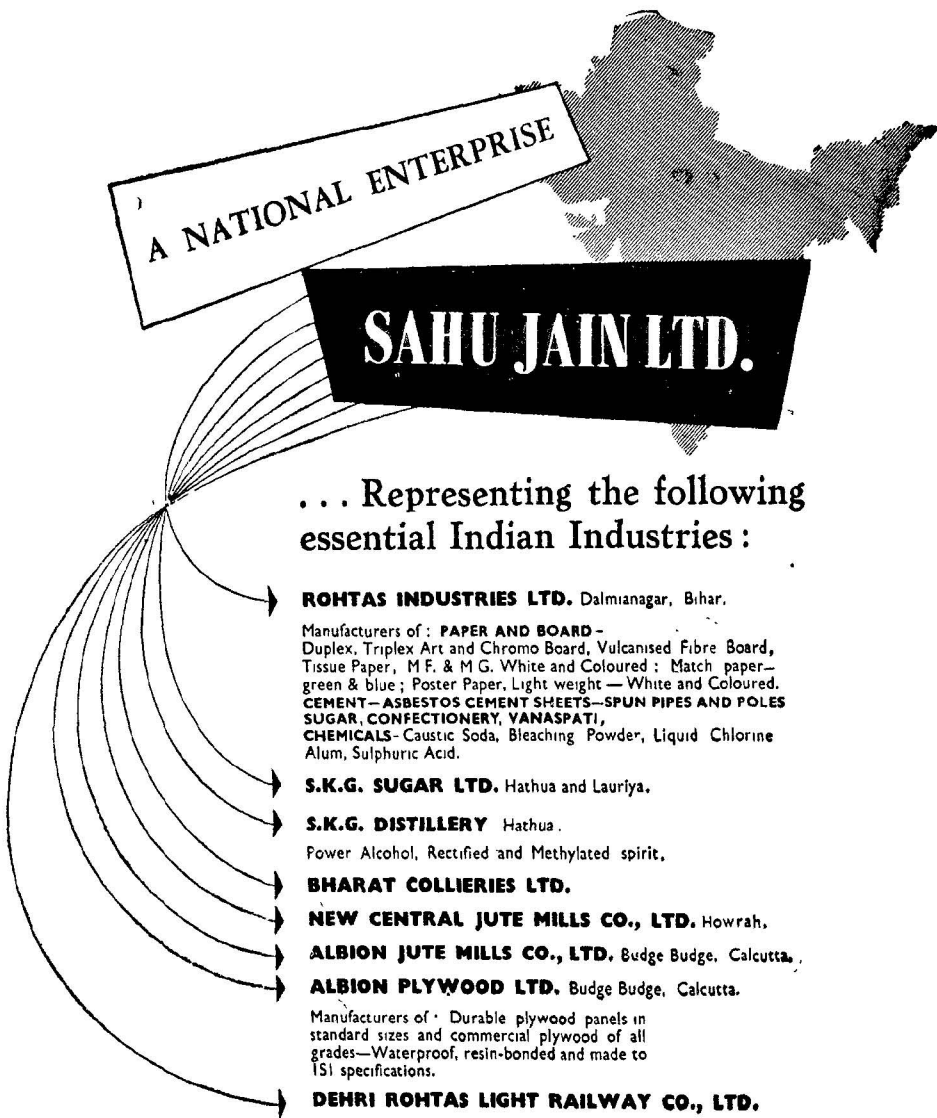
(Contributed)

Archaeologists tell us that for more than 250,000 years man had been living the life of any other beast of prey, hunting, fishing and collecting whatever food nature happened to provide and that this state of existence continued up to the end of the old Stone Age (Paleolithic) about 12,000 years ago. In the New Stone Age (Neolithic), which followed, man had become a food producer, having learnt agriculture of food plants and the domestication of animals. The next phase in human progress is known as the Bronze Age, because at this time copper and bronze were the only metals used for tools and weapons. This period, which corresponds to about five thousand years ago, marks the beginnings of civilization, the large scale adoption of agriculture by irrigation to increase food supply, and the growth of the cities in the great river valleys of the Nile, the Tigris and Euphrates and the Indus. The art of writing the greatest invention ever made by man, was made at this time independently in all these places and also in China. Picture writing was first adopted, which soon became condensed and conventionalised, and later lent itself also to express ideas that could not ordinarily be expressed by pictures. The invention of writing made a continuous historical consciousness possible and initiated the historical period. The final evolution from the original picture writing of the Egyptians to the modern alphabet script about 3000 years ago by the Phoenicians made a revolution in human knowledge. Writing was democratized, and literacy became possible to all classes. It was no longer a mystery confined to a few priests, clerks and merchants

All the alphabets of the modern languages of Europe are derived from these first alphabets derived from the Egyptian pictograms and the Sumerian script. In India the Indus Valley civilization which was contemporaneous with the Egyptian and Sumerian civilizations had its own independent ideographic writing which has not yet been deciphered. The later Brahmi script, which was undoubtedly the origin of all the modern Indian alphabets, was itself probably derived from the still earlier Mohenjodaro writing. But the evidence is still not sufficient to provide the link between the two. Foreign scholars, however, are of the view that the Phoenician invention inspired the creation of the alphabets of the Indian languages. It is of interest to note here that some of the symbols in the punch marked coins have the same signs as in some of the Mohenjodaro seals. In China, on the other hand, where writing was invented independently, the transition of the conventionalised picture writing to the alphabetical stage has not yet proceeded. The same thing may be said also of the pictographic writing of the ancient Aztecs of Mexico and of the Mayas in Central America. The pictographic writings of the ancient Cretans and of the Hittites are other examples of writing which remain yet to be deciphered.

How writing arose:

The Art of writing was necessitated by the new economic developments brought about by the urban revolution which happened about 5,000 years ago practically contemporaneously in Egypt, Sumera (Mesopotamia) and the



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Indus Valley. The cities, particularly in Sumeria, were built around temples and most of the wealth created under the new order accrued to the temple. The administration of the vast temple funds required the keeping of accurate records of receipts and expenditure by the self appointed servants of the deity. In Egypt, instead of the temple, all the wealth accumulated in the hands of the pharaoh. The Civil service in Egypt appointed by the pharaoh to collect and administer the vast revenues of the country, also required a system of writing for recording receipts and expenditure. This was the origin of the dawn of writing in Egypt and in Sumeria. It is not known how the Indus Valley script arose, but perhaps it too was originated by the temple priests as in Sumeria, or perhaps by its merchant community, but it had no relation to the other two scripts.

Pictographic writing:—

The earliest system of writing was a pictorial record in which the pictures were more or less self explanatory. The symbols are called pictograms and the writing is known as pictographic writing. Picture writing first appeared in Egypt and Sumer (Mesopotamia). The hieroglyphic script used by the Egyptians has preserved the characters in their pictorial form for the last 4,000 years. In pictographic writing the same symbol must carry the same meaning to all the members of society using them, for instance, the picture of a man stood for the word "man". The system became standardized and was taught in schools. There was a professional class of scribes.

Logograms and ideograms:—

Even the earliest and simplest pictographic writing of Egypt shows that the pictograms were not composed of a photographic copy or an accurate drawing of the objects represented by them, but had become simplified and more or less conventional. The abbreviations were understood by the society, and symbolic script was used instead of complete pictures in order to facilitate easy and quick writing. Thus, instead of the picture of a man for the word "man" a single vertical line with two or three dashes across was used. Pictorial writing thus led to what is known as logographic writing. The latter script was still used in the same way as pictographic writing, with only this difference that the symbols do not so readily suggest the words they represent.

The next step was to use ideograms for words which can not be described by pictures. Thus the device of a jar came to represent not only a jar, but also a measure or quantity. A further improvement was to make some markings on the picture of the jar in order to indicate the nature of the article measured, e.g. 2 lines for barley and 3 lines for beer. New symbols were adopted for words indicating abstract quality, and for other words which could not be directly represented by pictograms. In these cases each new symbol was given an arbitrary meaning which was agreed to by the society. Thereafter it was necessary to fix the meaning permanently and standardize it, and for this purpose dictionaries were maintained and copies were made for the schools. The script was thus a code based on the lock and key arrangement, with a key for each ideogram. This form of writing was highly developed in Sumer, and was also used in Egypt along with the hieroglyphic writing, which it never displaced.

The Chinese script is still essentially a logographic and ideographic script. Words are often represented by combining the symbols for two or more objects having close association with the quality intended to indicate. Thus, in Chinese the word "bright" is represented by combining the symbols for 'Sun' and 'Moon', and verb 'walk' by combining the symbols for right step and left step. A 'forest' is represented by combining the picture symbols for 'tree'. This method of combination enables the ideographic representation of a large number of words from a comparatively small number of elementary logograms or symbols. An interesting result follows from the use of this form of writing. As picture writing and logographic writing have no connection with the sound of the words people can communicate by such writing without being able to understand one another when they talk. Thus two educated Chinese coming from different parts of the country, where the provincial languages spoken are different, cannot converse with each other, but may, nevertheless, understand the same books in Chinese. This is due to the fact that each symbol in the writing conveys the same idea of the thing to both persons, without expressing the name of the thing, which are different in the two languages. A familiar example of the common use of such symbols even today may be given. The Arabic numeral '5', is associated by the English with the word pronounced 'five', by the Hindi speaking person with the sound 'Panch', and by the

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Tamil 'Ainthe'. All the three persons recognize the meaning of the symbol '5', although each associates it with a different sound.

Phonetic Writing:—

Both in Egypt and Sumer the ideograms soon acquired phonetic value also and were used as in rebus. Names of persons and new ideas could be expressed in this manner. Thus the name "Campbell" may be written by placing the device of a 'camp' and that of a 'bell'. Similarly by combining the device of 'bee' and the device of a 'leaf' we get the word 'Belief'. The constituent pictures are totally devoid of any connection with the meaning of the objects represented by them. This method of phonetic writing was sometimes used by the Egyptians.

Another method of phonetic writing was developed by the Sumerians. This is known as syllable writing. Most of the common Sumerian names were words of one syllable. A symbol indicated not only the thing represented but also represented like the letters of our alphabet, a phonetic symbol or phonogram of the word representing the thing. For instance, the word, for 'mouth' in the Sumerian language was 'Ka', and the symbol for 'mouth' stood also for the sound 'Ka'. Each syllable thus stood for a sound, which had no necessary meaning by itself. By combination of such phonograms compound words and names of persons could be formed, without the necessity to invent new ideograms for them. This simplified the code as it reduced the number of signs which had to be used.

The Semitic people, the cypriots and the Persians developed from the Sumerian script a phonetic syllable script for their own languages. An imaginary example of such phonetic syllable writing may be given. Let us suppose that we use a pictographic script for the Hindi language. The Hindi words 'pan' (betel leaf) and 'eekh' (sugar cane) are represented by the respective pictures of these objects. Suppose the English language had no script and an Englishman on seeing these two pictures together, and having them pronounced combines the two sounds. He will then get the word 'Pan-eekh' ('Panic'). He could thus write the English word 'Panic' by putting together the above two pictures. If, for instance, all English words could be split up into two syllable phonetically equivalent Hindi words it would be possible to devise for English a script based on the phonetic equivalents of pictographic or ideographic script of the Hindi language. The Japanese script

is derived from the Chinese ideographic script in this manner. One peculiarity of the Japanese language is that all the words could be split up into a small number of phonetically similar monosyllabic Chinese words. By using the Chinese symbol for such words and by suitable combination the Japanese developed a script with comparatively few symbols.

Alphabet without vowels:—

The earliest alphabets were derived by the Phoenicians, by combining some of the Egyptian pictograms and Sumerian syllable script. A monosyllabic word was taken as the symbol for the consonant. Thus, the ideogram for the word 'Ka' which meant 'mouth' or 'face' was adopted to represent the sound of the consonant 'K' alone, without any regard whatsoever to its original significance. The other consonants were derived in a similar manner. A peculiarity of the Phoenician alphabet was that it was composed wholly of consonants and without any symbols for vowels. A word composed of two letters in this alphabet could therefore stand for any of the several alternative words e.g. the term 'S.P.' may stand for 'Sap' or 'Sip', Sop or Sup. The present Marwari language in our own country is a typical example of a primitive language with an alphabet which is still without any vowels. The actual word for which the letters stand in each case is a matter of conjuncture to be made from the context. For instance, the combination of the two consonant letters 'K', and "R" in the Marwari language, may stand either for the word 'Kar' or for 'Karo' in that language, and without knowing the context it is not possible to say which of these two words is meant.

The origin of the modern Roman alphabet:

A peculiarity of the semitic languages was that notwithstanding the absence of symbols for vowels there was not in fact much confusion in the written language. This was due to the great simplification of the language, and the fewer possibilities of combinations which could be formed by putting different vowels between any two consonants. To illustrate this point, if we take the English letters "m, x", only one word is possible, namely, "mix" as there are no words as 'max', 'mex' 'mox' or 'mcux' in the English language. A word 'mix' is therefore capable of being represented by the two consonant letters 'm' and 'x' only. But an alphabet without vowels would produce

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confusion and uncertainty in a language rich in words made up of different combinations of the same two consonants. This difficulty was experienced by the Greeks. In adopting the Phoenician method of writing to their own language the Greeks introduced for the first time symbols for the vowels also. These symbols were also derived from the Egyptian symbols for monosyllable words in the same manner as was done by the Phoenicians in inventing the symbols for the consonants. The invention of the vowels made possible the unambiguous expression of the European languages. The Struscans and the Romans learned to read and write from the Greek colonists of Italy, and adopted their alphabet.

Materials used for writing in ancient times.

The decipherment of the ancient Egyptian Hieroglyphics in 1819 and that of the Babylonian script in 1937 unlocked for the first time the written history of these countries since 3000 B.C. The Egyptians wrote on the walls of the temples and on papyrus. Inscribed pottery ware, gold vases and numerous seals in every material have been unearthed at several ancient sites in Egypt. In Mesopotamia writing was made with a wedge shape instru-

ment on soft clay. This type of syllable writing was known as cuneiform writing from the appearance of the impressions of the script on the clay tablets. Several thousands of clay tablets with cuneiform inscriptions from every period of Babylonian history have been excavated. All letters, records and legal documents were written in these imperishable clay tablets. The letters consisted of small cakes of clay, which were often enclosed in envelopes, also of clay, powdered clay being inserted to prevent the envelope adhering. The inner and outer parts were generally baked hard, but were sometimes only sun-dried. It is not known what materials were used for writing by the Indus Valley people. Inscribed potsherds and metallic adzes and daggers and numerous clay sealings have been unearthed at Mohenjodaro. It is possible that these people used palm leaf or wood or leather as writing materials, but these have since perished. Paper was used for the first time in China for writing. Bricks, pottery specimens and seals with very early Chinese inscriptions have been obtained in different parts of China, and manuscripts on wooden tablets, paper, palm leaves and leather in a perfect state of preservation were discovered in the Lop desert by Sir Aurel Stein.

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A New Radiation Dr. Sir C. V. RAMAN, F.R.S.

*(Inaugural Address delivered before the South Indian Science Association,
Bangalore, on the 16th March, 1928)*

I propose this evening to speak to you on a new kind of radiation or light-emission from atoms and molecules. To make the significance of the discovery clear, I propose to place before you the history of the investigations made at Calcutta which led up to it. Before doing so, however, a few preliminary remarks regarding radiation from atoms and molecules will not be out of place.

During the past seven years, the scattering of light in transparent media has been the subject of intensive experimental and theoretical investigation at Calcutta, and it is the researches made on this subject that have led to the discovery which I shall lay before you this evening. One important outcome of our researches has been to show that while light-scattering is in one sense a molecular phenomenon, in another sense it is a bulk-effect having a thermal origin. It is the thermal agitation of the molecules which causes them to be distributed and orientated in space with incomplete regularity, and it is the local fluctuations in the properties of the medium thus arising which give rise to optical heterogeneity and consequent diffusion of light. The subject of light-scattering is thus a meeting ground for thermodynamics, molecular physics and the wave-theory of radiation. That the combination of theories in such diverse fields of physics gives us predictions which have been experimentally verified, is one of the triumphs of modern physics.

A NEW PHENOMENON

While the quantitative investigations made at Calcutta have in the main substantiated the thermodynamic-wave-optical theory of light-scattering, indications appeared even in our earliest studies of a new phenomenon which refused to fit in with our pre-conceived notions. Thus, in some observations made by me with the assistance of Mr. Seshagiri Rao in December, 1921, it was found that the depolarisation of the light transversely scattered by distilled water measured with a double-image prism and Nicol increased very markedly when a violet filter was placed in the path of the incident light. More careful investigations made by me with the assistance of Mr. Seshagiri Rao in December, 1921, it was found that the depolarisation of the light transversely

scattered by distilled water measured with a double-image prism and Nicol increased very markedly when a violet filter was placed in the path of the incident light. More careful investigations made with dust-free liquids in 1922, confirmed this effect and showed it to exist also in methyl and ethyl alcohols, and to a lesser degree in ether. It was also noticed that the colours of the scattered light from the different liquids studied did not match perfectly. An important advance was made when Dr. Ramanathan working at Calcutta in the summer of 1923, investigated the phenomenon more closely and discovered that it was not a true dependance of the depolarisation on the wave-length of the scattering radiation but was due to the presence in the scattered light of what he described as "a trace of fluorescence". This was shown by the fact that the measured depolarisation depended on whether the blue filter used was placed in the path of the incident beam or of the scattered light, being smaller in the latter case. Accepting the explanation of the effect as "weak fluorescence", it naturally became important to discover whether it was due to some impurity present in the substance. Dr. Ramanathan tested this by careful chemical purification followed by repeated slow distillation of the liquid at the temperature of melting ice. He found that the effect persisted undiminished.

The investigation of this species of "weak fluorescence" has ever since 1923 been on our programme of research at Calcutta. Krishnaa, who investigated 60 liquids for light-scattering in the spring and summer of 1924, made systematic studies of the phenomenon, and found that it was shown markedly by water, ether, all the monohydric alcohols and a few other compounds. He pointed out that the liquids which exhibit the effect have certain family relationships amongst themselves, and that they are also substances whose molecules are known to be polar. The chemical importance of the subject led to Mr. S. Venkateswaran attempting to make a fuller study of it in the summer of 1925, but without any special success. The research was discontinued at the time but was resumed by him later in the current year (January, 1928). The remarkable observation was made that the visible

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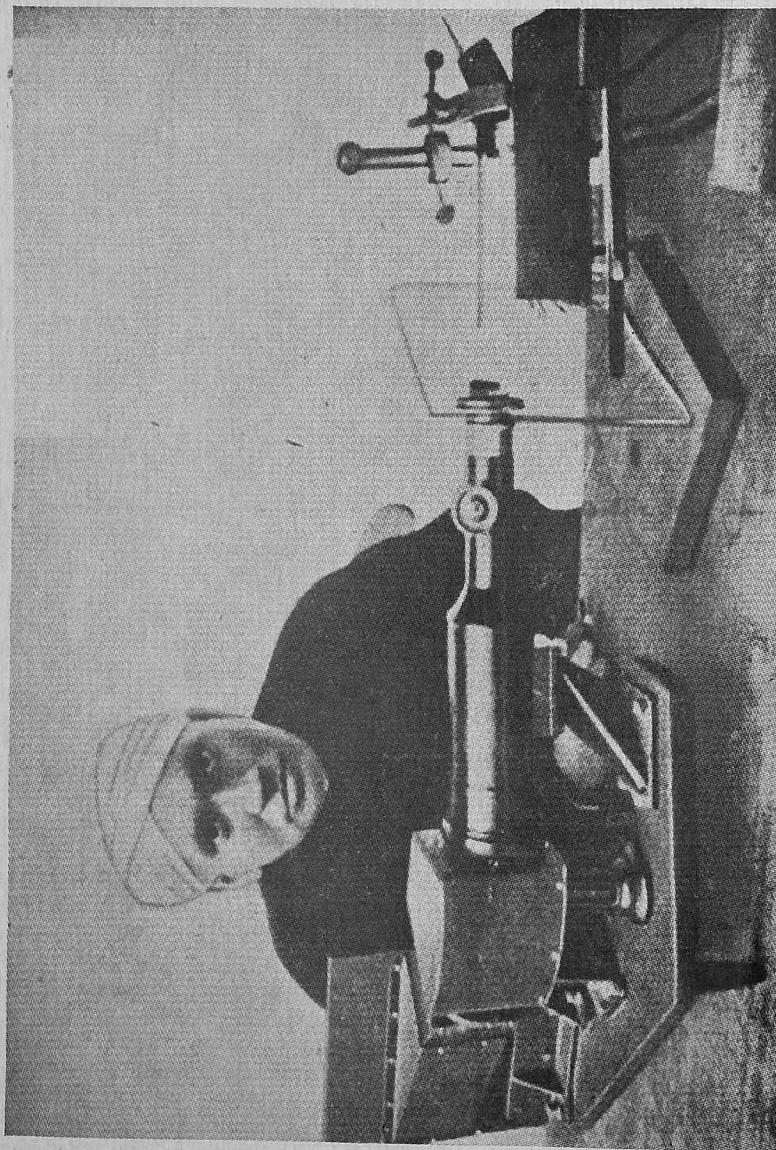
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DR. SIR C. V. RAMAN F.R.S.

radiation which is excited in pure dry glycerine by ultra-violet radiation (sunlight filtered through Corning glass G. 586) is strongly polarised.

ITS UNIVERSALITY

Though the phenomenon was described in the paper of Dr. Ramanathan and Mr. Krishnan as a "feeble fluorescence", the impression left on my mind at the time was that we had here an entirely new type of secondary radiation distinct from what is usually described as fluorescence. The publication of the idea was however discouraged by the belief then entertained that only a few liquids exhibited the effect and by the supposition that it was unpolarised in the same way as ordinary fluorescence in liquids. Indeed, a chemical critic might even have asserted that the effect was in each case due to a trace of dissolved fluorescent impurity present in the substance which our efforts at purification had failed to remove. Early this year, however, a powerful impetus to further research was provided when I conceived the idea that the effect was some kind of optical analogue to the type of X-ray scattering discovered by Prof. Compton, for which he recently received the Nobel Prize in

Physics. I immediately undertook an experimental re-examination of the subject in collaboration with Mr. K. S. Krishnan and this has proved very fruitful in results. The first step taken in the research was to find whether the effect is shown by all liquids. The method of investigation was to use a powerful beam of sunlight from a heliostat concentrated by a 7" telescope objective combined with a short focus lens. This was passed through a blue-violet filter and then through the liquid under examination contained in an evacuated bulb and purified by repeated distillation in vacuo. A second filter of green glass was used which was complementary in colour to the blue-violet filter. If it were placed in the track of the incident light, all illumination disappear while, if it be placed between the bulb and the observer's eye, the opalescent track within the liquid continued to be visible, though less brightly. All the liquids examined (and they were some 80 in number) showed the effect in a striking manner. There was therefore no longer any doubt that the phenomenon was universal in character; with the bulb of toluene on the lantern, you see that the effect is readily demonstrable. The cone of light vanishes

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when I place the violet and green filters together, but it appears when I transfer the latter to a place between my audience and the observation bulb.

I may also mention that Mr. Krishnan and myself have succeeded in detecting the new radiation and observing its partial polarisation in a number of organic vapours and also in the gases CO_2 and N_2O .

The new type of secondary radiation is also observable in crystals such as ice, and in amorphous solids. It is thus a phenomenon whose universal nature has to be recognised

LINE-SPECTRUM OF NEW RADIATION

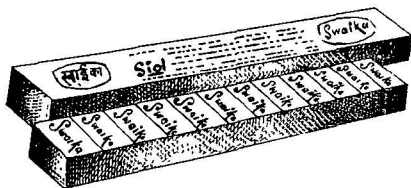
That the secondary radiation passes the complementary filter and yet is strongly polarised to an extent comparable with the ordinary molecular scattering, is clear evidence that we have in it an entirely new type of secondary radiation which is distinct from either the ordinary scattering or the usual type of fluorescence. A striking and even startling confirmation of this view is furnished by an examination of its spectrum. Preliminary observations with sunlight filtered through a combination which passes a narrow

range of wave-lengths, showed the spectrum of the new radiation to consist mainly of a narrow range of wave-lengths clearly separated from the incident spectrum by a dark space. This encouraged me to take up observations with a monochromatic source of light. A quartz mercury lamp with a filter which completely cuts out all the visible lines of longer wave-length than the indigo line 4,358. A.U. was found to be very effective. When the light from such a lamp was passed through the bulb containing a dust-free liquid, and the spectrum of the scattered light was observed through a direct-vision spectrocope, it was found to exhibit two or more sharp bright lines in the blue and green regions of the spectrum. These lines are not present in the spectrum of the incident light or in the unfiltered light of the mercury arc and are thus manufactured by the molecules of the liquid.

Photographs obtained so far with benzene and toluene suggest that there may be several modified lines, and that each modified line may be a doublet in some cases. In many liquids, the scattered spectrum shows in addition to sharp lines also an unmistakable continuous spectrum accompanying it. Carbon

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disulphide behaves in an exceptional manner, showing a diffuse band.

Observations already made show that the new lines in the scattered spectrum are usually markedly polarised; they also suggest that a continuous spectrum, when present, is less markedly polarised..

NATURE OF THE NEW RADIATION

The discovery set out above naturally opens up an array of problems for investigation. The most pressing question is, how is the modified scattered radiation, as we may call it, generated by the molecules of the liquid? As a tentative explanation, we may adopt the language of the quantum theory, and say that the incident quantum of radiation is partially absorbed by the molecule, and that the unabsorbed part is scattered. The suggestion does not seem to be altogether absurd and indeed such a possibility is already contemplated in the Kramers-Heisenberg theory of dispersion. If we accept the idea indicated above, then the difference between the incident and scattered quanta would correspond to a quantum of absorption by the molecule. The measurement of the frequencies of the new spectral lines thus

opens a new pathway of research into molecular spectra, particularly those in the infra-red region.

We are obviously only at the fringe of a fascinating new region of experimental research which promises to throw light on diverse problems relating to radiation and wave-theory. X-ray optics, atomic and molecular spectra, fluorescence and scattering, thermodynamics and chemistry. It all remains to be worked out.

I have to add in conclusion that I owe much to the valuable co-operation in this research of Mr. K. S. Krishnan, and the assistance of Mr. S. Venkateswaran and other workers in my laboratory.

The line spectrum of the new radiation was first seen on the 28th February, 1928. The observation was given publicity the following day.

In commemoration of the Silver Jubilee of Raman Effect, the full and complete text of inaugural address delivered by Dr. Sir C. V. Raman before the South Indian Science Association, Bangalore, on the 16th March, 1928 announcing his Discovery of a New Radiation, later known as 'Raman effect', is reproduced here, which should be of great interest to the readers —Editor

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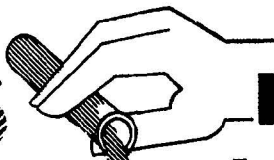
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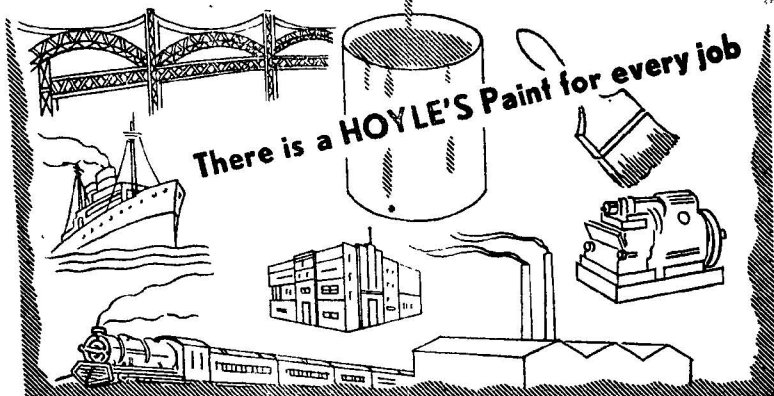
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SOME PERSONS AND PERSONALITIES AT BOW BAZAR SCIENCE ASSOCIATION 1925-1930

By Prof. C. MAHADEVAN, M.A., D.Sc., F.A.Sc., M.A.I.M.E, F.N.I.
Head of the Geology Department, Andhra University, Waltair.

In the history of modern scientific progress in India, the third decade of the century ranks as a classical period, on account of the achievements by research workers in India which gave our country an international status. The election of leading Indian Scientists to Fellowship of Royal Society of Great Britain was an event of great importance. The crowning glory of this decade was the award of Nobel Prize to Prof. Sir C. V. Raman in 1929. It is pleasant to record that scholars associated with him during that period are to-day holding responsible positions in our country and helping to build up centres of research.

I went to the Indian Association for Cultivation of Science, 210, Bow Bazar Street towards the end of 1925 and was accepted as a research scholar by Prof. C. V. Raman with perhaps some misgivings, as my subject was geology. But he had problems that he could give in almost any branch of science on the border-land of physics. The first person whom I met after my admission into the Science Association was K. S. Krishnan, now Professor Sir K. S. Krishnan, Director of the N.P.L. It was about eight O'clock in the morning when I went there and I saw Krishnan to my very pleasant surprise with his characteristic Khaddar Kurta and dhoti. He was my teacher for chemistry in the Madras Christian College some years before and beloved of all the students, on account of the interest that he took in their work. I also attended the lectures that he was giving to Biology group students in the mathematical problems of physics in the tiffin interval between 1 and 2 P.M. This voluntary class was always overflowing with students not only from the Christian College but from the Pachaappa's and Presidency Colleges. I recognised him, of course, and he knew me at once and received me with his characteristic affec-

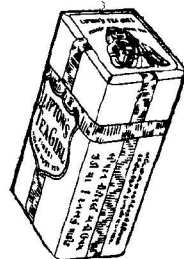
tion which he still retains. Krishnan was the doyen of the research scholars and he was always ready to go out of his way to help every one who sought his assistance without minding being disturbed in his serious work. An exceptionally keen and critical intellect and a true Vaishnavic attitude of love and respect were emblematic of his head and heart. Married young and with children, he was as buoyant as a school boy, and never lost an occasion to laugh lustily and loudly. His interests were wide, and though unassuming and modest in company, he would soon be the centre of attraction by his native humour, informative talk and intellectual level. He would come from his home, just behind the Science Association, at about 4 A.M., wake up for a walk and run in the Chowringhee Maidan. He was a great foot-ball fan and used to hasten to the big matches of Mohunbagan and other Clubs after finishing his work, too late often to get a ticket at the counter, buying the ticket at black market prices to witness the match. I have often seen him as a vociferous and demonstrative spectator of the game to the annoyance or amusement of others surrounding him. He is to me an example of the real Indian type "high thinking and plain living."

L. A. Ramadas, now Director of Agricultural Meteorology, was also at Bow Bazaar at that time. He was completing his thesis for Doctorate and had just been appointed as a Gazetted Officer in the Meteorological Department. Dr. Ramadas has hardly changed since I had known him then. He could never open his mouth without being jocular and had in abundance the sense of the ridiculous. Between himself and Krishnan, an individual could be fooled without his knowing it and every one else enjoying the joke. He was reputed for his



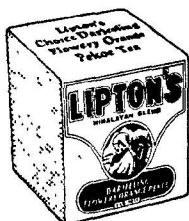
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excellence in experimental technique. Even after joining Government service, he used to come there for carrying out some research from his far off station. It speaks to his ability both as a worker and as an organiser that he created entirely by himself a new branch in the Meteorology Department—namely Agricultural Meteorology. This was a subject unknown in India before he took it up. The importance of Agricultural Meteorology to our country hardly needs to be emphasised. Through sheer work and perseverance he was able to compel attention from the Government and from abroad and give agricultural meteorology a status in spite of handicaps and discouragement incidental in official atmospheres in this country. Dr. Ramadas has the unique honour, amongst Prof. Ramana's students, of his son also working at present under the great teacher.

Dr. S. Venkateswaran, Deputy Registrar of Trade Marks, was another remarkable person amongst the workers at that time. It could be said of him that he did not touch any thing that he did not adorn. Unlike us all who were dull time scholars, Dr. Venkateswaran was a chemical assistant in the Alipore Test House with his home at Bhavanipore. He would be in the laboratory by 6 O'clock in the morning, work till 9-15, have just time to rush home, take food and go to office to be back at the laboratory at about 5-30 in the evening to continue his work till late at night when he would go home for his food. He was absolutely brilliant and strong on facts and dates. His memory was remarkable and would give statistical data or dates of events with absolute accuracy. Only once did he lose a bet with me on the date of some event and I cherished that rupee that I won from him for a long time as a precious possession. Ever active, he appeared to be always taking life easy and published more papers and did much more research of a very high order than some full time scholars that got him a doctorate of the Madras University. His hospitality and generosity to friends was unbounded and his spouse was not second to her husband in feeding his friends. All of a sudden, without notice at home, he would take half a dozen of us for dinner and announce as he entered his house the number of guests. Within an hour we used to have a sumptuous feast. After his friends left Calcutta Dr. Venkateswaran turned his attention to law. At this time he was Examiner of patents. With proxy attendance on most days in the evening law lectures, he yet obtained first class and rank in the law

examinations and took his B. L. degree. Almost simultaneously he wrote his book on "Trade Marks." India had no law of trade marks and necessity for legislation was greatly felt. Justice Sir Courtney Terrell who wrote a foreward to the book remarks "I am astonished to find that legal principles should be so admirably expounded by one who is not a professional lawyer and whose daily work must leave little leisure for the study of law." This book was received with the highest praise in "Nature" a leading journal of science in the world. Just as Ramadas has created agricultural meteorology, Dr. Venkateswaran created the 'Trade Mark Law' of India. It is said that the trade mark law as it exists to-day was almost completely his draft.

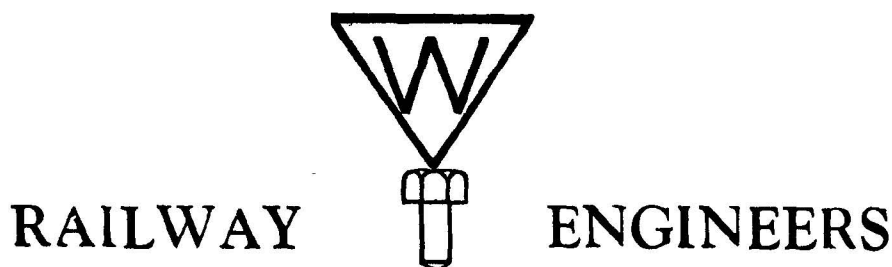
Prof. C. M. Sogani of the Benares University who had come for a term of two years to take his doctorate degree was another friend whom I remember with affection. He struggled day and night to rig up a Debye-shearer X-ray set with almost every part except the induction coil and the commutator made in the laboratory's work-shop. He was the first to start X-ray diffraction studies of liquids and his work confirmed the Raman-Ramanadhan theory of X-ray diffraction. He was at Calcutta with his wife and two children and spent most of his time in the laboratory. We used to go out of Calcutta once a month. Though reserved, he was friendly and was somewhat sensitive, but always generous of heart, with a natural dignity.

The late Dr. Panchaman Das was an erratic genius with always pan in his mouth, and mathematical puzzles and homely proverbs. We used to like him very much for his joviality and geniality. He was a teacher in one of the Calcutta Colleges and was working on problems of mathematical physics, more particularly in sound under Prof. Raman's guidance.

V. I. Vaidyanathan of Cochin State was a character by himself. Lanky and frail, he had a sense of humour peculiar to Kerala and could narrate anecdotes effectively. He was usually self centered and could be very reserved and exclusive at times. We always ragged him for his economy. He is now a physicist to Irrigation Research Laboratories in New Delhi. He was one of the best experimenters we had about that time and he fabricated a very delicate apparatus for the study of magnetic susceptibilities.

Dr. S. Ganesan, Professor of Physics in the Jubbulpore College, Nagpur University was

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one of the most loveable and gentlemanly colleagues that we had for some time with us. Through some machinations by interested persons, he lost his job as Assistant Professor in Rangoon University and was with us as a research worker till he could get a suitable post. Genial and friendly, he would never indulge in a joke if it would hurt any one. I always recall him as one of the most perfect gentlemen we had at the Science Association.

Dr. I. Ramakrishna Rao was with us for about two years after I had joined the Institution and we shared the same room. Clad in Khaddar down to the knee, fond of music and bhazana, simple and spartan in habits, he was a dear friend to all. He was working on magnetic birefringence with a very powerful electromagnet that Prof. Raman had purchased cheap as scrap, and fabricated it in his workshop, for research. Dr. Ramakrishna Rao was conscious of his muscular body and he used to take exercise regularly. After working as a Professor of Physics at Patna and Andhra, and as Incharge of Instruments-making in Andhra Scientific Company, he is now the Managing Director of a Company making equipment for advanced research at Waltair. He is doing a great national service in this effort of his, as advanced equipment for research is being fabricated by him, thus cutting down our imports.

Kedareswar Banerjee, now Professor of Physics at Allahabad was one of the Scholars who spent perhaps the longest time with Prof. Raman. He was very shy almost bashful, but free and friendly with all of us. He was intelligent and well read and was known to be sound in theory, but with spells of activity. After much suffering and trials he got a post in the Meteorological department at Karachi. He was very happy to take up the post but the behaviour of the officer under whom he had to work was so repulsive and disgusting that he did not hesitate to resign his post and come back to Calcutta. Prof. Raman was at first put out but almost immediately took him back as a scholar. He was for some time in the Dacca University and came back to the Indian Association for Cultivation of Science as Mahendralal Sarkar Professor of Physics when Prof. K. S. Krishnan relinquished that post to join the Allahabad University. Kedarbabu has not changed either his bashfulness or his warm heart to this day.

Sukumarchandra Sarkar who joined as a Railway Guard after completing his M.Sc. had

his heart in science, was given a research Assistant's post by Sir C. V. Raman. I recall him struggling till late in the evening and night with the complicated experimental technique for his research in those days. He was a Vaishnava to the core and I got it hot from him when I made frivolous remarks about the Vaishnavait emblems on his forehead. I used to accompany him to some of the "Sankirtans" by famous Goswamis in North Calcutta. Lord Ronaldshay in his book on the "Heart of Aryavarta" gives a beautiful and vivid picture of his experiences of one of these emotional recitations by a great Bhakta. Sukumar Babu is a Professor of Physics in the I.A.C.S., now located at Jadavpur.

S. K. Datta, now of scientific Instruments Company of Allahabad was a Palit scholar for some time and used to work in the laboratories at I.A.C.S.

We had short time visitors during summer holidays from various Universities of whom I particularly remember, Prof. Bhattacharya from Patna University, Prof. Mellaram from Foramen Christian College, Lahore, now of the Delhi University Physics Department, Prof. L. D. Mahajan from Patiala College, Prof. Tawde from Bombay University, and Prof. S. Ramachandrarao from Annamalai, now Head of the Department of Physics in Mysore University. Dr. K. Krishnamurti, Principal of the Science College, Nagpur, Prof. T. Vijayaraghavan now of the Ramanujam Institute of Mathematics, Prof. Dashanacharya of the B.H.U., spent some short time at the Science Association working under Prof. Raman.

One of the most remarkable scholars to come to Prof. Raman for research was Prof. S. Bhagavantam now Vice-Chancellor of the Osmania University. He was in his teens and quite a boy. He came at a time when Prof. Raman, soon after the discovery of Raman Effect was not only very busy in the laboratory, but had frequently been going out on work to different parts of India. Prof. Raman was impressed by the prize-essay submitted by Bhagavantam as a student of B.Sc. in Nizam College and he readily accepted him as a scholar and gave him a problem on the Benzene ring. The structure of the Benzene ring was a subject of controversy among eminent organic chemists and physicists like Sir William Bragg. For the first two or three months Bhagavantam kept almost exclusively to himself, was very reserved, and perhaps the only person whom he used to talk to was Prof. K.

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S. Krishnan. * I was working at that time on X-ray diffraction of coals and Bhagavantam occupied a room next to mine. Almost from early morning till late in the evening he was at his work, rigged up an old dilapidated polarising microscope which no B.Sc. student will to-day touch for optical work, mastered crystallography and crystal optics and had carried out measurements on the optical properties of anthracene and also simultaneously determined its magnetic properties. He was either busy in the library reading or busy in his room working and had not got familiar with any one in the laboratory. At that time, a number of people used to come to work and not having much initiative and Prof. Raman not having much leisure, either stagnated or left after staying some time. We used to have every week at the Science Association a colloquium in which one of the scholars would present an account of his researches and there would be general discussion. I very distinctly remember Prof Raman slightly apologising to Bhagavantam that he had not been able to spend much time with him and asking him as to how he was getting on. Prof. Raman expected to be told that he was reading literature or trying to set up some work. I should think that to his amazement, Bhagavantam briefly told him the work he had done and the results that he had got. Prof. Raman was excited and asked him if he would talk in the colloquium and what time he would need to prepare. Bhagavantam replied that he would do it at the next colloquium. Prof Raman asked him "you mean it?" and Bhagavantam emphatically said "Yes, I am ready" The audience consisted of all the scholars and some from science College. For a full hour and a half Bhagavantam gave his discourse and I recall how very excited and pleased Professor was; almost immediately the results were communicated for publication. One of the first to acknowledge the importance of the work was, if I recall correctly, Sir William Bragg. From that day, began a new chapter in his life at Bow Bazaar. He became a very dear and esteemed friend to us all and all of us who were far senior to him in age and stay there took to him enthusiastically. We discovered that he could laugh at a joke, retort effectively and be always at the top in any company. His intellectual attainments are of the highest type and what I found remarkable in him at that young age (which still marks him out from most others) is his capacity, almost intuitively to choose the grain from the chaff and to know

almost intuitively the importance and value of the essentials. He was within a short time one of the closest associates of Professor Raman in his work, and if I may say so, was one of the very few who could rise to levels to hold discussion with him. His work has always been characterised by highest standard and something out of the ordinary. He is remarkably clear headed and unassailable, whether in scientific work or in controvertial conversation. Bhagavantam was not a mere first class first, he was exceptionally brilliant with intellectual gifts of the rarest type and a vision. His achievements and distinctions in life have all come to him through sheer merit and work, and he is exclusively a self-made man. By the time he was old enough to sit for the I.C.S. examination he had made a remarkable contribution as a research worker. Yet he consulted Professor Raman if he was to continue the scientific work or sit for the I.C.S. Professor Raman who had almost never dissuaded any young man in those days from competing for Imperial Service examinations made an exception in the case of Bhagavantam and advised him to stick to science and prophesied a great future for him. In this brief note I can only say that Professor Sir C. V. Raman's prophecy has come true. Bhagavantam has the unique pride of having built up a school of physics and been the first Scientific Liaison Officer in any Foreign country of the Indian Republic. He is still in his early forties, though his grey hairs make him appear older. He has still the best part of his life before him. Though by force of circumstances and with a sense of duty he has accepted the Vice-Chancellorship of Osmania University, his first and foremost love is still research and I was not in the least surprised when I was with him recently at Hyderabad that the research in his laboratories were just as much his anxiety and concern as his administrative duties as the Vice-Chancellor of a University which is undergoing a great transition.

Concluding, it is a pleasure to recall that we had all the privilege of sitting at the feet of Professor Sir C. V. Raman—one of the greatest teachers for all times, who like the great 'rishis' of ancient India, inspired and guided the scholars under him in quest for truth, and each realised it according to his capacity. Though in different situations and different degrees of success and luck in life, all of us who were co-workers at that time feel a bond of brotherhood and affection that time does not dim and distance does not diminish.



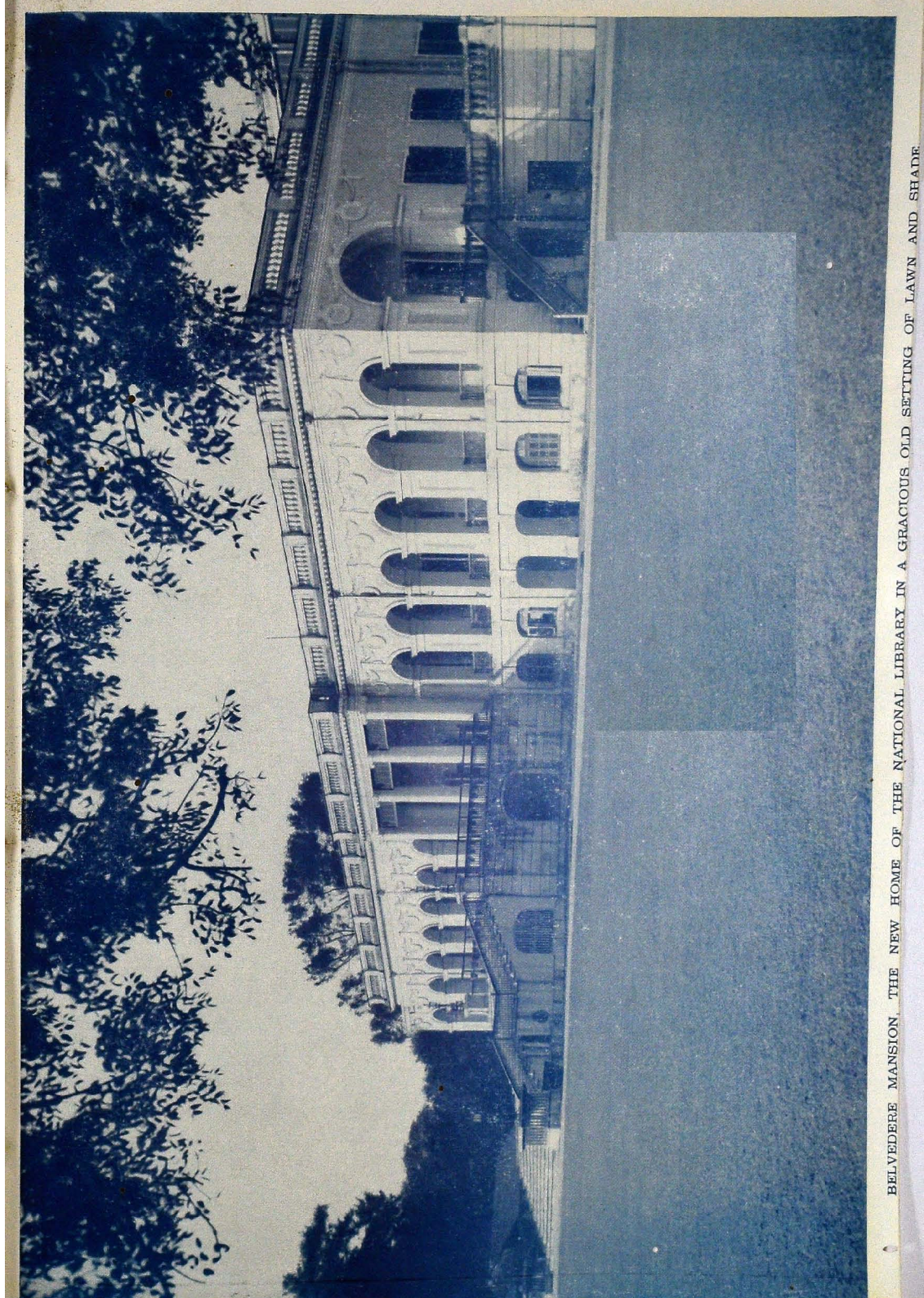
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The National Library of India

B. S. Kesavan

I am very happy to accept Mr. Rangaswami's invitation to write on the National Library not only for the reason that his request has always a compulsive quality, but also because in its new phase of development the National Library is "going in" for Tamil books covering all periods of literary activity from the most ancient to the most modern. And scholars of the stature of Sethu Pillay, K. V. Jagannaathan, Gnanasambandham and the Editor of Kalki have been advising us as to what books to get for the Library. Already about two thousand basic publications have been received in the Library and, it is hoped, that with the advent of Copyright legislation we shall have all current Tamil publications automatically accruing to it. The members of the Tamil community in Calcutta will thus have the advantages of a free access to all the best literature published in Tamilnad. I take this opportunity to welcome them to become members of this National Institution.

An event of great interest to all Tamilians is the presentation to the National Library of the unique copy of Bharatiar's newspaper "India" containing the first print of many of his great poems. This generous gift was given to the Library by the Editor of "Kalaimagal" and was made possible because of the generous co-operation of the Bharati Tamil Sangham to whom it was first given and who considered that the proper and fit place for such a treasure was the National Library.

It should also be a matter of some pride to all of us that Sri C. Rajagopalachariar played no small part in securing for the National Library its new home at Belvedere. As Governor-General-designate he had to advise our Prime-Minister as to the proper disposal of the Governor-General's properties in Calcutta and he had no second thoughts about ear-marking the historic and commodious Belvedere Mansion for purposes of developing the National Library. And our Prime Minister, with his Great vision for the future of our country, most enthusiastically accepted this advice. And ever since then, the Education Minister has set out to realize Curzon's dream

of fifty years ago, when the Viceroy said that the Imperial Library was meant to be "A Library of reference, a working place for students and a repository of materials for the future historians of India, in which, as far as possible, every work written about India at any time can be seen and read."

The present home of the Library, the stately Belvedere mansion with its varied facade evolved from out of the whims and fancies of a number of distinguished owners whose names have made history, though not exemplifying a pure form of architecture ("Italian renaissance overlaid on an ordinary Anglo-Indian building"), is quite pleasure to the eye in its pleasant setting of venerable tree and lawns. No one could have conceived of such a rambling structure at 'one go'. To trace it back through successive ownerships to a definite origin is not possible because of scanty records. The names of Clive and Warren Hastings are somewhat vaguely associated with it. That the Commander-in-Chief of India, Sir Edward Paget, K.C.B. occupied this mansion after February 1825 is equally certain. Then the famous name of Prinsep comes into the picture. This well-known Advocate-General of Bengal (from 1846-49, and again from 1852-55) had the house repaired, and after an intermediate change of ownership, the Prinsep family bought it back and later sold it to the East India Company in 1854 to enable them to house the Lieutenant-Governor of Bengal, Sir James Halliday, in 1857-59. The vast area of 72 bighas, etc., had contracted considerably when the Company took it over. A lot of face-lifting was done to this building by the successive Lieutenant-Governors starting with Sir William Grey, and ending with Lord Willingdon, the last of the British Pro-consuls who had something to do with it. A verandah was added there, steps were made here, Ball-rooms were fitted with wooden floors, archways were erected, electric lighting put in and the magnificent Ball-room 114 ft. long added on. From 1864 well into the beginning of the present century, was one period of hectic addition, alteration, demolition and magnification, for all of which grandiloquent notions

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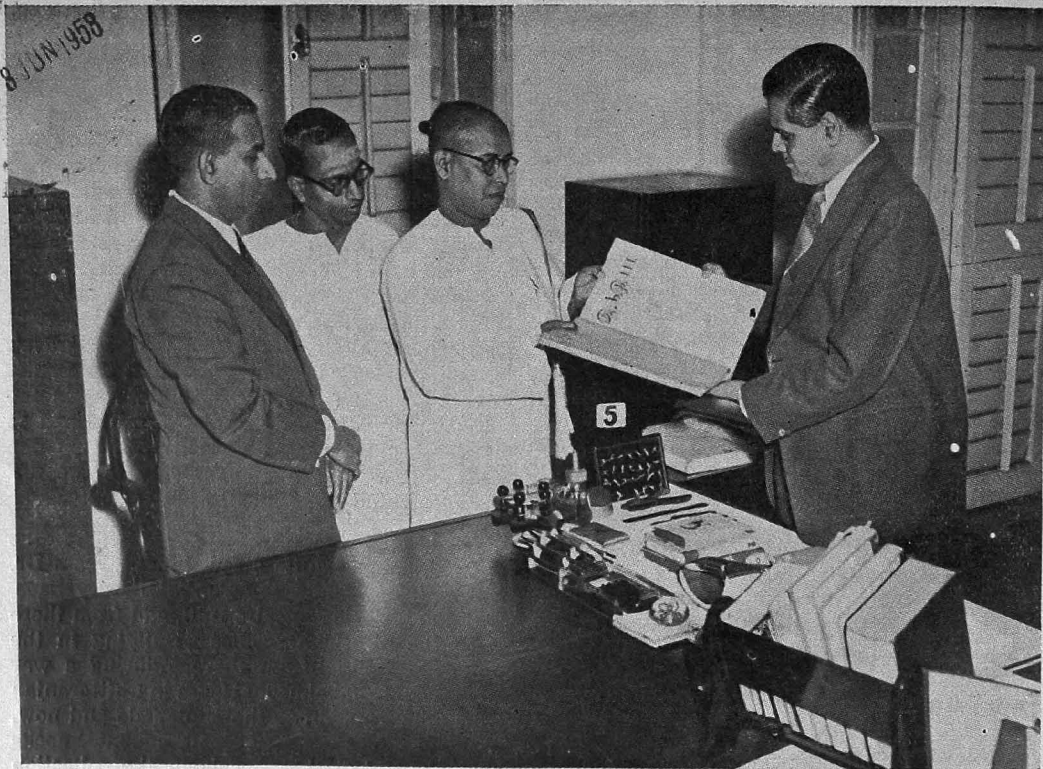
we the present heirs, are most grateful! So much for the building.

The National Library has more than a hundred years' perspective going as far back as 1835 when the citizens of Calcutta resolved to establish a Public Library at Calcutta. A most illustrious Indian, Pyari Chand Mitra, the father of the Bengali Novel, was the Librarian for the Calcutta Public Library for a long time. By 1903 the Public Library had weathered its way to a standstill, when the dynamic Curzon vitalised it into an Imperial Institution by buying off the rights of the proprietors of the Calcutta Public Library, and fusing it with the remnants of the East India College Library and the departmental Libraries. Viceregal fiat made it possible to snow-ball around this collection the official publications all over the country with the result that, to-day, this Library has the richest collection of printed publication on the British period of history. For nearly fifty years the momentum of Curzon's drive worked itself out, gathering during the years a priceless collection of books in the European and other languages. Under the provisions of the Press and Registration Act a collection of the great literature of Bengal has accrued to the Library year by year. An internationally known bequest of Arabic, Persian and Urdu Library was graciously made over to the Nation by the Zamindar of Buhar. A notable collection of Sanskrit Manuscripts belonging to Dr. Thibaut, the renowned Indologist, was acquired by purchase. During this period, for a very short time, the Library had the distinction of having one of the great linguists of the country as its Librarian in the person of Dr. Harinath De. A story taken from out of the Curzon apocrypha is worth the telling in connection with Shri Harinath De of illustrious memory. I believe, when Curzon went home after his Viceroyalty, folks asked him as to what sort of people he met in India. As was to be expected, so very exacting was he of men's merits, he said that he had hardly met two and a half men out there; Asked to clarify further he named the Late Sir Asutosh Mookerjee and Sri Harinath De as full men with top-notch minds, the mere half a man was Sri Surendranath Banerjee from whose politics he differed; Whatever the truth of the story might be, it is pertinent enough as regards what the monumental Biographer would call "the qualities of head and heart" of Harinath De. Nature, endowed him with supreme qualities of the mind, and what she gave with

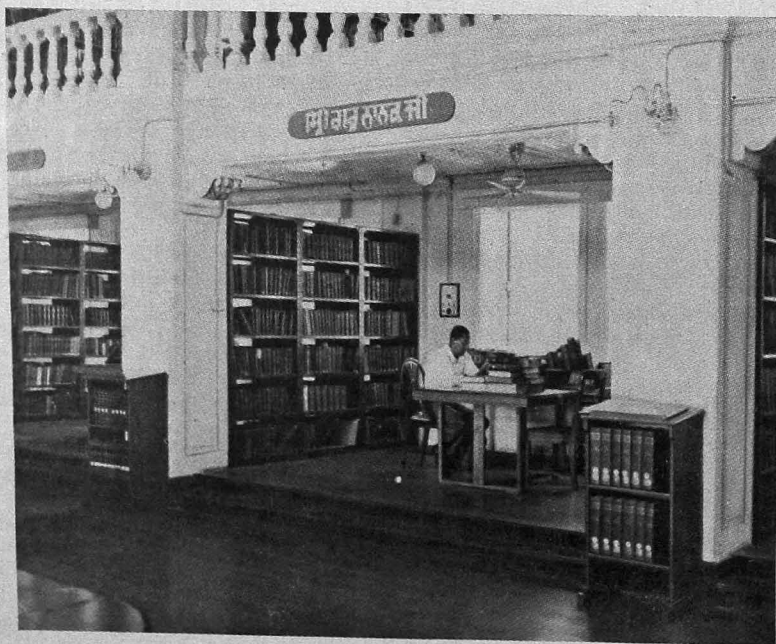
her right hand she seemed to take away with the left, by also endowing him with a tragic temperament which blurred the fair writing of God. If ever there was a genius on the make it was Harinath De. Those who knew him were astounded by his linguistic legerdemain. All the languages of the world seemed to be familiar to him and his personal documents bear testimony to the range and grasp of his classic mind. He could not write on anything without lifting the subject into the context of high scholarship. He annotated Palgrave's Golden Treasury to such effect, that the reader was as absorbed in the erudite note as in the poems. Parallels from all literature leaped to his mind and they spilled over from his pen with the easy grace possible only to the full and deep mind.

Since 1903 the physical location of the Library changed quite a few times. From Dr. Grant's residence in the Public Library days, on to the historic Metcalfe Hall, and from there on to the Foreign Office Building in the Esplanade, and from there, during a war emergency, to Jabakusum House in Chittaranjan Avenue, back again to the Esplanade and now, finally, to Belvedere. These frequent knockabouts have left their mark on the collection in the way of wear and tear.

As luck would have it, the shift of the Library to Belvedere was blessed by a public-spirited act of the heirs to the late Sir Asutosh Mukhopadhyay. The magnificent Library of that great Savant, with a phenomenal range of subjects and languages, is a priceless treasure. If a comparison should be made it should be with some of the great private Libraries of English and European nobility which have been made over to the National Libraries of those countries. This munificent gift to the Nation was not alone in the coming. The heirs of the late Dr. Ramdas Sen of Berhampore (representative of a very fine type of literary connoisseur prevalent in Bengal in the nineteenth century) made over the Library of their grandfather to the country. This collection has a wealth of fugitive Bengali publications very useful to the social historian. It also contains some Sanskrit and European language books of great value. When the Library of the Residency at Hyderabad had to be removed, the whole collection of official publications, rich in Gazetteers, was sent to this Library. The Government of India bought an excellent Library of Chinese publications and have housed it in the National Library. For the last



The Editor of Kalaimagal presenting Bharatiar's "India" to the National Library.



A Research alcove in the National Library. The legend on top of the alcove is the name of Sri Guru Nanakji in Gurumukhi Script.

several decades we have been getting on an exchange basis, the publications sent out by the Smithsonian Institution of America. These publications form a very splendid collection of Americana, very strong in technical books and pamphlets.

The housing of these collections had its problems. Though we had lots more space than in the Esplanade location we also had lots more books. The shelving had to be so designed as to make provision for the future expansion of the Library. The only area available for stacking was the rather sprawling system of rooms on the ground floor, with a lot of space paved with marble. The conventional form of fixed stacks with implications of narrow gangways and the consequent problems of dusting could not be thought of in the new set-up. Also the building was old and its walls and floors could not be tampered with, with any impunity. The solution was found by designing the rolling stack which could be packed tight in a row and could be efficiently cleaned with the aid of vacuum cleaners. These shelves completely isolated the books from termites and allowed themselves to be easily manipulated to suit any room anywhere. As an inspection of the stacks will show, this method of arrangement has all the advantages of accessibility and tidiness. Nowhere does one get the over-powering feeling of mustiness which is such a characteristic of the conventional stack rooms in big Libraries. It will also be seen that the guiding of these racks is a very easy matter. Three years of experience have shown that these rolling stacks are economical in space and practical to handle.

The Reading Rooms at Belvedere are so designed as to allow a lot of elbow-room and privacy to the research scholar. These Reading Rooms are open to him all days of the year from seven in the morning till ten at night. The reader has to borrow his books for study during the hours of the Lending Section. He can leave those books on his table and can consult them any time he likes during all days, Sundays and Holidays. I am glad to say that research scholars from all over the country are having these facilities every year.

With a stock of about 7,50,000 printed books and periodicals, it is the biggest Library in India. The number of manuscripts, however, does not exceed 2,000. The number of current periodicals and serials is 700. The Library is rich in the following classes of publications:

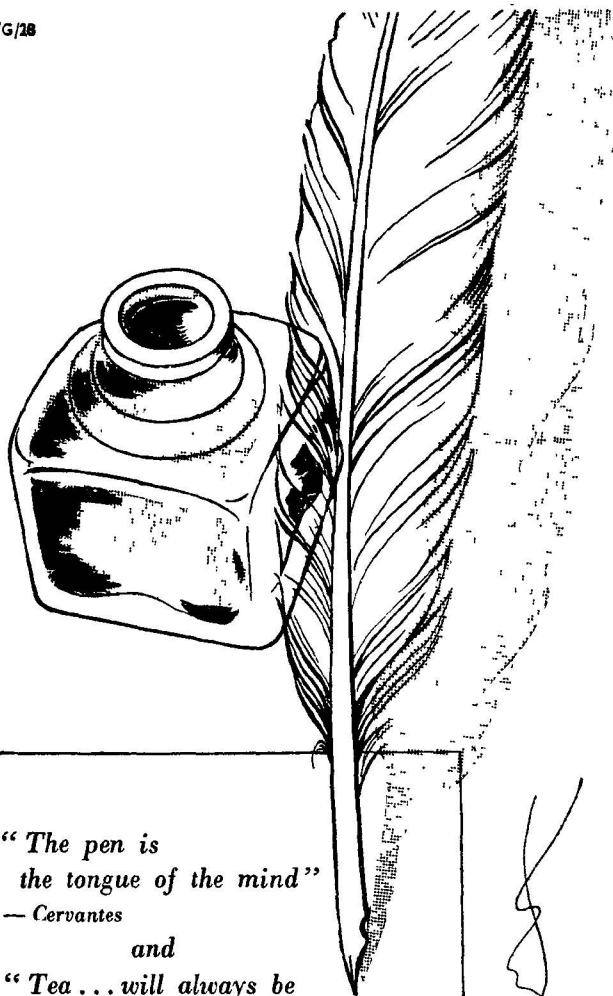
- (1) Books on Indian history and culture;
- (2) India and State Government publications;
- (3) The United States Documents;
- (4) British Parliamentary papers;
- (5) The League of Nations and United Nations publications;
- (6) Old newspapers and periodicals.

Here is an example of the richness of Library's collection on Indian culture. The Library brought out a draft bibliography of "Indian Anthropology" in 1951. It was based on the lists of basic books compiled from all the big Libraries of India and from sources published abroad. It was a pleasant surprise to find that almost all the listed books were available in the Library.

Books are now purchased with great care taking into account the existing and potential demands of the readers. All suggestions for acquisition from the readers are carefully considered. A panel of advisers helps the Librarian in selecting books. In special cases other experts are also consulted. The Indian High Commissioner's office, London, and our Embassies elsewhere help to procure books and periodicals published in those countries. As the money available for purchase of books can never be enough attempts are being made to get as many publications as possible free. Printed catalogues of the Library are now being utilised for establishing exchange relations with various institutions at home and abroad. It is expected that all the publications of the India and State Governments will begin to accrue to this Library automatically and free in the near future. It is also a depository Library as far as United Nations, UNESCO, FAO and ICAO publications are concerned.

The total proposed expenditure for the Library during the current financial year is about Rs. 3,50,000 for which Rs. 16,000 is received from the Government of West Bengal for the maintenance of the Reading Rooms. It also includes a sum of Rs. 10,000 provided in the London High Commissioner's budget for purchase of publications for the Library. The total amount available for purchase of publications during the current year is Rs. 75,000 and this is the largest amount allotted for books in the history of the Library. It is interesting to note that the Government of India spent Rs. 46,876 for the Library in year 1910-11 of which a sum of about Rs. 15,000 was earmarked for the Librarian's pay and allowances.

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*"The pen is
the tongue of the mind"*

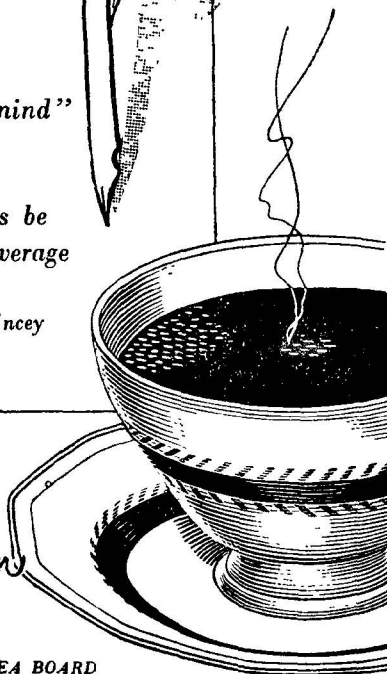
— Cervantes

and

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of the intellectual"*

— Thomas De Quincey

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THE CO-OPERATIVE WAY

K. SUBBA RAO, B.A., LL.B.

THE "Co-operative Movement", technically known as such, has been with us in India for nearly 45 years, and it might perhaps be felt to be rather late in the day to ask now what the "Co-operative way" means. Yet there seems to be so much fallacious thinking about it, even in quarters which should know better, that it seems desirable to state what it is. For instance, there seems to be a general and vague belief that Co-operative Institutions are charitable in nature. This belief might have had its origin in the fact that Co-operative Societies are non-profitteering, and that they are primarily intended to guard and promote the economic interests of the financially weak individuals. The other day, a high officer in the banking line remarked to me that it was only in Co-operators' arithmetic that a hundred zeros added up to a thousand. I do not know how he got that idea. A Co-operator has never said so nor has he ever thought it to be so. He knows fully well the limitations of the movement and he has never pretended that it can make paupers rich or that it can even deal with them. What he really believes is that the aggregation of several fractions which the big financier ignores as nothing or zero, could yet form a whole and give financial strength to the contributors of the fractions individually negligible. He further believes that it is not mere material possession that counts, but that character and industry can also be capitalised and can form a good backing for financial help. Now to revert to the question "what is the Co-operative way", the answer is that it is a method of business and is subject to the same economic laws as other business. To understand what this method is, it may be necessary to attempt here a definition of "Co-operation". It may be difficult to give a comprehensive and exact definition engrossing all forms of co-operation, but it may be broadly described as an association of people with common interests and common aims, pooling their individual

resources and labour for the better and easier attainment of those aims,—which either could not be attained by individual effort or would be costly to obtain if pursued singly. It is to be observed that while the pooling adds to the total strength, the individual interest is never lost, unlike as in communism. Indeed the association is voluntarily entered into with the selfish aim of promoting one's own interest and if sometimes there is some subordinating of individual desires, it is with a view that the total benefit and consequently one's own share of it might be bettered. Thus there is hardly any charitable motive in this, and if Co-operators are asked to help one another, it is because through such means one can better help himself.

Now the definition would show that the co-operative method could be applied to any walk of life. Indeed there is no avocation that cannot be followed in the co-operative way and followed with better results than way than in the individualistic or capitalistic way. There are certain classes of people, however, to whom only the Co-operative way is possible if they have to better their economic condition. These are men of small means whose individual resources are too meagre to enable them to undertake anything by themselves and who must perforce join others similarly situated and with similar interests to achieve their common object, i.e. form a Co-operative. Thus while Co-operation is a necessity to such people and is therefore chiefly intended for and resorted to by them, the Co-operative method is not shut out to the more fortunately placed also and has obvious advantages for them too. The big trading, manufacturing and banking combines, the planters' associations &c., are all examples of the kind. They are really co-operative in character though they may not call them so. The principle of co-operation is that no one should be exploited by another relatively more advantageously placed and the individual

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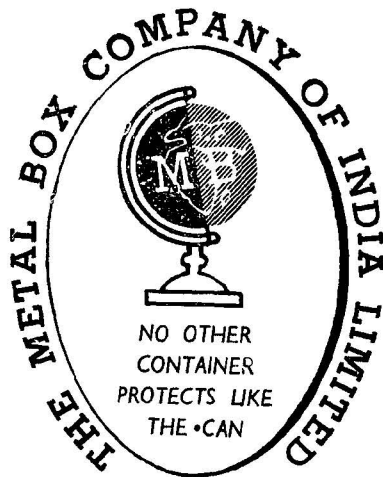
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forming the co-operative should himself get the fullest possible fruits of his own endeavour, that he should share in the profits of the concern in proportion to his own contribution towards those profits—that no part of the price which he pays to obtain his needs or of the value he gets for his produce or labour should unnecessarily go to an intermediary—or rather the minimum possible should go to him.

Though, as earlier stated by me, the Co-operative method would suit all professions, it was first applied to agriculturists in Europe, perhaps because they were financially very weak and much exploited. The first need of agriculture is capital. It is so with every other industry also but while the other industries could obtain necessary financial accommodation more or less on favourable terms from banks, the latter were chary to make advances to agriculturists; and there were good reasons for it too. Owing to several factors concerning this industry, agricultural finance is more complicated than the financing of trade or other industries and the Commercial Banks could not, considering the composition of their working capital, safely indulge in agricultural loans. The farmers could therefore resort to only private money lenders or such Banks as were prepared to take the risk. Naturally they exploited the situation and squeezed the agriculturists. Various remedies were tried, some sponsored by the State, but the Co-operative one proved to be the best. They pooled up their individual small material possessions, and added to it their capitalised industry, honesty and character and with their joint liability, built up a strong and wonderful structure of finance which can adequately meet their requirements on as fair terms as any favoured industry could obtain.

Now hard as was the plight of agriculturists in Europe before they adopted the Co-operative method for financing themselves, their plight in India was even more so. The same remedy was applied here too some 45 years ago, but with only partial success. The movement had touched just the fringe of the agricultural population, and except in a few States it was feeble and weak and in a few others it had mostly failed. The reason seems to be that Credit Societies could not solve all the economic evils that the Indian agriculturist suffered from, that they tackled only one side of the problem and that too a minor one, and that even if the Credit Societies had to be successful, the other sides had to be tackled as well.

Before credit is offered to a weak person, he must be made creditworthy first, i.e. his earnings improved and his expenditure reduced so that

he might effect the savings wherewith to pay off his debts. With his small holdings, primitive and uneconomic methods of farming, unprofitable use of leisure and unthrifty ways of life, the Indian farmer has always found himself in deficit economy with the result that even the loans of Co-operatives could be hardly repaid by him in spite of their cheapness and their easy terms. It would show that even though the supply of facile capital for production is quite an important need for the agriculturist, it is not the only need and there are other needs equally important or more so that have to be met at the same time if he has to profitably use the capital given to him and return it from out of the fruits of his labour. His production has to be increased, the cost of production has to be cut, better values have to be secured for the produce, he has to be saved from paying unnecessarily heavy prices for the goods needed by him and facilities will have to be provided for his profitably employing his leisure so as to supplement his income from agriculture. It is thus that his income can be raised, his expenditure reduced and the margin of savings enlarged. And all this can be done, and best done, in the Cooperative Way. Let me illustrate this point.

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Production can be increased by the adoption of better methods of farming by the use of modern and improved tools for tilling the soil and for other agricultural operations, by sowing seeds that are tested to give larger yields, by fertilising the fields with chemical and other manures and by irrigating the lands wherever possible. An Indian farmer is too poor to do all this. How can he own the costly modern tools? How can he think of getting seeds of the improved varieties while it is so much easier and cheaper for him to save his own seeds though they be of poor quality? How can he buy and use the highly priced manures and what means has he of irrigating his lands? Individually it may not be possible for him to do all this but if the agriculturists of the locality can combine and form co-operatives for these purposes, they may not be found to be difficult of achievement. Each farmer need not own the tools. The Society will own them and hire them out to the members in turn. The rent charged will be the minimum possible, for whatever excess the Society may have recovered by initially charging a higher rent than was necessary, will be finally returned to him as a bonus, the excess or profit being distributed to the members in proportion to the rent paid by them. The improved seeds and fertilisers will be stocked by the Society and supplied to the members. By bulk purchases the Society can get them at wholesale rates and economy can also be effected in transportation charges. Yet in retailing them to the members, the latter will get the benefit of the wholesale price,—the Society making no profit out of the sales, any excess in charges being returned to the members in the manner already described. If the member is unable to buy them for cash, he can obtain a loan therefor from the Credit Society. Since the loan is utilised entirely for a productive purpose and is more than covered by the produce to be obtained by its use, the Society can safely make the advance provided the borrower is industrious and honest. For irrigation purposes, the Society can dig a well and instal a pump for watering the individual lands and recover the costs by an acreage. Similarly, societies can be formed for common fencing, crop protection &c. The ultimate and logical development could and should be co-operative farming which would enable large scale scientific and mechanised farming resulting in vastly larger production and substantial economy. The evils of small holdings and scattered holdings may also be solved that way. Thus what would be difficult or impossible to achieve by individual effort could be attained

by the Cooperative method, each individual—however getting his full share of the common benefit.

Next, regarding the marketing of the produce, it is here that the agriculturist seems to be most exploited. He is ignorant of the outside markets and being hard-pressed by his creditors and the Tax Collectors, he has to sell, almost immediately after the harvest is collected, to the nearest broker, the first link in a long chain of intermediaries. Not only is the price offered but a small fraction of the consumer's rupee but, he is also cheated in weights and measures and mulcted with various unreasonable and inequitable deductions. Even if he has got the staying power for waiting for a better market and has some knowledge of the outside market, his produce is too small to make it worthwhile to so market it and the costs would nearly eat up any profits that may be made that way. But all these evils may be avoided by Cooperative Marketing. By successive federations, the local Marketing Societies could establish direct contact with federations of Consumers' Cooperatives and it should thus be possible for the agricultural producer to get a good part of the consumer's rupee and thus obtain a fair price for the results of his labour. They would give him the staying power too. If he could also process the produce before marketing, it would greatly add to the price he could get and the processing could be possible for him by Cooperative means. He need not stop with simple processing and may well proceed further. For instance, the cane-growers can establish a Cooperative Sugar Factory themselves and sell sugar to the consumer than cane to the manufacturer and there is no limit to such possibilities. At Surat in Bombay, for instance, I was present at a meeting where the cotton-growers, who had a Co-operative Factory to gin their cotton and market it, contemplated a further development in the establishment of a spinning factory to convert the ginned cotton into yarn and sell it, and Bombay has now both a Co-operative Sugar Factory and a Cooperative Cotton Spinning Factory set up and owned by the growers.

Thus, by Co-operative methods the agriculturists' produce may be increased, the cost of production minimised and the produce may be made to fetch a better price and how if they are further enterprising, they can sell their produce in a manufactured or semi-manufactured form rather than raw. There are further means of adding to their income. It is thought that agriculture by itself

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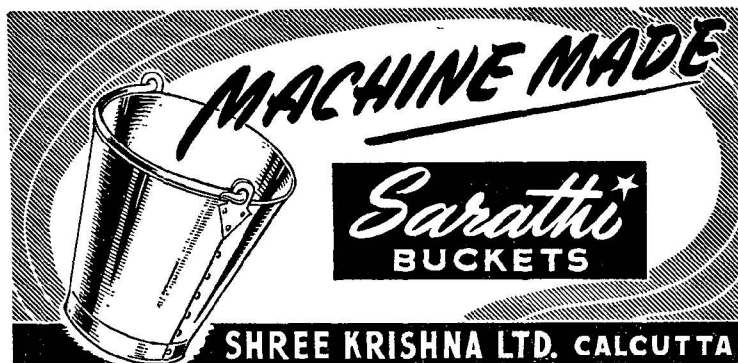
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is not sufficiently lucrative; nor does the industry give full-time employment to one who pursues it solely. He has ample leisure which leisure is alas being wasted at present. If means could be devised for employing him during those leisure hours for other production, not only could his economy be improved but the country at large will be benefitted. The employment should, however, be local and not interfere with the practice of his main profession. A part from the industries allied to agriculture such as dairying, cattle and sheep breeding, poultry farming, sericulture, apiculture &c., a number of other rural industries can be thought of which he can well take up provided there are suitable organisations to supply him with the necessary raw materials, give him needed directions and market the finished goods. Obviously Cooperative Organisations are well suited for this.

Thus we have had a glimpse of how cooperation can transform the economic condition of an agriculturist if its methods are applied to every aspect of his life. Indeed it is not only on the economic side of his life that it can bring about changes for the better but on the social and moral sides too. Though in Europe and America, agricultural cooperation developed into all these forms early enough, in India it is only recently that they are being thought of. It seems to me that it is only by such all-sided development that the condition of the agriculturists could be really improved and even the credit side of cooperation can be made more successful.

Why? Any class of people with common aims can very beneficially follow the Co-operative way. It is the way where self-help is fully invoked where dependence on others is discouraged and where parasites batten on profits derived from others are sought to be ousted. This is well illustrated by the Consumers' Cooperative Movement as it has developed in England. The agriculturist as I have stated earlier, was considered to be the easiest victim of exploitation, but today the situation has changed. He seems to have joined the other rank and become himself an exploiter instead of being exploited; and the most pitiable creature today, the one most helplessly exploited, is the consumer. Has there been a rise in the wages of labour in Industries? The extra cost is not met by the manufacturer out of his profits but is passed on to the consumer. Is there increased taxation on industry? That again is to be met by the consumer. And tariffs imposed to protect indigenous production mean only that the consumer has to pay higher prices.

And how is he treated by the dealers who are neither users nor producers but stand as intermediaries between the two. Nowadays they never seem to be satisfied with small profits. They have grown accustomed to "get-rich-quick" methods and no moral consideration appear to stand in the way of their doing so. Indeed they are not loathe to trade on human misery and the keener the distress the greater the opportunity for them to make profits. Their thirst for profit seems to be insatiable, and adulteration and other mean tricks of commerce are commonly resorted to. The consumer feels himself helpless against all such victimisation but he need not be if he follows the Co-operative Way in being his own distributor and perhaps his own producer too. In England, this co-operative movement started with some twelve poor weavers of Rochdale who opened a grocer's shop to supply themselves with pure goods and at cost price and now, that feeble pioneer attempt has developed into the famous and wonderful C. W. S. Its genesis lay, as I have already stated, in the attempt by a few men to get things purer and cheaper and in correct weights and measures by joint purchase and distribution among themselves, eliminating thereby a few middlemen. The idea caught and as the Societies grew in number, they federated into larger units which enabled them to eliminate more and more of the middle links. Thus more and more of the profits which went into the pockets of those middlemen but were really contributed by the consumers were saved to the letter. But the consumers did not stop there. Why not themselves produce their needs and save for themselves the manufacturers' profits too? And this is what the C. W. S., the apex organisation of the Consumers' Cooperatives in England has done. Do its constituents want boots? It does not buy them from other manufacturers but has started its own factories to prepare them. Do they want rugs and blankets? And lo, a woollen factory is started for the purpose. And how do they get the wool for the factory? The C. W. S. has opened sheep-farms in Australia. For the supply of tea to the members, it owns and works tea plantations in Assam and Ceylon. Even with regard to the transport of goods, it possesses its own system of transportation so that the carriers' profits may also be saved to the consumers. One can well imagine what a huge powerful and complicated organisation it is and what a power it can be in price control. Indeed when last the Government there wanted to bring down the prices of food-stuffs to counter the inflationary tendency, it had to invoke its aid and it was the first to



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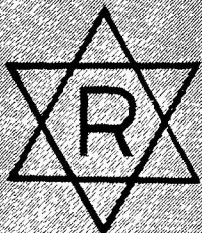
effect reduction in prices. That is the picture in England but we consumers in India have not organised ourselves at all. Really the consumers' movement is the weakest of the co-operative activities in India and except in the South is practically negligible. It was only the extreme rigour of black-markets and the introduction of controls and rationing by Governments that gave some fillip to the movement in India but that has not proved strong enough and the growth healthy enough. If we had only a strong, pure and healthy consumers' Cooperative Movement in this country at the present time, how much better would we have been able to fight black-marketeers and check inflation and what helpful agencies they would have been to Government to work their schemes of control and rationing through? In Ceylon, they developed it almost overnight and the movement which has penetrated into every nook of the Island, is a veritable boon to the consumers there as I can personally vouch for.

I have, by way of example, mentioned two fields where people can help themselves by cooperative methods. It should not be difficult to mention various other fields where they can similarly benefit themselves by following the path that cooperation shows. The labourers constructing a road or working a forest can adopt it and get for themselves the profits generally taken away by the contractor. A colony of people living away from towns and cities could yet provide themselves with civic amenities like water supply, lighting, schools, hospitals and theatres by this method. It should also be quite possible for the workers of a factory to be the owners thereof too. There would then be no conflict between the employer and the employees. This, however, would not amount to the nationalisation of the factory. Examples may be multiplied. Indeed, there is no field and no class of people whether they be rich or poor, strong or weak, to which or to whom the method does not apply and for the weaker and poorer it is almost a necessity. It is a path where one learns self-help and gains self-confidence; it is a path where though one follows his own gains, he promotes at the same time the interests of his fellows, it is a path where one does not jostle and hinder the progress of his fellow traveller but will go along with him hand in hand towards the common goal or in other words, a path where competition is replaced with cooperation. It is a path where, by combination, the weak obtains the strength of the strong. It presents further the completest form of democracy and is considered to be the best school for self-Government.

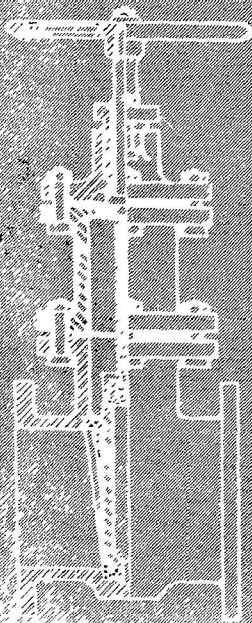
It would be interesting to contrast the Co-operative way with the capitalistic way and the socialistic and the communistic ways. It seems to avoid the extremes of each of them and to be a happy via media. It recognises and respects private ownership and private enterprise but will not permit the exploitation of the weak by the strong. It stands for the principle that each shall share in the common gains according to his own contribution towards those gains and does not tolerate one appropriating what should really belong to another. Though it urges common effort, it does not efface the individual but keeps his interest distinct.

The social, moral and educative values of co-operation, are even of higher value than the material benefits which one gains by cooperation. The movement can transform Society altogether and no wonder that the conception of a Cooperative Commonwealth should be found to be so alluring to many thinking minds, including politicians. And cooperation stands for all mankind and knows no notional boundaries.

To wind up, I can visualise a complete cooperative colony or township,—a picture by no means Utopian or imaginative but quite within the realms of practicability. This township of my conception will consist all of co-operators. The buildings will all be built or helped to be built by the Building Cooperative Society. It would grant loans for construction and supply the building materials. The materials will either be manufactured by the Society or purchased in bulk. If so desired by the member, it can even put up the building. The cost may be recovered in equated payments extended over a number of years which would make the instalments easy payment. The township would of course be laid according to a well-thought out plan providing for parks and public buildings built out of the Society's profits and contributions. There will be a cooperative shop with necessary branches to supply all the consumer needs of the colonists and there would be no private shop. There would be a Cooperative dairy for supplying pure milk to the colonists and a Cooperative bakery too. Similarly, there could be a Cooperative laundry, a Cooperative flour mill, a Cooperative oil mill &c. The transport service will be a Cooperative one too. The colonists may provide themselves with medical services, schools and theatres on cooperative lines and perhaps the supply of water and electric power may also be organised on those lines. If one is attempted, it may not be difficult to secure Government help to it—monetary and otherwise.



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~~A~~ old-world maxim considering the trends in the field of modern music. There is an old Tamil saying which can be loosely translated as "what we have learnt is a handful—what we have yet to is as big as the universe" This is not a mere parade of modesty of a very learned man but a summing up in essence of the real and desirable attitude of all great artists, since it is well known our ideals dictate our thoughts and our thoughts our actions

We should not fall in with the majority of middle-aged and elderly people who always evince a rather exaggerated desire to clothe all that was the past with a halo of ineffable glory and as a corollary cry down the present. In the opinion of many real connoisseurs who have heard the old and the present generation of musicians we have nothing to be ashamed of about ourselves. As a matter of fact there is a large section which holds a definite view that we have made a very great and real progress over our forefathers. If one should devote a short time to analysing the causes that led to such conditions they are not very difficult to find.

We have here, as in all other spheres of life, made vast strides in adding more comforts to our existence though we are less peaceful and contented than our forefathers. We have collected greater variety of art-forms and certainly by far greater number of our people listen to music and are music-minded, than five or six decades ago. Mechanical contrivances for recording and broadcasting music have been the greatest factors contributing to this large-scale dissemination of music, as well as the radio, cinema, not to speak of music sabhas all over the land.

ASTHANA VIDWANS

Music six decades ago was a luxury which few could enjoy. Musicians were fewer in number as also music-minded people. There were only a few, a very small percentage of the general public, who could boast of inti-

'Art is long and time is fleeting'

—Longfellow

mate knowledge of Carnatic music. The only places where music was to be heard were the temple on festival occasions, some rare marriage concerts and the easiest available instrument for the spread of classical music was the Nadaswarm. A few Samasthanams, Maharajas and Zemindars patronised musicians and appointed some as their Asthana Vidwans. Some of them were really great **vakevakarakas**, being singers, composers and critics at the same time. They were also well-versed in the theory of music and could decipher the most involved or complicated problems of music as the "Sruthis" or very elaborate pallavis. They had the leisure, desire and opportunity to learn from their great masters and contemporaries. They realised that "Art is long and time is fleeting" and applied themselves to mastering this very great and universal art as an end in itself, not merely as a vocation for earning their livelihood. Thus their attitude was one of disinterested application to art more than anything else. Hence it was possible for them to dive deep into the sea of art and unearth many rare gems. There was plenty of scope for the play of imagination. They were so engrossed with music that some of them were absolutely unworldly and lacked practical wisdom on occasions. Some could not even sign their own names.

With greater public patronage what was the private privilege of a few became the public enjoyment of the many. Along with this, royal and exclusive patronage gradually dwindled. Sabhas and like institutions sprang up all over the land. Gramophone records, the radio, the cinema, public lectures on music, books, demonstrations and reviews of music performances in dailies and magazines opened up what was once a closed book to the lay man.

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LACKING IN DEPTH

The condition of existence has a bearing on the type of art that is popular. Thus the atmosphere of modern hustle, nervous hurry and aimlessness of general existence lent its own colour to the form of present-day music. The typically present-day attitude of making the most of the shortest time created the possibility of artists catering both serious classic and light music on the same platform to the general public. Democratisation of any great art brings inevitably in its wake the lowering of high standards of achievement. However much present-day art may claim to have improved upon the art of the previous generations in the aspect of form, there is considerable truth in the cry of the lovers of the past that we lack in depth and the intensive approach to art.

Older people tell us that in their own days eminent vidwans had delighted them with profundity in raga singing as also in other aspects of music. We refuse to believe it and even go to the extent of deliberately shutting our mind to being convinced. This is a very sorry state of things for art. This sort of conservatism is very dangerous in that it strikes at the root of progress and culture. The play of imagination or 'manodharma' is where the real artist shows us the edge of the infinite and really great artists allow us some moments to gaze into it. There can be an attempt at least at suggesting to the listener that—while doing a raga or singing swaras—the aspect is absolutely limitless though the artist need not actually do it on the platform. Quite often the end is seen even in the very beginning. These are the results of mechanisation of music. No doubt great artists get unconsciously mechanised if they have per-

force to sing or give concerts almost every day for years together.

CULTURAL ASPECT

More than mere propagation of music and making money through it as a profession there is a cultural aspect in that the education of the public is also essential. Every concert should not only be good entertainment but also educate the listener. The conservative school of thought opine that Carnatic classic music has its structure only on the pillars of a few well-known and common ragas and talas. They also say that the five main ragas in essence can't last more than 15 minutes' elaboration. Any extra time taken by any artist in the singing or expatiation of the raga is repetition. 'Sri Tyagaraja' than whom no greater composer the world has seen is the greatest aesthetic in music. His sense of 'Bakthi' is unsurpassed. Was he out of his mind when he composed more than thirty keerthanas in Thodi?—and probably equal numbers on all the five main ragas and each quite different from the other. It is said that old Kshetragna padams are fossilised ragas in their crystalline purity and classicism. How many padams are there in Kharaharapriya? Tyagaraja has composed several in this raga. As a point of fact it was he who brought this raga into the prominence it now enjoys. Bigotry and dogmatism in art, however greatly they may lay claims to orthodoxy, are as much to be dreaded and suppressed as in religion. Death is not the end of life but the cessation of progress. One is tempted here to change Longfellow's lines into:

"Art is short and time is long

with little effort we can

erase the monuments on the rocks of song"

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There are very many meaningless and mischievous myths in the music world—bigoted conservatism in ideals, creative artistic susceptibilities being made out as unclassic and such schools taking shelter under the dubious word called tradition or sampradaya. What is sampradaya? It is nothing but the sum total of the methods and practices obtaining in the music world amongst popular vidwans during a certain period of time. It easily follows that what was sampradaya in the early part of the 20th century may give place to the changed sampradaya in the middle of the same. The only tradition that the music world need observe is that one raga is not rendered like another and that the original form and conception is maintained.

The very nature and genius of Indian music is such as that it permits the artist unrestricted freedom in the exercise of his creative abilities at the same time conforming strictly to rules of technique. Such misdirected adherence to tradition results in the crippling of the one faculty for the lack of which modern art has become mercenary and mechanised. As some great minds think the modern musician is a successful professional singer. If we face the truth anyone who studies the history of music for the past half a century will easily realise that the very method of voice training, modulations, raga singing and the concept of the concert, have undergone the very profound and rapid change in the past three decades. An ancient book on classical music lays down the rule that raga singing should be like "Tila-dara" an unbroken chain of melodic groups each joined to the following. Think of modern raga singing in the light of this. It is nothing but a string of short incoherent phrases of raga, each sometimes comprising not more than five or six swaras. It may be snappy, short and catchy. No permanent impression is left on the listeners' brain. That is the reason why artists of the older generation have left such an indelible effect on the listening public then.

FORM AND MATTER

We see elderly people so often trying to recapture those old memories lingering on them. Lasting impressions are always achieved by long, slow and sweepy sancharas not by the opposite. Great art is and should be inimitable. Modern notions are however different. That which is mostly imitated need not necessarily be great art. It is a sign of

the artists' popularity. There is an element of the suggestive, unapproachable and inimitable in all very great art. Finish and form have displaced intellect in music. Though form and matter are not strictly compartmental, for successful professionalism form pays more than matter. Exaggeration of the former results in the insipid and mechanised and of the latter in the bizarre and formless. The highest art is the sublimation of both in one grand whole. Merely because matter is larger in an artist's expression it does not mean it is less in quality, and merely because matter is very meagre it does not bespeak of high quality.

Quality and quantity can go together as they always do in great art. Another misconception is due to the tendency to differentiate between vocal and instrumental music. If a vocalist adopts some methods from the other he is called untraditional and unclassic. Whereas when the reverse happens it is made off as a point of greatness for the instrumentalist. For both the vocalist and instrumentalist there is only one Thodi or Kalyani. More often than not lack of facility in adopting instrumental flourishes is passed off for an air of classicism. As in other spheres of life each builds his philosophy of life or art according to his circumstances or abilities and calls his the best, the others cheap and tawdry. This is nothing but sheer narrowness of vision.

REAL GREATNESS

Great artists are great not because of their medium of expression—the voice or an instrument—but because of their contribution to musical thought. Yet another reason is that because some eminent vocalists did not have good and facile voice all voiceless musicians are more often than not made out as very great artists who but for that one lack will be masters of the music world. And the reverse, that a good musician if he has a really facile voice is good enough because of his voice alone. And if he hasn't, he will be nowhere. Every great artist has his own contribution to make. It rests with the listeners' good sense to understand why any artist is great and enjoy his music and not to imagine an unnecessary lack and feel sorry for him. Musical listening can be very enjoyable if we always go to the artists with the proper frame of mind. Here again there are gross mistakes for which only the listeners suffer through getting less out of listening than otherwise. We listen to a promising young musician displaying the artistic

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excellences of an experienced and established one. It is equally unnatural to hear from a very young and virile artist the musical style and modulations of a very old, advanced musician.

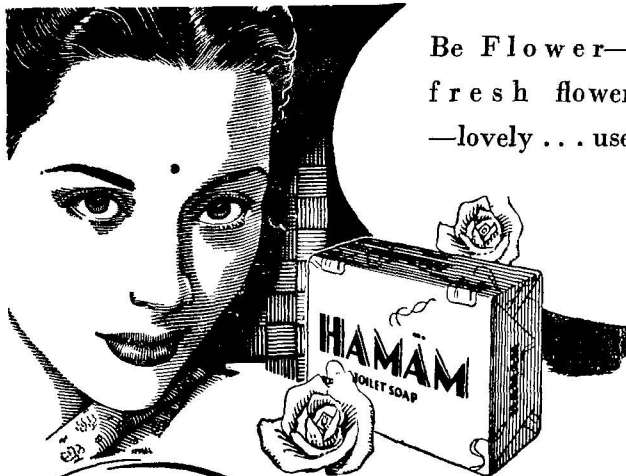
We should not attend a much-peopled concert imagining we can enjoy "chamber" type of music nor the reverse. Listening to music is made more pleasant if musicians forget they are musicians and listen with the attitude of a lay man and lay men do not labour under the delusion they know more than the musician. In the former small defects do not loom large and in the latter listeners get more out of concerts than otherwise. Again as in other aspects of our life comparisons are always odious. One should go to musical listening with an unbiassed, open mind, determined to get the most out of listening.

PROPAGANDA

Propaganda has its own place and time, whether through conversation or the press. Propaganda of the right kind encourages the juvenile artist and does a lot of good to him.

But once the artist is popular and has established his reputation comparisons and propaganda result only in bitterness of feeling amongst the listeners themselves and sometimes through the listeners amongst the musicians themselves. Even otherwise life is so difficult nowadays. As Will Rogers is claimed to have said "Death is easy for any one to face. It is life that is really so killing". Why should we add more to the unenjoyability of life? While attending the concert of an artist, thinking of the virtues of another is exactly like the daughter-in-law who while living in her mother's place is thinking all the time of her husband's house.

Here again talking less and doing more will achieve better results than by any other methods. Good music should not only please the ears, it should elevate the mind. To consummate this the listener and the artist should enjoy the respect of each other and both should think of art not as a pleasing pastime but with a more serious outlook. Good music must please him that gives and also him that takes.



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(Contributed)

THE year 1920 marks a great epoch in the history of Indian wall painting. During the years preceding 1920, it was the fashion among art critics and art connoisseurs to consider that Indian wall painting was essentially a Buddhist art and that it disappeared with the virtual disappearance of Buddhism from India.

In 1920, Prof. Jouveau Dubreuil, Professor of Physics in the Colonial College at Pondicherry, and an eminent archaeologist, discovered a group of wall paintings in the cave temple at Sittannavasal, which is situated at a distance of 11 miles from Pudukkottai, which was then the capital of the small Indian State in South India. This is a Jain temple and the paintings depict scenes from Jain mythology. The paintings date from the 7th-8th centuries A.D. and are of the classical or the Ajanta type. But the paintings have suffered immense ravage through the action of time and weather, and are in a mutilated condition. In 1931, he again discovered another group of paintings in the niches lining the inner side of the outer wall in the Kailasanatha temple at Kanchipuram, in the Chingleput district of the Madras State. The temple is built structure of the Pallava period, and is dedicated to Siva. It dates from the 6th-7th centuries A.D. Many of these paintings have disappeared through the weathering influences. Many are covered over with a coat of lime wash and the rest are in a mutilated condition. The subject matter of the paintings represents some icons. These paintings are of the classical or Ajanta type and have one peculiar feature. Some of the paintings represent initial sketches of the artist, which formed the starting point for the full fledged paintings.

Inspired by these examples, others were not wanting, who followed in the footsteps of Prof. Dubreuil. The late Prof. S. K. Govindaswamy of the Annamalai University discovered a group of paintings on the walls and ceilings of the corridor encircling the inner shrine of the Sri Brihadisvara temple at Tanjore. The temple dates from the 10th century A.D. and the paintings are also of the same period. These paintings are of the classical or Ajanta type. The subject matter of the paintings is drawn from Hindu mythology. The life history of Sundaramurti Nayanar and the battle between the gods and

the Asuras of Tripuri are very well depicted with force and vigour. There are also a few icons from the Hindu pantheon. The paintings are very extensive and many of them are covered over with a layer of later paintings of the Vijayanagar period.

These discoveries are very remarkable. Firstly, it demolished the old theory that the art of wall painting was essentially a Buddhist art. Some of the paintings such as those at Sittannavasal owe their inspiration to Jainism. Others such as those at Kanchipuram and Tanjore owe their inspiration to Hinduism. Thus there is no such thing as Buddhist art, Jain art or Hindu art. It is all one art—the classical art of India.

Secondly, the classical art of Ajanta, which dates from about the 2nd century B.C. is supposed to have died after the glorious days of Ajanta. As we have seen, the Ajanta art is a living Indian art. It persists through Sittannavasal (7th-8th century A.D.), Kanchipuram (7th-8th century A.D.) and Tanjore (10th century A.D.). There is the same continuous tradition running through all these paintings.

Thus there is a continuity of classical traditions from the 2nd century B.C. to the 10th century A.D. Of course, there are gaps between the palmy days of Ajanta and the 7th century A.D. and between the 8th century A.D. and the 10th century A.D. But the reason for these gaps are not far to seek. Wall paintings are susceptible of quick decay and there might have been other sites, which are either lost or yet to be discovered. This long continuity postulates a great vitality for the classical art of India. It postulates a long period of training and apprenticeship. Such an art could not have died after the 10th century; nor could it have risen from nothing in the 2nd century B.C. at Ajanta. It should have evolved, persisted and lingered on and

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died a slow death brought about by neglect and action of time and weather.

It is also interesting to note that the classical art of Ajanta did not merely confine itself to Ajanta or to the Deccan. But it spread to distant places in the south like Sittannavasal, Kanchipuram and Tanjore. It also spread to the north, to Bagh in Madhya Bharat, to Bamiyan in Afghanistan and Kizil and other places in Chinese Turkestan.

Others discoveries of classical paintings in the south were not wanting. In 1933, Prof. Dubreuil discovered paintings in the classical style in the cave temple at Tirumalaipuram, a small village 6 miles from Kadayannallur railway station in the Tinnevely District. These date from about the 8th-9th century A.D. In 1935, Mr. K. V Ramachandran discovered paintings in the Siva shrine in Tiruvanjikulam, a village 2 miles from Cranganore or 25 miles from Trichur in Cochin territory. These paintings date from the 11th to 12th century A.D. and represent scenes from Hindu mythology and a few icons.

What are the essential characteristics of classical art? Is it the only form of art, which was common in the distant past. In ancient days, Sanskrit was the language of the cultured, while some form of Prakrit was the language of the man in the street. While classical art was confined to artists of great vision and understanding, the common man indulged in some form of folk art, which taxed his capacities less. In the palmy days of Indian art, these two forms touched each other. But during the days of deterioration, they remained apart. In between, there are various gradations of art. As further deterioration set in the classical art disappeared completely and folk art took its place. Though the classification into classical and folk art is somewhat artificial, it is convenient enough for our purpose.

What are the essential characteristics of classical art? The artist is impressed with certain elements which he sees in actual life, chooses what strikes him most, idealises them and puts them on wall. There are varieties of poses, forms and expressions. On the other hand, the folk art lacks variety. There is some amount of stiffness and artificiality and there is great regimentation. These characteristics can be studied by looking at some of the paintings of Ajanta and those which cover the walls of Vijayanagar temples. Between

the two extremes of the classical art and the folk art, there are artistic forms which take of the characteristics of the one and the other.

To this mixed category belong the paintings on the ceilings of the Veerabhadraswami temple at Lepakshi, a village 9 miles from the Hindupur railway station in the Anantapur district. The paintings represent scenes from the Puranas, especially the Sthalapuranas. Though there are classical elements in the paintings, some amount of regimentation is also noticeable. The paintings date from the 14th-15th centuries A.D. Next in importance come the paintings in the Siva temples of Chemmanthatta, Peruvanam and Tripurayur in Cochin State, which deal with Hindu icons. The most important in this group are the paintings in the Mattancheri Palace in Cochin. Here are depicted the story of the wedding of Siva and Parvati and scenes from Ramayana. The paintings date from the 17-18th century A.D. When we come to the paintings in the Siva temple at Somapalle, a village, 25 miles from Madanapalle in the Chittoor district, definite deterioration has set in. The paintings probably date from the 18th century A.D.

The paintings at Lepakshi and Somapalle are of special significance. These two places are almost in the heart of the former Vijayanagar Empire. The traditional accounts state that Vijayanagar emperors were great patrons of art and there was art at its best. Lepakshi represents somewhat of an intermediate stage in the slow process of deterioration from the classical art, almost the last stage is reached at Somapalle.

The Vijayanagar rulers, who held sway either directly or indirectly through the Nayaks throughout South India, as at Tanjore and Madura, were more temple builders than artists. They developed their characteristic temple architecture. The temples at Tirupati, Chidambaram, Tiruvannamalai, Kumbakonam, Tiruvalur in South India clearly illustrate this tendency. Of these temples, there is not a single temple without some wall painting or other. They have not, however, got the grace of the classical art; nor do they occupy even the intermediate stage as does Lepakshi. These paintings lack variety and exhibit a certain measure of regimentation. Even in the Brihadisvara temple at Tanjore, the earlier layer of Chola classical paintings of the 10th century A.D. are covered over with a later layer of Nayak paintings, which are inferior in artistic quality.

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THE OLD & THE YOUNG

By PADMINI SEN GUPTA

ARE parents taken too much for granted? In many countries and especially in India their word is law, their views correct, their outlook the ideal that should be followed by the growing generations. That many of them are dictators, victims of out-dated dogmas, and tradition fiends, does not seem to matter. Woe to the son or daughter who dares to think contrary to them. Totalitarian States are condemned and dictators abused; but a parent can rule his family as he wishes, a mother with her custom-ridden bigotry can make or mar her daughter's entire life, a mother-in-law heap coals of humiliating fire on her daughter-in-law, and no notice is taken. Children belong to their parents—how devastatingly true indeed!

When Asoka, in one of his Edicts ordered that parents should be obeyed, his law taught his people to follow the great need for the younger to listen to and bow down to the will of the older. It has been a time honoured custom in this country to obey and respect one's parents, to honour and cherish them. The outward gesture of the **Pranam**, when a child stoops to take the dust off its parents' feet is an admirable custom for it teaches respect, reverence and humiliation—it tells the child that here is someone who is worthy of profound obedience. A respectful and obedient son or daughter is indeed a commendable creature!

Can parents, however, abuse this respect and trust which the younger generation show in them? Is it not their sacred duty to merit it in every way and not at any time to abuse it? Do not many parents, nevertheless persist in taking advantage of their superior position? In a joint family, does not the head of the house often insist on being a terrifying dictator? Does not the mother, the queen of the home—**ma-janani**—often have her wish fulfilled because custom dictates it, rather than think of the happiness of her sons and daughters?

It is time to have a girl married. Stop her studies, feverishly look for a bridegroom; but the girl must not see the young-man with whom she is to spend the rest of her mortal days, she must take her father's word for granted—he is a wise and good judge—close her eyes, therefore and let them be opened only when the priest is chanting his prayers. And the mother, the **ma janani**, even she need not see her son-in-law; her husband has seen him and that is enough! But what, in many cases, has the father considered? The worldly position of his son-in-law to be. Has he a good job? Does he belong to the same caste, or sub-caste? Do the horoscopes of the young people tally? Is he a respectable man? But is he a courteous kind man, does he love his neighbours, is he gentle, refined in his tastes, these small matters perhaps are seldom considered. They are minor details! Also, is his mother a lady with whom a daughter-in-law can live happily? This great factor, does not matter! And if he happens to be a widower, or perhaps far older than the girl who is to marry him, that is a minor question. And the cymbals clang, the drums beat, the guests arrive, and the veil is lifted, so that the bride sees her husband to be for the first time! What are her reactions? Is she afraid? Is she contented? Can she live her life with this man whom God has now linked her to? Her feelings must be her own, she must be the dutiful daughter, nothing else matters. And so we live and breed and die. It is the girl's duty to serve her parents—and then her husband and his parents until she herself becomes an autocratic tradition-bound mother and metes out to her daughter and daughter-in-law the fate that has been hers. Am I wrong in feeling that such is the case in many of our orthodox homes?

Let us now see the other side of the picture. What is the parent afraid of if he does not live up to the dictates of his small section of

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society? The first fear is that the ethics of his traditions have been violated. The tolerance, the love, kindness, and broad outlook that was once the beautiful philosophy of Hinduism and the Vedantic cult have perhaps never reached the average Indian; and he has been persuaded to accept dogmas of a corrupted form of religion without thinking. Then again, the fear of being ostracised by his caste, of having unmarried daughters left on his hands and his neighbours criticising him drives a father on to settle his daughter's future and allot his dowry on her so that she fetches the best bidder. He cannot be blamed for being educated on religious precepts that are more earthly than godly. All religions today have changed to suit society. A pacifist Indian once asked some European friends why they waged war and still professed Christianity—for Christ had said: "All they that take the sword shall perish with the sword". But the Christian had answered—"we have changed Christianity to suit us."

Thus it has happened with all the religions—and we cannot blame the Indian mother, who has been taught all her days, that marriage is the be all and end all of existence. To her, the most cruel fate that can be meted out to a daughter is for her to remain unmarried. Hence the feverish search for a partner to share her offspring's life, despite the modern tendency for girls to seek an occupation and be economically independent.

It is the same with all religious social units. For generations, just as an Industrial worker turns his screws and bolts and sends the shuttle flying from end to end of his loom, subversing all other human values to his automatic work, the men and women of India have mechanically blown their conch shells and repeated their evening prayers, worshipped their gods and consecrated themselves to the religion which has led them to change human values to inhuman laws. Can this state of society be changed? It has to a great extent, as one can see from the number of modern thinking families—"but is this what we want?" ask the conservatives.

In the west, mother's guilds, parents societies and magazines and schools on psychology abound. Here the parent is taught that his sacred duty to children is to seek their happiness and bring them up in a society that will give them greater freedom. But perhaps such liberty may not suit our Indian character.

Also, the psychological parent is often a bore and a trouble to his child. How often have

we not heard the American mother remark that her small son "is a problem". Looking at the blue-eyed blonde-haired little boy and the mother, I have often wondered: "Who is the problem? The mother or child? Indeed parents are often far more difficult than children for they insist on making every little normal behaviour of their off-spring a conundrum. One has but to go through the women's magazines of the West to rub one's eyes with surprise at the abnormal stories made out of normal situations. And yet, these situations do arise in homes both Eastern and Western. Perhaps we here in India ignore the problems of the young too much, and they in the West exaggerate them. A middle and saner outlook seems necessary when Oriental and Occidental ideology and culture can meet and form a happier world.

I remember an enthusiastic social worker once asking an Indian mother to attend a Conference.

"But I have my home and daughter to look after," was the mother's reply.

"How I wish you could eliminate both," said the social worker, "and devote your life to public work?"

"What public work is more important than one's home and children?", asked the mother. Indeed, how true—and yet the mother belonged to the school that had a lively interest in the progress of her country and believed that parents, while keeping a careful watch over their children and home, should also not dictate ancient and outworn customs to them. We must indeed move with the times without being too forward.

Liberty without licence can be no liberty. When a mother brings up her child to follow the too tolerant precepts of losing her poise and dignity in a round of excitable pleasures her training in the home has surely not been commendable.

On the other hand the parents of the orthodox school are too fond of glass houses, while the ultra-moderns have no walls at all. It is only when virtue and goodness result from love and kindness, that the sacred trust of the parent is fulfilled. Compulsion and commands cannot help the world to grow kinder—and has not the time come when every human being should exercise all the kindness and love he can possibly give in order to pull the world out of the chaos of hatred into which it has fallen? Who can be more kind than parents? But how many parents abuse the great trust that has been given to them?

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Nutrition and Health

Dr. K. RAJAGOPAL,
*Professor of Biochemistry & Nutrition,
All India Institute of Hygiene and
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HEALTH is not mere absence of disease. In sound health, one is generally not conscious of the presence and functioning of the organs of the body. The person has endurance to physical and mental work, ~~has~~ the ability to recoup readily after an illness and has the capacity to enjoy life to the fullest possible extent and reach his maximum level of efficiency.

There are many causes of low level of health in India. Some of the important ones are, the prevalence of insanitary conditions, defective nutrition, inadequacy of the existing medical and preventive health organisations, the general backwardness in education and health education and the social background of ill health. It will be seen that the low standard of nutrition is an important contributory factor to the low level of health in India and it is proposed to deal with this aspect of the Public Health problem in this article.

Food is essential for the sustenance of life. In point of fact, the dependence on nutrition and the ability to multiply differentiate the animate from the inanimate. The human being occupies the highest place among the former. In the different regions of the world, man has adapted himself to his environment, including the food supply available. There is the example of the Eskimo living in the Sub-Arctic regions, on whale, seal and reindeer flesh, and in some parts of tropical Africa, the natives living on tapioca, yams, and local vegetables. An interesting experiment carried out by Sir Robert McCarrison, who was the first Director of the Coonoor Nutrition Research Laboratories may be mentioned. He selected a number of white rats raised on the stock diet of the laboratory. They were all from the same stock and were litter mates; their weights and general appearance were the same. He divided them into seven groups. They were called the Pathan group, the Sikh group, the Gurkha group, the Mahratta group, the Bengali group, the Kanarese group and the Madras group. They were fed diets which were characteristic of the ones consumed by the respective populations enumerated above. At the end of a few months he found that the rats on Pathan and Sikh diets were growing

vigorously, their appearance was sleek, and the mortality rate in the group was lowest. At the other end of the scale was the Madras group.

It might be asked, whether the findings in 1st experiments do apply to the human being. It is only pertinent to say that the rat has served a very useful purpose in understanding many of the problems in nutrition. It lives close to human habitation. The albino rat is a clean animal. It is omnivorous. About one year of rats' life corresponds to twenty years of human existence. The rat is proverbial for its rapid and liberal multiplication. For an experimental observation therefore, there are obvious advantages in using the rat. No doubt many of the observations are treated with caution and their applicability to man assessed carefully.

Largely due to the accumulation of knowledge from the researches carried out by various workers in the past thirty years, the nutritionist is now in a better position to assess the adequacy of a diet, by considering the chemical composition of the given diet. The diet should be satisfactory in quantity and quality. It should provide energy for the sustenance of life and activity. Energy is required in the same way as fuel is required for a steam engine. In the context of nutrition, energy is measured in terms of Calories—heat units. The Calories in our diet are supplied by (i) Carbohydrates, (ii) Fats and (iii) Proteins. The Fats, bulk for bulk, supply twice the energy derived from either carbohydrates or proteins.

The carbohydrates constitute the bulk of the diet in India. Starches (rice contains a high amount of starch) and sugars are typical examples. The proteins, beside supplying energy also take part in replacing the wasted tissues, like muscle, and its importance is readily understood in growing children, pregnant woman and in a convalescing subject. The kind of protein is also important. Those that are easily assimilated and made use of as body builders are called first class proteins. The animal proteins are such. Meat, fish and eggs and it should not be forgotten, milk are the first class proteins. A pure vegetarian is a

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curiosity. The child is carnivorous at birth and for the first few months, as it lives on mothers' milk. In a "poor diet" it is precisely in making good the requirements of first class proteins the difficulty arises, as they are costly foods and are not produced in sufficient amount. There are several conditions which are deviations from health and some of them leading to frank diseases, which are due to the continued use of diets deficient in some characteristic constituent of the first class proteins. A case in point is the disease, cirrhosis of the liver in children which is quite common in South Indian children. Evidence has been gathering that the child weaned too early, and put on a starchy diet, the lack of satisfactory diet to the mother during pregnancy and lactation are the chief causes in the type of cirrhosis of the liver in children referred to.

Some of the alternative sources to the costly foods like milk, egg, fish and meat, which are rich in the nutrient that will prevent cirrhosis of the liver are, defatted groundnut, skim milk powder, broad bean, and black gram. These have come to light after an analysis of some fifty Indian foodstuffs for which no values were available. These foodstuffs have been tried in an experimental investigation using rats and very promising results have been obtained.

The above work has been carried out successfully by Miss V. Jayam M.A. Dip Diet. working in collaboration with K. Rajagopal at the All India Institute of Hygiene and Public Health, Calcutta.

The fats are concentrated sources of energy. Ghi and/or oil are generally used in India. In addition to supplying calories ghi contains the vitamins A and D. This will be elaborated later. It is a general observation that higher the standard of living, higher is the fat intake in food. Though Ghi has the advantage of its vitamin content, the vitamin A is lost by about fifty per cent due to the general practice of cooking adopted. As a result of work carried out in the All India Institute of Hygiene it is becoming clearer that deficiency in certain constituent of vegetable fat might lead to some abnormalities of the skin.

The protective foods should be considered now. As the name indicates these are the ones that will protect the body against ill-health. Strictly speaking water should be considered the number one protective food, because it is the one without which life is not compatible in the shortest period. The most obvious is sometimes relegated to the back-

ground; so is water by the nutritionist. The minerals, vitamins and the first class proteins are considered conventionally as the protective foods. Mention has already been made about the importance of first class proteins. Now about the minerals. There are several of them including the common salt. Generally, if the diet contains enough of calcium and iron, it is not likely that other minerals are deficient in the naturally chosen diet. These minerals have important functions, though not contributing energy; for example the building of bones, forming important constituents of blood and other tissue fluids etc. In the insufficient intake and imbalance of calcium, phosphorous and vitamin D, the disease rickets in children develops. One would have seen in the poorer quarters of the town such rickety children. If the deficiency develops in the pregnant women, particularly when sunshine is cut out, the distorted pelvis—teomalacia is seen. Iron deficiency will produce a particular kind of anaemia.

The vitamins, at least a good many of them are not now the mysterious substances that baffled the scientists for a long time. Many of them have been identified, indeed synthesized on a large scale by commercial houses in the western countries. India imports a huge quantity annually. The vitamins do not contribute energy, but are essential, for in their continued absence from the diet deficiency diseases, or border line deficiencies will develop. Mention may be made of some such diseases, Keratomalacia, leading to blindness of the eye results from vitamin A deficiency. Beri-beri is due to vitamin B₁ (Thiamine) deficiency. Raw and sore tongue, disturbance in vision and some skin affections are due to riboflavin (Vitamin B₂) deficiency. Pellagra is a disease due to nicotinic acid deficiency. Several kinds of anaemias, and pernicious anaemia are due to folic acid and vitamin B₁₂ deficiencies. Scurvy is due to vitamin C deficiency. The relationship of rickets and osteomalacia to vitamin D has already been mentioned. Needless to say, between frank deficiency diseases mentioned above and buoyant health, various levels of borderline and latent deficiencies which will become manifest in times of stress can be visualised. A detailed and careful examination of blood and urine and by applying some physiological tests, such states can be recognised.

In order therefore, to gauge the adequacy of a diet, the nutritionist consults food value table, converts the foodstuffs of a diet into its chemi-

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cal constituents and judges them in relation to the reputed standards laid down by authoritative bodies in the country. A very convenient table that can be used in India is the "Health Bulletin No. 23 published by the Government of India at a nominal cost of 8 annas and entitled "The Nutritive value of Indian Foods and the planning of satisfactory diets". The Nutrition Advisory Committee of the Indian Council of Medical Research has recommended as guidance the satisfactory diet for an adult as follows:

TABLE I

	per adult per day
Cereals (rice or/and wheat)	14 ozs.
Pulses	3 "
Green leafy vegetables	4 "
Root vegetables	3 "
Other vegetables	3 "
Fruits	3 "
Milk	10 "
Sugar/Jaggery	2 "
Vegetable oil/ghee	2 "
Fish or/and meat	3 "
Egg	1 egg
Salt and condiment	to taste

TABLE II

An example from the dietary survey conducted in Tiruchirappalli in 1946, (the average family income being Rs. 56 p.m.) was as follows:—

	per adult per day
Rice	87 oz
Wheat	02 "
Other cereals	28 "
Pulses	09 "
Leafy vegetables	..
Other vegetable	18 "
Fruits	..
Ghee/vegetable oil	05 "
Milk and milk products	40 "
Meat/fish/egg	03 "
Sugar/Jaggery	03 "
Condiments	09 "

A glance at table I will make many shake their heads, particularly when table II is compared with it. Table I should be a target and should be constantly borne in mind. While there are many measures which have to be taken in several fields of human endeavour to make it a possibility, the picture presented in table II should also lend itself to improvement. Cost will be the primary concern in this move. Thriftiness is a virtue. It cannot be expected that diet is "cheap." House rent is not 'cheap'. Clothing is not 'cheap'. In all the three the object, when expenditure is res-

tricted is to see that every bit of money spent brings in maximum value. With this end in view a diet which can be bought for say 14 as. a day can be improvised, taking in the principles of nutrition, in such a way that had not a deliberate planning been made, in order to obtain the same nutritive value, much more money or expensive foods would have to be made resulting in paying a price of approximately Rs. 1-4 or more.

A discussion would make this obvious. Reference to table I will make it easier to follow.

(i) **Cereals** 14 oz.

The South Indians are generally rice eaters. Instead of choosing all the 14 oz as milled rice, say 10 oz may be used parboiled rice (which is easily obtained in Calcutta) and 4 oz wheat (atta) the parboiled rice contains more vitamin B₁ than milled rice. In parts of the Andhra desa where large amounts of highly polished rice is eaten beri-beri is a public Health problem. In places where rationing prevails the relative amounts have to be adjusted.

(ii) **Pulses** 3oz.

There are four kinds of pulses generally used. Bengal gram, red gram, green gram, and black gram. It is probable that Black gram is qualitatively more nutritious than the others. It may be recalled that black gram in fair amounts in an experimental diet prevented cirrhosis of the liver in the rat. Costly substitutes for this principle is milk, liver fish and eggs which clearly do not find a place in the diet among poor income groups.

Bengal gram can be sprouted and eaten twice a week. The sprouted grams yield more riboflavin and vitamin C. Incidentally riboflavin is present in high amounts in costly foods which are difficult to obtain by poor income groups. Sprouted gram as source of vitamin C is cheaper than costly orange out of season or in season.

(iii) **Green leafy vegetables** 4 oz.

Not necessarily cabbage, lettuce, Brussels sprouts etc. Amaranth, drumstick leaves, Indian spinach, curry leaves etc. are as nutritious.

(iv) **Root vegetables** 3 oz.

Potato, Sweet potato and onion.

(iv) **Other Vegetables**

Red pumpkin, carrot, cluster beans etc in preference to ash gourd, cucumber, bottle gourd, snake gourd, ridge gourd, etc.

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(vi) **Fruits 3 oz.**

Not necessarily apples, apricots, plums, cherries etc. the guava, sweet lime, papaya, mango in season, and gooseberry, are nutritious.

(vii) **Milk 10 oz.**

This will be difficult of substitution. Preference to milk in diet should be given to children, pregnant women and lactating mothers. Happily this is a time honoured custom and should be maintained. Skim milk powder excepting for the absence of fat and vitamin A and D is very nutritious and if obtainable should be fully made use of. In a "vegetarian diet" in lieu of meat, fish and egg, additional amount of milk, equivalent in protein content should be used. Once again one will be met with the difficulty of (i) adequate supply. (ii) and cost. Preference to vulnerable groups should be the guiding principle.

(viii) **Sugar/Jaggery.**

There is no particular virtue in sugar except sweetening the food and making it tasty to the sweet-toothed. Jaggery is even better than sugar for it contains some iron and carotene as well.

(ix) **Vegetable oil/ghi 2 oz.**

Ghi is a costly item and its food value has already been mentioned in fats. Vegetable oil, commonly gingelly oil is consumed by the South Indian population, though even there are regional preferences to groundnut oil and coconut oil. Hydrogenated vegetable oil is now on the market throughout India. Generally groundnut oil is used for the preparation of "Dalda".

(x) **Fish/meat.**

These are costly items and for the "Vegetarian" has to depend on an increased intake of milk, which also is not easy to obtain

(xi) **Egg.**

Duck's egg is as good as hen's egg and is cheaper.

The price for the diet as above will amount to Rs. 1-8. A diet might be nutritionally adequate but unless cooked in a palatable form will not be eaten. Here comes the value of the ability of the housewife to prepare recipes. For large communal feeding centres the aid of a dietitian is invaluable.

There are certain inevitable losses in cooking procedures and some faulty practices can be corrected. There is a belief that boiling destroys all the vitamins. While about 1/3 to

1/2 the vitamin content are lost by cooking processes, the running out of water used as cooking media is much more wasteful. The rice must be washed in minimum amount of water and as few times as possible and rice allowed to cook in just sufficient water. Cooking in open vessels, because of exposure to air, and oxidation destroys vitamin C readily.

The cooking vessel should be covered with a lid. In chopping vegetables, clean sharp, chopping with knife is better than laceration. It can be compared to the clean cut of a surgeon's knife and the lacerating wound. The clean cut helps reunion. The lacerated vegetables release some enzymes which will bring in certain changes in the vegetables, reducing their nutritive value. The perishable foods should not be stored too long. For example the leafy vegetables bought fresh in the bazar should be brought home and cooked for the meals of the day and not stored for the meal of the next day or thereafter. Water in the vessel should be brought near the boil and then the chopped leafy vegetables added, allowing the minimum time for cooking.

Frequency of meals is important. Two heavy meals and two light or snacks for the day can be arranged for most people. A feed every four hours in the waking hours is indicated. The choice of the heavy meal and snack will depend to a large extent on the work programme of the individuals of the family and in places where large numbers work, there is an increasing tendency in the right direction, of the canteens supplying the food. Such canteens should be under the expert guidance of a dietitian.

An example is given of the cost of an improved diet at prevailing prices in Calcutta. A family comprising the bread winner, his wife, and four children is taken for the calculation.

	consumption	
	unit	
1 Bread winner		1
2 Wife	"	0.8
3 Son aged 21 years	"	1
4 Son aged 15 years	"	1
5 Daughter aged 10 years	"	0.6
6 Son aged 8 years	"	0.6
Six Individuals Total	"	5

The food requirements for the family per day is given, in table III. The average cost per consumption unit per day works out to fourteen annas. A sample diet schedule for a day is also given.

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Agencies at all important places.

TABLE III

Food requirements of family comprising six individuals and equivalent to five consumption units.

Item	Quantity N.B.*	Rs	A	P.
Rice	30 ounces	0	7	0
Wheat/Atta	30 "	0	7	0
Bengal gram	5 "	0	2	0
Red gram	5 "	0	2	0
Black gram	5 "	0	2	0
Leafy vegetables (sag)	20 "	0	4	0
Potato	16 "	0	4	0
Red pumpkin	16 "	0	2	0
Papaya fruit	16 "	0	4	0
Gur/sugar	10 "	0	3	0
Vegetable oil/dalda	8 "	0	10	0
Skim milk powder	5 "	0	5	0
Ground nut	3 "	0	2	0
Fresh milk	16 "	0	8	0
Condiments and salt		0	2	0
Tea/coffee		0	4	0

Cost per consumption unit per day—14 As

*1 seer=2 lb., 1lb.=16 oz 1 chatak=2 oz

Sample Menu for the Day

6-30 A.M. Breakfast:

Coffee: Prepare with gur and mixture of fresh and skim milk. If liked eat a plantain or guava or a piece of papaya.

9-30 A.M. Morning meal:

Rice with Dhal, Sambar and Rasam, Pumpkin curry, Butter milk.

1 P.M. Snack:

Poori or Katchuri (Dhal stubbed poori) and potato curree with fried groundnut chutney.

5-30 P.M. Tea:

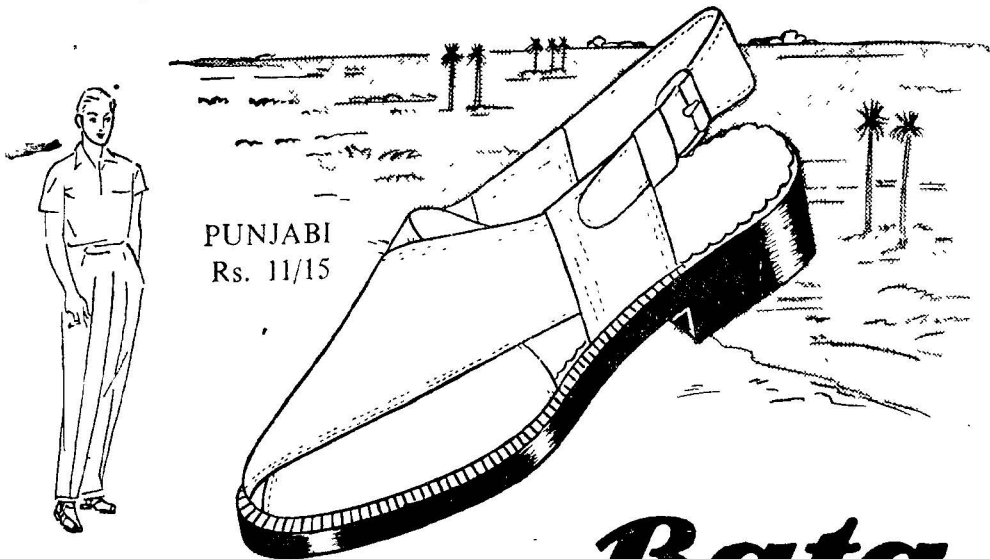
Tea with milk and sugar.

8 P.M. Supper:

Rice and chappathis or Parotas, Green-Gram coottu, green sag curry, Butter milk.

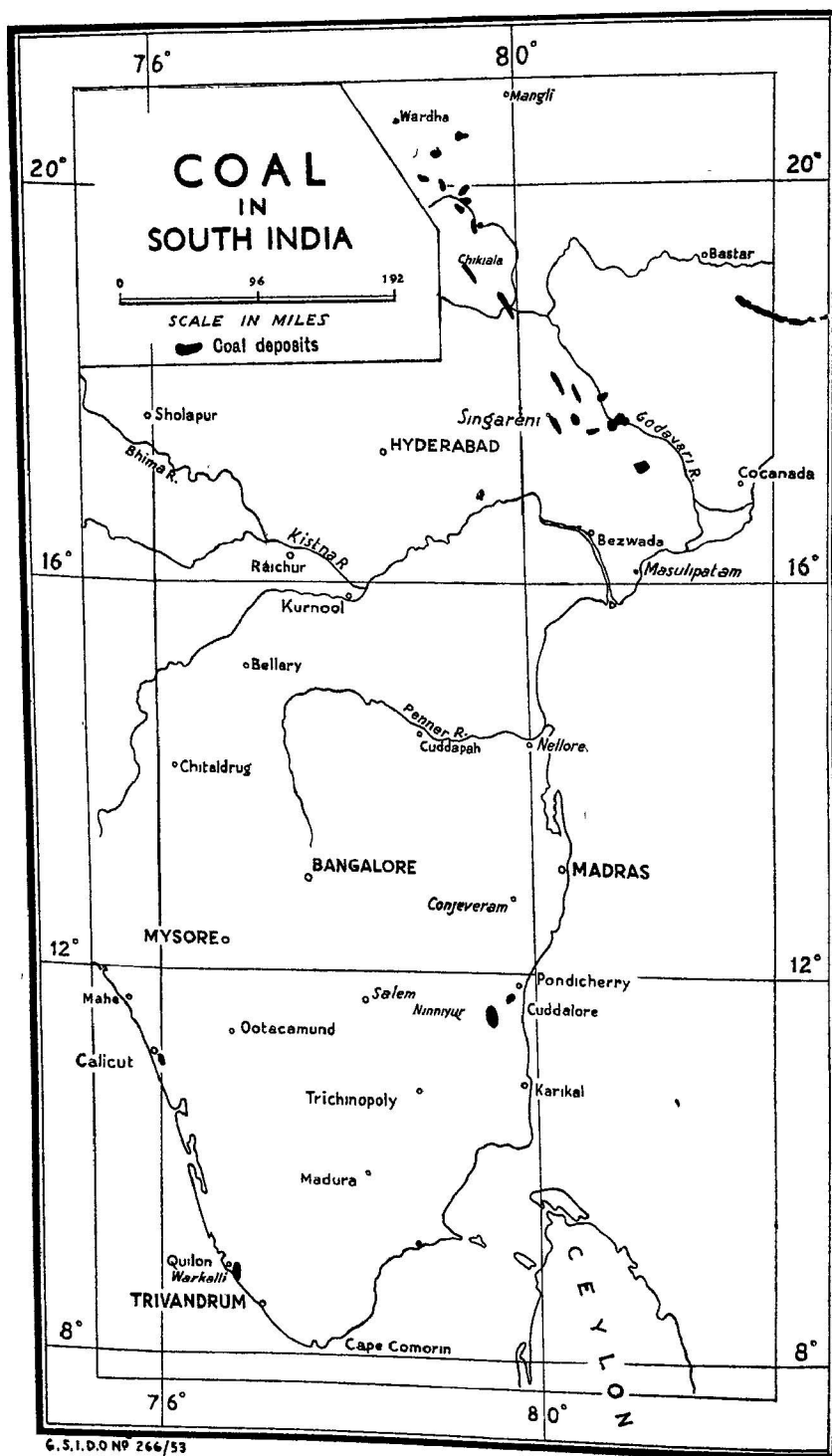
Thanks are due to Mrs. K. Rajagopal for working the cost of the diet and the preparation of diet schedule.

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Coal in South India

DR. M. S. KRISHNAN
Director, Geological Survey
of India

THE coalfields of India are virtually confined to the north-eastern part of the Peninsula, if we exclude those of Assam and the Lesser Himalayas of Bengal and Assam. They are distributed along three major zones, namely the Damodar-Sone valley stretching from West Bengal to Vindhya Pradesh, the Mahanadi valley between Angul in Orissa and Katni in Madhya Pradesh and the Godavari valley between Wardha and the Eastern Ghats above Rajahmundry. The last zone continues north-westwards under the lava flows of the Deccan into the Chindwara district where a few coalfields are known and are being worked. It is therefore only the Godavari valley coalfields which can be considered to be in South India. Though there are about a dozen individual fields in the Godavari valley only a few are being worked. Most of these fields were discovered, or at least brought to the general knowledge of the people, only after 1850. A gallery was established at Warora about the year 1873 after the discovery of two important seams by drilling. About the year 1900 the presence of coal was proved at Ballarpur near Balharsha on the borders of Hyderabad and Madhya Pradesh. Coal has been worked in this region at Sasti, Ballarpur, Ghugus, Rajur and near Chanda town.

Further down the valley, fairly large areas of coal-bearing rocks are exposed mainly along the valley and to the south of the river Godavari, in Hyderabad. Between 1860 and 1880 much of this area was traversed by officers of the Geological Survey of India and the presence of coal found in a few places. The most important of these are at Yellandlapad, generally known as the Singarani coalfield. The total area of possible coal-bearing rocks in this tract is of the order of 4,500 sq. miles but it is doubtful if more than a fraction of this contains workable coal seams. The whole region is generally covered by sedimentary rocks slightly younger than the known coal

bearing formations, but the coal-bearing rocks crop out near Sasti, Antargaon, Tandur, Chinnur, Kamaram, Bandala, Allapalli, Lingala, Singarani, Kothagudam, Damacherla, Totapalle and Bedadanuru.

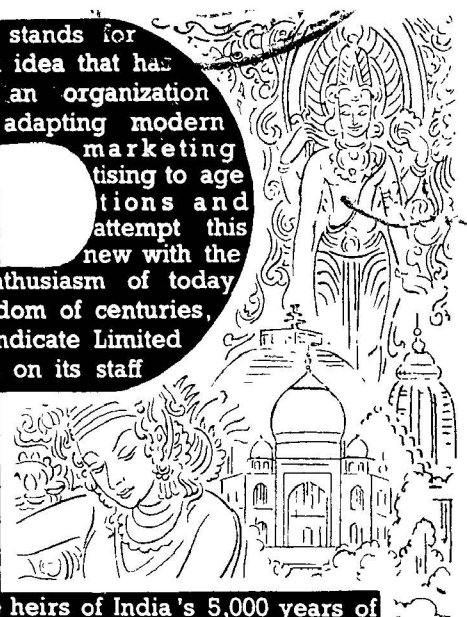
As stated above, the Singarani and Kothagudam coalfields are the most important in this region. The Singarani coalfield was discovered by Dr. William King of the Geological Survey of India in the year 1872. It is about 11 miles long and 2 miles wide with an area of about 20 sq. miles. Borings were put down, soon after the discovery, to a depth of about 250 ft. 4 seams were found of which the top one was 6 ft. in thickness and of good quality. The middle 2 seams were only 3 ft. thick each but the bottom seam was 30 ft. or more thick and of good quality. Later borings proved several more seams of which the King seam (named after Dr. King) is the best known and is 6 to 7 ft. thick and of excellent quality. This King seam is about 200 ft. below the thick seam mentioned above.

The borings put down under the supervision of T.W.H. Hughes of the Geological Survey between the years 1873 and 1886 proved the Singarani field and enabled Hughes to estimate that the reserves of the thick seam and the King seam were well over 150 million tons of which a third was in the King seam. Owing to difficulties in working and subsidence, the actual amount of coal raised from the King's seam in the Singarani collieries was only about 25 million tons.

The Kothagudam area was proved by borings in 1925. It is about 25 miles west of the Singarani collieries. In this field the thick seam was found to be split up into thin seams of poor quality but the King seam was found intact at a depth of 400 ft. It is being vigorously worked at the present day.

There is a small coalfield astride the Godavari river about 20 miles to the east of Singa-

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ran, and a few miles below Badrachalam. This is the Damarcherla—Totapalle coalfield. Borings put down in this field about the year 1871 proved the existence of some coal seams which were generally rather thin. Some mining was done in this area between 1890 and 1895 near a place called Rajahgompalle by the Godavari Coal Co. (Messrs. Bunny & Co.) It is stated that this company raised about 3,500 tons of good coal which was used in steam engines and river steamers. The work was abandoned in 1897 because the seam was cut off by a geological 'fault' and could not be traced beyond that fault. This seam is said to have been 5½ ft. thick. In view of the reported good quality of the seam it would be worth investigating this area again in detail by means of bore-holes.

To the South-east of the last mentioned area is the small coalfield of Bedadanuru which is a few miles to the east of Ashwaraopeta on the Hyderabad—West Godavari border. This field was investigated by bore-holes by Government in 1874 to 1876 and again by a private company on behalf of the Madras Railway Co. in the year 1900. Though a few thin seams and carbonaceous material were met with, there was nothing to encourage proper development. Further work by the Geological Survey in the year 1941-1942 was inconclusive because of the fact that the drilling equipment used was not suitable.

There is a large spread of rocks closely related to the coal-bearing formations in the area to the east and southeast of Jangareddigudam in West Godavari. Some investigations were carried out in this area by the Hyderabad (Deccan Co.) in 1921. A few thin layers of carbonaceous sandstone and shale were met with but no workable seams of coal. In view however of the possibility of there being workable coal seams near the bottom of the sedimentary strata it is thought that further boring investigations should be undertaken in this area to prove, once for all, whether there is any workable coal here or not. It may be necessary to drill down to a depth of about 2,000 ft. Since this is a matter of considerable economic importance, it would be well worth spending some money in this area and carrying out a complete investigation.

Lignite in South Arcot

About 20 years ago, the Department of Industries, Madras, put down several bore-

holes for artesian water at the Criminal Settlement of Aziznagar, south of the present Neyveli railway station which is about 10 miles east of Vriddhachalam on the branch line to Cuddalore. Some of the bore-holes showed the presence of lignite in the strata at the comparatively shallow depths of 200 to 280 ft. below ground level. The area is composed of buff and red water-logged sandstones of a young geological age.

Lignite is a form of immature coal containing much more moisture and less carbonaceous matter than ordinary bituminous coal. It is therefore less efficient than bituminous coal, though it can be used for most of the purposes for which the latter can be used.

The discovery of the lignite was not fully appreciated for some years because of the fact that lignite encountered in the bore-hole logs were variously described by the mistries in charge as black rock, char-coal like substance, etc. However, just before the beginning of World War II, a European firm in Madras took some interest in the matter and put down 3 or 4 bore-holes in which they definitely proved the existence of this substance as forming seams of 25 ft thickness.

By the beginning of World War II, the Government of Madras realised the importance of the discovery and requested the Geological Survey to investigate and placed two drills at the latter's disposal for the purpose.

Drilling was commenced in the latter part of October 1943 and after an interruption of a year was continued again in 1944. By the summer of 1947 an area of about 50 sq. miles was investigated in half of which the existence of the lignite seam was proved satisfactorily. In this area the seam varies in thickness between 10 and 80 ft, the average being about 25 ft. The depth at which the seam is found varies from 160 ft to about 300 ft. The approximate quantity proved to exist in this part of the field has been estimated as around 400 million tons.

The area comprising the lignite field is part of the coastal plain of South Arcot which has a very gentle surface slope towards the S. E. The geological strata also dip in the same direction with an inclination of 1 in 100. The strata are mainly sandstones containing much water. Down below, they are known to be artesian in character, i.e. they contain water

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under pressure. In the southern part of the field, which lies to the south of the Cuddalore-Vridhachalam branch of the Southern Railway, there are several artesian wells functioning at the present day some of them yielding considerable quantities of water which flows out on its own accord from boreholes 200 to 300 ft deep. In the northern part of the field also (north of the railway line), there appear to be artesian strata but they are below the lignite. Since 1947, the field has been under investigation by a Mining Engineer under the control of the Government of Madras. Numerous boreholes have been put down and it is stated that the lignite field may extend over an area of about 100 sq. miles south and southeast of Neyveli and may possibly contain as much as 2,000 million tons. The full extent of the field remains to be proved as also whether there are other seams below the seam which has so far been investigated. Since the same geological formation extends right down to the coast in an easterly and south-easterly direction, it is not unlikely that the field may have a considerable extent and may contain very large reserves.

The lignite is not found to outcrop anywhere in the area. Indeed the shallowest depth at which it has been met with so far is a little over 160 ft. Since the lignite seam as well as the ground level both rise in the same direction (N.W.) there is little likelihood of the seam being found nearer the surface at any place. As already mentioned, the strata are heavily water-logged and there are artesian horizons below the lignite seam in the northern part of the field, and both below and above the seam in the southern part. This would introduce difficulties in the working of the seam. It is however, clear that underground working will be not only very costly, but also difficult if not impossible, because of the soft and water-bearing nature of the strata. It has been decided therefore to work the seam opencast. A pilot quarrying scheme has now been sanctioned by the Government of Madras. This is expected to cost about Rs 75 to 80 lakhs. The operation of this scheme would give sufficient information about the working conditions in the field. The experience which will be gained during the present operations would provide data for the proper planning of future exploitation of the deposit on a large scale.

The lignite of Neyveli is of good quality. It contains about 20 per cent moisture, 40 to 50

per cent volatile matter, about 35 per cent carbon and is low in phosphorus and sulphur. The calorific value, i.e. the heating power, is of the order of 9,000 British Thermal Units (1 B.T.U. being the quantity of heat required to raise 1 lb. of water by 1°F of temperature). This lignite is therefore only slightly inferior in quality to good steam coal from the Raniganj coalfield of Bengal whose calorific value is about 10,500 B.T.U. The lignite is black in colour and soft. It is liable to spontaneous combustion owing to the oxidation of some of its constituents and cannot therefore be stored for a long time. It also slakes into small fragments and powder when exposed to the air, as a result of the loss of moisture and some of the volatile constituents. In order, therefore, to be able to transport and use this lignite, it will be necessary to briquet it before or after partial carbonisation. The lignite would be quite suitable for power generation for which it can be used in a pulverised form. After briquetting it can be used as a locomotive fuel and as domestic fuel in much the same way as lump coal or coke is used. Other possible uses for the lignite would be as industrial fuel and for conversion into synthetic petrol.

The location of the lignite field, almost midway between Madras and Tiruchirapalli would make it ideal for power generation which can be linked up with the electric grid in Southern Madras. It would also be possible, when sufficient power is generated, to electrify the railways for considerable distances south of Madras. A possible industrial use would be for smelting iron ore either in electric furnaces or small blast furnaces, though for the latter purposes it is not ideal. The strata containing the lignite are associated with various types of clays which can be used for the manufacture of ceramic articles including bricks and tiles, refractory bricks, pipes, and even tableware, depending on the quality of the clays. It would be seen therefore that, provided the lignite can be worked economically at a cost appreciably cheaper than the coal imported from Northern India, there are vast possibilities for its being used in a variety of ways. The development of the field will make Southern Madras more or less independent of coal from outside and would give considerable encouragement to the establishment of new industries which now suffer for want of cheap industrial fuel.

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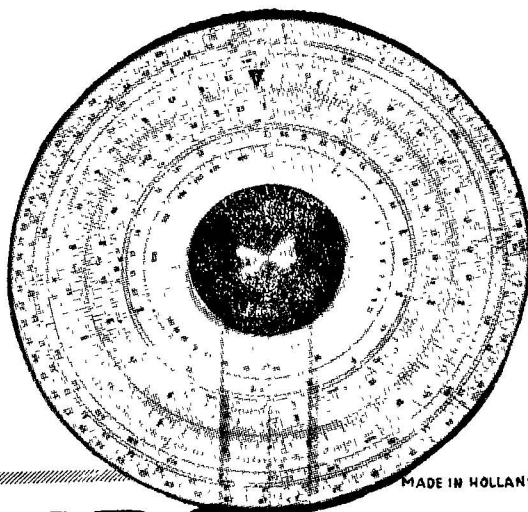
Lignite in other parts of Madras.

About 70 years ago, some 3 bore-holes put down in the French territory of Pondicherry a few miles to the north of Cuddalore, met with 2 seams of lignite at depths between 300 and 330 ft. The upper seam (nearer the surface) varied in thickness between 35 and 50 ft. thick, while the lower seam was about 5 to 6 ft. The quality of the lignite is said to be fair but the data are insufficient for assessing the possibilities. It would therefore be worth while to investigate the whole of the coastal belt south of Pondicherry in the districts of South Arcot, Tanjore and Ramnad which are known to contain the same rocks as those in the Neyveli lignite field and are, in fact, a continuation of these rocks. It is not unlikely that workable seams of lignite would be found over at least some parts of this large coastal belt. Expenditure on investigating this area by boreholes will be well

worthwhile, judging from the results so far obtained near Neyveli.

A few thin seams of lignite have been recorded at and around Varkala and Quilon in Travancore as well as in Malabar and South Kanara. The seams in Travancore appear to cover a large area and the State Geologists have estimated reserves of the order of 275 million tons in these deposits. It is not yet known whether the seams would be workable economically under modern conditions.

The data available so far about lignite in Southern Madras indicate encouraging possibilities for the future of all industries in that part of the country. A vigorous plan of investigation and development should be undertaken in order not only to collect the essential data but also to plan for the future.



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NATURE'S FACTORIES

Dr. H. SRINIVASA RAO

UNDER THE SEA

OCEANOGRAPHY is the science of the oceans the aquatic portion of the earth's surface, as geography is the science of its terrestrial portion. The latter deals with the mountains, hills, valleys, lakes, inland seas, rivers, forests deserts etc, the plants and animals and their distribution, the peoples and the political and economic structure of their groupings. The major oceans like the Pacific, the Atlantic and the Indian with their extensions between continents called seas, bays and gulfs and the minor oceans like the Arctic and the Antarctic cover nearly $\frac{3}{4}$ of the earth's surface.

Contrary to the notions of lay men, the oceans are not just huge masses of water in enormous troughs with a flat bottom. They have their submarine mountains, valleys, plains, rivers and streams of varying temperatures in the form of currents deflected in their course by the submarine and shore elevations, their animal and plant populations from the poles to the equator and from the surface to the greatest known depths up to 6 miles.

The rotating motion of the earth, and the action of the Sun's rays have their influence on the aquatic element of the earth as on the terrestrial. In addition, the oceans are influenced by the Moon which brings about tides twice every day. All the living matter in the oceans, taking various shapes and forms from the largest known whales to the minutest bacteria, depends for its sustenance and growth on the vast reserves of organic matter accumulating at the sea bottom from constant death and disintegration of plants and animals both on sea and land and of inorganic substances derived, no doubt, ultimately from the crust of the original contracting earth by the scouring action of wind, rain, glaciers and rivers. The energy supplied by the Sun in the form of light is available in the depths up to 200 fathoms for the synthesis of food substances by marine plants, from the giant seaweeds to the minutest plants known to Botanists as diatoms and desmids. The sea-water has thus all the needed elements of life (including the rarer ones) to a greater degree than elsewhere. It is no wonder, therefore, that life should have manifested itself first in the sea and gradually invaded land when the competition for food and living space increased

Oceans as a source of Wealth

in the shallower regions of the sea not far from land.

It is very essential to know the origin of our earth as a whole to be able to understand the economy of the sea and its potentialities. The origin of the earth from our Sun as rotating ball of fire some 2,000 million years ago is generally accepted by all scientists.

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The hydrosphere, which is the scientific name for the oceans, has an area of, roughly, 140 million square miles, an average depth of 2.2 miles, and an average volume of 300,000,000 (three hundred million) cubic miles. It has been estimated that the rivers of the world bring in 6,500 cubic miles of freshwater annually to the oceans. It is not difficult therefore to conceive why the sea should remain saltish all the time in spite of this constant dilution. The ocean water is a 3% solution of sodium chloride which accounts for most of its physical properties. It contains 85% oxygen, 10% hydrogen, 2% chlorine, 1% sodium and 2% of the rest of the elements including magnesium, calcium, potassium, strontium, caesium, lithium, rubidium, bromine, fluorine, iodine, sulphur, carbon, neon, silicon, phosphorus, arsenic, copper, zinc, silver and gold. One cubic mile of sea-water weighing roughly 4,000 million tons has been estimated to contain on an average 166 million tons of dissolved salts of which sodium chloride, magnesium chloride, magnesium sulphate, calcium sulphate and potassium sulphate account for 164 million tons, calcium carbonate and magnesium bromide for 0.9 million tons and the rest of the elements in very minute and negligible quantities, for 15,000 tons.

These elements and compounds in the sea, apart from being extracted and used by countless plants and animals in the sea by processes not yet known to man, are exploited by man as well. The deposits derived from land and from the countless millions of dead bodies and skeletons of plants and animals in the sea form a vast reservoir in the bed of the oceans, and are stirred up by strong bottom currents and

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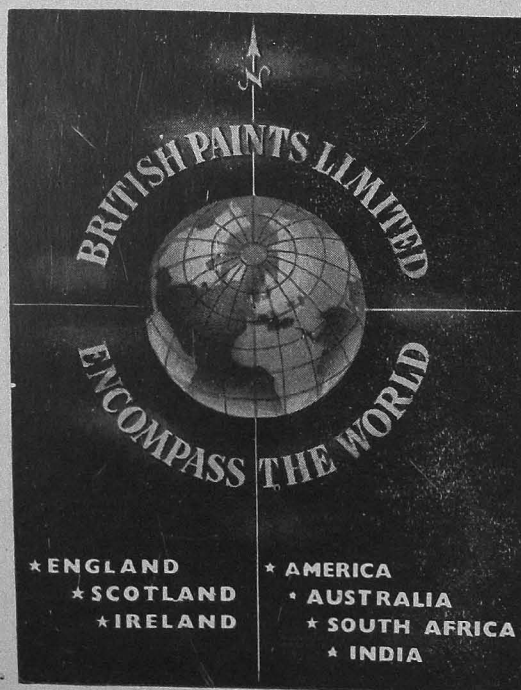
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upwellings and thus become available again for use by animals and plants. What has been taken from the ocean by plants and animals returns to it after their death and disintegration, and what is taken by man is never readily given back to it. Petroleum, which is a decomposition product of a vast prehistoric forest of sea weed and other marine flora and fauna, is burnt up irretrievably. Fortunately, man has not yet been able to interfere materially with the complex cycle of life in the sea, thanks, to the operations of nature on a scale which forbids the possibility of human intervention. So petroleum may appear to be exhausted for a while—possible for a few million years or geological eras—but is bound to be deposited again as a result of the incessant activity of sea plants and animals.

SOURCE OF RAW MATERIALS

Modern research methods have revealed the possibilities of recovering salts and elements direct from the sea water, so that the monopolies, which prevailed in many countries owing to extensive natural deposits of these compounds being found only within their boundaries, are slowly breaking down. The recovery of salt from the sea by solar evaporation in many lands is well-known. Salt is also mined or pumped as brine from extensive deposits in Europe and America. The bulk of it furnishes raw material for heavy chemical or alkali industries. It serves as the source of soda ash, caustic soda, sodium salts, chlorine, bleaching powder, and hydrochloric acid, sodium and potassium have also been extracted directly from sea water by U.S., U.K. Japan and other countries. Bromine is extracted from brine of salt marshes such as those found in the Rann of Cutch. Half the world's production of Iodine is from sea-weeds in Europe, USSR, and Japan. The oil-wells of U.S., and the artesian waters of Java seem to produce the rest. Kelp (*Laminaria*—a species of sea-weed) was for long the chief source of potash from which potassium chloride was made, but potassium salts can also be recovered by solar evaporation from the sea as in Palestine or from salt bitters as in Japan. Even a passing reference to the multifarious industrial uses of inorganic marine products would take up more space than is available for a magazine article. Suffice it to say that the oceans are an almost inexhaustible source of raw materials for industries already in existence or yet to be established.

The plant and animal resources of the oceans appear to be equally inexhaustible, if judiciously exploited, for the oceans are in the nature of huge factories where raw materials are self-renewing. The whole series of life in the oceans seem to suggest that they constitute a complex cycle linked together in intricate bonds, indissoluble by any agency man can devise. Man's interference with life's processes in the oceans as in fishing may cause temporary scarcity or absence of some species but they reappear in countless multitudes no sooner than man abandons his field of operations as commercially unremunerative. The oceanic plants and animals soon restore their former abundance and demonstrate their independence of all artificial regulations.

There are several hundreds of species of big and small fish, some of them shoaling in large numbers, in the shallower seas at depths not exceeding 100 fathoms, many of which are valued as food. The term 'fish' is used here in the broadest sense to include every animal product from the sea that is used as food or as raw material for industries. Fish proper such as round fish, flat-fish, snake-like eels, sharks and rays, shell-fish like prawns, lobsters, crabs, sea-snails, oysters, clams, mussels cuttle fish and octopus, trepang or "bech-demer", bristle-worms, turtles, whales, the spawn and eggs of some or all of them are valued as food by some people in some part of the world or the other. The big fish live on the small fish and the small on floating or fixed weeds and minute floating plants and animals termed plankton, which are so abundant in surface waters that they often render them turbid to considerable depths. They live at all levels, but in our seas, generally at the surface or in mid-waters, although several species live at or near the bottom among coral reefs, sea-weeds etc. The estimated annual production of sea-fish in the 1,15,000 square miles of fishable area along our coasts is 4,12,178 tons i.e., 8,000 lbs (approximately $3\frac{1}{2}$ tons) per square mile. This quantity combined with the production from inland fisheries, which is only 50 per cent of the production from our sea fisheries only 3.4 lbs. of fish and fish products per head per annum for consumption by half the population of India who are estimated to be consumers of fish. This compares very unfavourably with the production and per capita annual consumption of fish in the leading European countries and in the USA, which is 2 to 12 times that of India. The question now is whether with improved methods of fishing and with the

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extension of the range of fishing in our waters, the required quantity of fish can be produced to meet the optimum needs of the country. It is often assumed that the mere vastness of the seas around us is a guarantee of abundance of fish, but in actual fact every type of biological environment can support an optimum population of edible and commercial fish and only in certain seasons, both of which have to be determined by patient scientific investigations spread over a number of years of the physical and biological factors involved.

Fish which cannot be used immediately as food or preserved are converted into meal or manure. Several thousand tons of fish landed on our coasts which should serve as human food are often converted into manure for want of facilities to process them as preserved food.

The body and liver oils of various species of fish are valued as supplementary food and raw materials in industry. The substitution of shark liver oil in place of cod and halibut liver oils in recent years is well-known.

The precious coral and the reef-forming corals of tropical and sub-tropical waters, the horny sponges, the mother-of-pearl shells and their allies afford important raw materials of industry and commerce.

Sea-weeds have formed an important item of food amongst the people of Japan, China, Philippines and Malaya from times immemorial. Though they are abundant on some of our coasts, their use as food or as industrial raw materials does not appear to be well-known. In spite of the fact that they have been ranked as poor foods, they seem to have found favour amongst the peoples of the Far East for (1) their anti-scorbutic properties which are possibly the result of their vitamin contents, (2) their value in the treatment of glandular infections due to the high percentage of iodine content, (3) the presence of large amounts of inorganic salts such as the chlorides of potassium, sodium, magnesium and calcium which are needed by the human body for various physiological functions and (4) their capacity to absorb much water which make them valuable foods for counteracting constipation. Sea-weeds are also used as food for cattle and as manure. In this country we know practically nothing about the commercial future of sea-weeds. What is needed is a survey of their distribution, extent of supply, their properties, improved methods of extraction, and new application for their use in the food, drug and chemical industries.

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DIABETES MELLITUS and its Management

Dr. N. K. IYENGAR,
M.Sc., D. Phil.

DIABETES Mellitus is a metabolic disturbance with an absolute, or relative deficiency of Insulin, a hormone secreted by the pancreas. This is often a hereditary disorder. The sequence of the physiological changes that can result from a deficiency of Insulin are as follows:

- Most tissues of the body require Insulin for the normal utilization of carbohydrate (starch and sugars). In the absence of this hormone the tissues cannot perform this essential function. As a result, the glucose content of the blood will increase and the urine, which should normally be free from glucose, will also contain significant amounts of this carbohydrate. To compensate for the lack of this function, there will be an increased breakdown of body proteins and fats. The decomposition products of fats (ketons) are formed in excess and these substances will appear in the Acids, causing a depletion of the alkaline reserve, eventually increasing the acidity of the blood. This acidosis gives rise to vomiting. All the above changes bring about a reduction in the circulating blood volume, decreasing the flow of blood through the muscles and kidneys. The cumulative effects of all these changes is manifested by 'Coma' which is known as the diabetic Coma.

Let us examine the possible causes of this deficiency of Insulin. This may be due to

- (1) Hereditary deficiency of the beta cells of the pancreas, the Insulin generating cells.

- (2) Destruction or inhibition of beta cells by toxic agents like All-oxan, the administration of which has recently been shown to produce diabetes in normal animals.

- (3) Exhaustion of the activity of these cells on account of excessive demand for Insulin (cause of the diabetes of obesity), and

- (4) Lack of certain chemical substances like glutathione which are necessary for the building up of Insulin in the body.

The rate of utilization of sugars by the tissues of the body is the net result of acceleration by Insulin and depression by other hormones of the anterior pituitary, adrenal cortex and thyroid glands, which are known to produce

a diabetogenic effect. The abnormal metabolic state known as 'Diabetes Mellitus' may, therefore, be an imbalance between pancreas on the one hand and the afore-said three other glands, producing an absolute or relative deficiency of Insulin.

Detection of Diabetes

There is no reliable method for the accurate determination of Insulin in the blood and hence the deficiency of Insulin cannot be directly ascertained. Diabetes Mellitus in a subject is recognised by its manifestations rather than by its causes. The impairment of carbohydrate metabolism is reflected by an increase in the glucose concentration of blood and by the appearance of glucose in the urine. The normal fasting blood-sugar level varies between 80 and 120 mgs. per 100cc. Diabetes may exist in spite of normal post-absorptive blood-sugar level and conversely diabetes may be absent in some cases with a high blood-sugar content. The mildly diabetic patient with a low carbohydrate meal or a diabetic individual who takes excessive exercise may have a normal blood-sugar level. In liver diseases, where the peripheral utilization of glucose is normal but glycogen storage may be markedly impaired, high blood-sugar concentration is noticed, although there may be no diabetes. A number of other conditions such as infections, recent injuries, increased thyroid activity, and certain adrenal and pituitary tumors may increase the blood-sugar level. Accurate diagnosis of diabetes cannot be made from routine urine analysis alone, because the presence of sugar may be of renal origin, (low renal threshold for glucose which is common during pregnancy). Many diabetic persons have no symptoms and sugar may appear in the urine occasionally. However, in all cases where a positive urine test has been obtained, a fasting (12 to 14 hours) blood-sugar determination should be made and if this is normal a glucose tolerance test should be carried out to determine the nature of glycosuria. This test is briefly as follows: After fasting for a period of 12 to 14 hours, the

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patient is given orally a dose of glucose (15 grams per Kilogram body weight) and the blood-sugar is estimated at intervals of one hour for 3 to 4 hours. The peak blood glucose level in a normal person rarely exceeds 170 mgs. per 100 c.c. and it should return to normal range of fasting values between the second and third hours. In diabetic individuals, the peak is higher and is attained later than the first hour and the return to normal is delayed. In case of liver diseases, abnormal responses not due to diabetes may be obtained. In cases of persons who show clinical evidence of liver disease, another test called the 'glucose-phosphorous tolerance test', is performed. This will aid in the differential diagnosis.

Management of Diabetic patients

There are various methods of approach in the treatment of diabetes. It is believed by some that every effort should be made to maintain the Blood-sugar concentration as nearly normal as possible. This exposes the patient to the dangers of hypoglycemia and he will be continually conscious of disability. There is a psychological disadvantage of subjugation of a normal way of life. It is also almost impossible to maintain the ideal physiological state, particularly in patients with severe diabetes. Another approach is to allow the patient to have a free regime so long as they are given sufficient Insulin to prevent symptoms of ketosis and weight loss. The progress of these patients is quite good although there is hyperglycemia and glycosuria. This is called clinical control and the former method is called chemical control.

Between the two extremes of chemical and clinical control, there is a compromise method of treatment without attempting to impose a strict regime.

There are a number of factors that influence the management of the diabetic patient. These include the patient's ability to co-operate with the selected schedule, his age, severity of the diabetes and the presence of other diseases. If the patient is co-operative and feels happy to regulate his activities to conform with the requirements of close chemical control, the physician should gladly use the rigorous chemical control method. The physician should also yield gracefully to those patients who are unable to follow the strict schedule of chemical control.

If the diabetes is mild, regulation by diet alone is adequate. In moderate cases, the diabetes can be controlled by diet and the use

of less than 40 units of Insulin daily. The severe diabetic patients require over 40 units of Insulin daily. In some severe cases, any combination of Insulin and diet will not control the blood-sugar and glycosuria and such cases must be managed clinically.

Age is an important factor in determining the method of treatment. The prevalent rates of diabetes increase steadily with age to a maximum in the early seventies. A high blood-sugar level in the aged may not be necessarily due to true Diabetes Mellitus and attempts to treat only this high blood-sugar level may be injurious rather than helpful. There is little to be gained by chemical control. It probably suffices to maintain the diabetic elderly patient with only sufficient control to prevent ketosis, weight loss, and other symptoms without imposing a strict chemical control.

Obesity is a frequent characteristic of middle age. The treatment of diabetic patients at this age depends upon the habits of the individual. Prolonged obesity alone may cause defective carbohydrate metabolism in the middle aged. If a large quantity of carbohydrates are taken, excess of this is converted to fat. Insulin plays an important part in this conversion. The diversion of Insulin for the purpose of synthesis of fat from excess dietary carbohydrate may not spare sufficient Insulin for the purpose of glucose-oxidation or glycogen storage. The correction of obesity by temperate dietary habits markedly improve or even cure the mild type of diabetes in this age group. Insulin should not, as far as possible, be given to such persons unless ketosis occurs. Insulin should be definitely not given after the reduction of weight and amelioration of diabetes, since its appetite-stimulating properties may cause a return of the obesity and more severe diabetic state. In the case of the middle-age group of mild diabetic patients who are not overweight, they require no therapy whatsoever if the physician is convinced that hyperglycemia does not harm. There should be supervision to avoid gain in weight, infection and unexpected ketosis. Even the hyperglycemia can, in majority of cases, be controlled by diet. Insulin Therapy is indicated in the case of ketosis and in the case of those mild diabetic persons in whom the hyperglycemia cannot be controlled by diet alone.

We now come to the care of young diabetic persons which is known as juvenile diabetes. The management of these patients presents

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the greatest difficulties. Attempts to maintain a normal physiological state by a combination of best available dietary schemes and administration of Insulin preparations may not lead to success in all cases, because of poor co-operation or in the case of good co-operation because of imperfection in the dietary schemes and Insulin preparations. The physician must recognise the limitations and realise the inadvisability of over-treating these patients and making them miserable. In such refractory patients, the physician should adopt a compromise course of treating them to such an extent as to keep them free from ketosis, normal in weight and physical development. The more vigorous efforts usually meet with little success.

The complications specific for diabetes mellitus are diabetic acidosis and diabetic coma. The presence of acidosis indicates inadequate management of diabetes. This is always due to insufficient administration of Insulin. After recovery from acidosis or coma, the Insulin requirement for the prescribed diet must be freshly determined. This should be done at frequent intervals if necessary in order to prevent the adverse effects of excess of Insulin. In untreated, severely-diabetic individuals, there is high incidence of infectious diseases, due to non-specific lowering of resistance. The various infectious states associated with diabetes, should be treated with appropriate anti-biotic agents, after identification of the infecting organism. In the cases of associated heart trouble and any cerebral accident, the treatment of diabetes must be extremely cautious in order to avoid hyperglycemia. Enough control of the diabetic state should, however, be exercised to avoid ketosis. The safest practice in such cases is to use a short-acting Insulin in multiple daily doses.

Liver diseases are frequently mistaken for diabetes. The glucose-Phosphorus test coupled with hepatic-function tests, will decide whether the hyper-glycemia is due to diabetes or liver diseases. The treatment of liver disease demands a high protein and carbohydrate diet, despite the presence of diabetes. Comparatively larger amounts of Insulin must be given to cope with the dietary treatment of liver disease.

If glucose in the urine of pregnant women is suddenly discovered it must be determined that the reducing substance is glucose. It must also be ascertained that the glucose in the urine is not merely due to the lowering of the renal threshold. The severity of the

diabetes must be accurately evaluated. In many cases of mild diabetes during pregnancy the Hyper-glycemia and glycosuria disappear after delivery. Active therapy other than avoidance of excessive weight may be postponed. If, however, definitely severe diabetes is discovered during pregnancy, special management of the patient is indicated. It is possible to give a high protein diet with a relatively small proportion of carbohydrate with as strict as possible control of blood-sugar level. Furthermore, the pregnant diabetic patient should not gain in weight during gestation. Weight loss is permissible if she is already obese, otherwise the diet prescribed should be such as to maintain her optimal weight.

Insulin is definitely indicated in those diabetic patients who present the clinical manifestations of the disease or in those who exhibit ketosis in addition to glycosuria. The major question for the physician at present is how to use the various types of Insulin to suit his patient's habits and temperament to enable him to live a normal life. Although a number of types of Insulin preparations are available, none of them can produce the same effect as the natural Insulin in the body. The major differences between the various preparations are in intensity and duration of action. The action of ordinary Insulin appears within one hour after its subcutaneous injection and the activity lasts from three to six hours. After about eight to twelve hours the effect is completely lost. This form of Insulin should be given where rapid action is necessary as in cases of acidosis and coma, actual or potential. This can also be used with other forms of Insulin either separately or in mixtures for chemical control. In rare cases of unusual Insulin resistance, it may be necessary to give multiple doses of highly concentrated regular Insulin (200 to 500 units per c.c.) with caution to prevent hypoglycemic reactions.

Protomine-zinc Insulin is the most familiar long-acting Insulin preparation. Its action is observed within 4 to 8 hours and persists in a mild form for 24 to 32 hours. The time of administration of this form of Insulin depends upon the spacing of meals. After a long interval, such as between the evening meal and breakfast, the sensitivity of the patient to protomine-zinc-Insulin may be comparatively low. The action of the protamine-zinc-Insulin is more efficient at the time of the next meal (at noon). Peak efficiency occurs following the last meal (evening) so that there may not

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be any glycosuria in spite of the fact that this meal usually contains the largest quantity of food. The activity is often prolonged beyond the post-absorptive period of the evening meal. Hence, a small bed-time meal should be taken to prevent hypoglycemia. In severe diabetic patients, supplementary injections of regular Insulin in addition to protomane-zn-Insulin should be given. This supplementary injection of Insulin should be avoided wherever possible. A 2:1 mixture (2 parts of regular Insulin to 1 part of protomane-zinc-Insulin) is commonly used. This serves the same purpose as a preparation called Globin-Insulin, the action of which is demonstrable within 2 hours, reaching a peak in 8 to 12 hours and not persisting for more than 24 hours. It is therefore best indicated for control of glycosuria, following the mid-day meal and in most cases, will largely prevent glycosuria after the evening meal. Morning hypo-glycemic reactions are uncommon with this treatment. A new preparation called NPH-50 appears to offer great promise. This preparation is a neutral suspension of protamine and zinc Insulin crystals containing 0.5 mgs. protamine per 100 units of Insulin. The action of this is more rapid in onset and shorter in duration than that of protomane-zn-Insulin. The effect is observed within two hours after injection reaching its peak in 12 to 16 hours. This overlapping action may afford satisfactory control of fasting and post-absorptive blood-sugar concentration throughout the day provided the relatively strict dietary regimen is followed.

A new German preparation called 'Comb-Insulin' has been recently introduced. This appears to offer great promise. Its action is intermediate to Protamine-zn-Insulin and Globin-Insulin. It has the advantage of quick action as well as moderately prolonged action. Clinical experience on this is not yet sufficient for pronouncement of an authoritative opinion.

Physicians Problems

The physician's practical problems can be briefly stated as follows:

- (1) How to prescribe and adjust the diet if strict control is desired.
- (2) How to use the various types of Insulin as physiologically as possible

Partitioning of the diet is accomplished most satisfactorily by generally prescribing 1.25 gram of protein per kilogram body weight per day and 2.5 grams of carbohydrate per kilogram body weight per day and the remainder of the calculated calorific requirement as fat.

This partitioning should be suitably adjusted according to childhood, adolescence, pregnancy, infection and incidental diseases. The protein intake may be increased, the carbohydrate decreased and fat content reduced to compensate for the increased protein administration. Similarly, compensations must be made in those situations requiring unusually high carbohydrate intake. 20 per cent of the carbohydrate may be taken at breakfast, 30 per cent at lunch, 40 per cent at the evening meal and 10 per cent at bedtime, if a long acting Insulin is being used. If short-acting or intermediate Insulins are used, the bed-time meal is unnecessary and equal amounts of carbohydrate can be taken in all the three meals. The distribution of protein and fat may vary quite widely.

In all the diabetic patients, some degree of regulation of diet is necessary. This is to bring the patient's body weight to an optimal level or to maintain it. It is easy to control the blood-sugar with a slight under-nutrition required to maintain a diabetic individual slightly below average weight for his height and age. In less severe diabetic patients, the strictest dietary regimen is necessary if injection of Insulin is to be avoided. If these patients are given liberal diet and Insulin, the blood-sugar is controlled, but they are apt to gain weight and the diabetes is likely to become more severe. Therefore, in this group, Insulin is not only unnecessary but also undesirable. But close contact with the patient is necessary in order to avoid aggravation of the diabetic condition and to prevent unexpected ketosis which may be precipitated by infection or injury.

The origin, causes, detection, management and treatment of 'Diabetes Mellitus' is discussed in the light of modern scientific knowledge and experience. The fallacies of many popular notions have been pointed out. The merits and demerits of the various schools of thought on the management of diabetes have been discussed. It is often very difficult for an unbiased practitioner to make a selection of a particular method of treatment. 'The best medical practitioner is one that considers the entire patient and his environment rather than only the pathological state that he may present to the physician.' This is particularly true of 'Diabetes Mellitus'. It is apparent from the foregoing presentation that the successful control of diabetes depends upon the proper management of the patient rather than the disease alone.

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Towards a Population Policy*

Dr. C. Chandrasekaran, Director,
U.N.O. for Population Studies, New Delhi

THE economic consequences of population pressure in India were brought sharply into focus by the partition which accompanied independence. Not only is the Pakistan area less densely populated than the Indian Union, but it includes a relatively higher proportion of the irrigated land of undivided India: West Punjab and Sind, now part of Pakistan, have long produced a surplus food grains which has helped balance the scarcity areas of the rest of India. With the loss of that surplus and the influx of a large number of refugees, chiefly concentrated in urban areas, the problem of food sufficiency took first priority in independent India. In recent years an average of 3 million tons of food grains have been imported annually. The cost of these purchases has cut into the money available for education, health services and other nation building activities. Dislocations resulting from the war have necessitated the purchase of large quantities of that grain from hard currency areas, increasing the strain on the Indian Union's resources. This has meant that foreign exchange which otherwise could have been invested in capital goods to further industrial development has had to be spent to feed the growing population.

Under the impact of this situation Indian leaders have moved to an increasingly realistic appraisal of the two-fold factors involved. **Increased food production** is being sought by large-scale irrigation projects and by agricultural extension programmes for improving the farming methods of the individual kisan. **Control of population growth** has been made the subject of governmental study at a number of levels. Pandit Jawaharlal Nehru said in a message to the Third International Conference on Planned Parenthood, held in Bombay: "I do not think our social and economic prob-

lems can be solved until the population problem is tackled."

An early step in tackling that problem was the population inventory provided by the 1951 Census. Though this was the eighth decennial census, it was the first to be undertaken by an Indian Census Commissioner. The Census obtained data on most of the subjects recommended by the United Nations Population Commission at its third session to facilitate international comparisons. It also introduced many new features aimed at a proper appreciation of the economic and employment characteristics of the population. One of these was the attempt to classify the population into eight livelihood classes, developed with special reference to the essentially agricultural economy of Indian Union. Another unique feature was the institution of a careful check of the accuracy of data obtained by a re-enumeration of the population in sample households.

According to the 1951 Census, the population of the Indian Union was 356.8 millions, constituting about one-seventh of the world's total population. More significant than the present numbers is the rate at which India's population is now increasing and the staggering size it may attain in a not distant future. In the last census decade the population has increased by 13.3 per cent: in the two preceding decades the increase was 14.3 per cent (1931-1941) and 11.0 per cent (1921-31). Growing public health activity and the application of modern medical practices in these 30 years have gone a long way to reduce the mortality rates. On the other hand, the incitements to high fertility characteristic of Indian culture have been left relatively untouched. The widening gap between the level of the birth and death rates has been responsible for the acceleration of the rate of growth of Indian population. With

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further possibilities of decline in death rate even a 20 per cent increase per decade can be expected. At that rate, India's population would double itself in 35 years.

A detailed appreciation of the population problem, on which a rational effort at its solution can be based, calls for more data on the basic facts of human growth than those provided by the decennial census. Here is need to understand the factors contributing to persistent high fertility and the changes which social and economic developments cause in attitudes and motivations affecting family size. Methods by which family planning may be popularized have also to be worked out. It is with these objectives in mind that the Government of India have in recent years undertaken two pioneer studies in co-operation with the United Nations and the World Health Organization.

The first of these is a study, conducted in the Mysore State, of inter-relationships between economic, social and population changes. The State was divided into a number of zones and subzones typifying various economic and social cross-sections of the population. About 10,000 households were selected from villages and towns and from Bangalore, the largest city in the State. Detailed data have been obtained on economic, social and population characteristics of the member of these households. This study will reveal, for various population groups, differences in the rates of growth as affected by such factors as urbanization, occupation, religion, caste, etc. The study will also show the extent to which public health measures, particularly the large-scale anti-malarial operations carried out in the State in co-operation with the World Health Organization, have led to an acceleration in the growth of the population.

The other study is an effort to assess the acceptability and effectiveness of the 'Rhythm' method of family planning. This method is based on the biological principle that a woman is liable to conception only during a specific period between successive menstruations and that avoidance of sex life during that period would prevent pregnancy. Three such projects have been initiated. One is in progress among the rural population of the Ramanagaram Health Unit in Mysore State. Another has been undertaken in Lodi Colony in New Delhi, which houses junior civil servants. The third is being conducted among the in-patients and employees of Lady Hardinge Hospital, New Delhi. Should the study show the 'Rhythm' method to be acceptable and effective, this

method may prove very valuable because of its consonance with Indian culture.

The latest step in the development of a population policy is the comprehensive programme of family planning which has been recently adopted by the Government of India in the First Five Year Plan. The Plan emphasises that the need for family planning is essentially based on considerations of the health and welfare of the family, and that family limitation and the spacing of children are necessary and desirable in order to secure better health for mothers and better care and upbringing for children. The Plan, therefore, assumes, that family planning should form an integral part of public health activity. A sum of 65 lakhs of rupees has been allocated for social and technical research in family planning and the provision of limited services during the five year period from 1952 to 1957.

Thus independent India is tackling her population problem by taking into account not only national necessities but also individual welfare. While the population problem is but one of the many which face India in her huge task of social and economic reconstruction, the use of social science techniques is pointing the way to solutions that are in keeping with India's cultural aspirations.



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A Long Way !

"A DROP OF INK" said Confucious, can make many think."

Who does not know it? If the drop of ink happens, by any chance, to decorate the Monday shirt, it may not only make you think, but think furiously and explosively.

But, Confucious certainly could not have anything so mundane on his mind when he expounded that epigram. He must have meant a drop of ink at the right place and at the right time. And, possibly, from the right pen too.

With so many things right, the little drop would have no earthly chance of going wrong. No, not even if the spiller of the ink was one from the Left. But, the choice of the time and the place is very important.

This inspires me to re-tell a tale.

Judas was on his way to betray Christ at the Last Supper. It was a biting cold day. On his way, Judas met a leper asking for alms. It could be taken for granted that he was not exactly overflowing with charity at that particular moment. But Judas, on an impulse,—conspiracy of right place and right time—took off his jacket, threw it to the leper and hastened to keep his appointment of putting Christ on the cross. Yet, so runs the story, "that little germ of kindness was caught in the womb of mercy" and earned Judas respite of a day in a year—and of all days, it was the Christmas Day—throughout his tenancy of burning Hell.

What an insurance that little act was! He sowed so little, and reaped so much. He dropped a jacket, and jumped Hell for a day.

Yes, drops, whether ink drops or dew drops and even eavesdropping, are not to be discounted or despised. Little drops, says the poet, make the oceans. Dew drops make the poets more poetic. And eavesdropping, as

everyone knows, is so entertaining. I know myself what huge funds are roped in by the Insurance Companies through dribblets of premia paid by so many persons.

Really, I don't know why I am not being able to drop insurance while I am talking about drops. For Judas, it was insurance and the last illustration too was of insurance. It keeps coming back. But, why? Insurance, to my knowledge, has nothing to do with a drop of ink which can make many think. But insurance admits of a similar epigram, because insurance is an instrument for making a little money go a long way.

Please don't jump out of your skin. Promise of a little money going a long way is a sure enough provocation for doing more serious things than mere skipping out of the skin. If only it were true, there would be no more unbalanced family budgets, and no more deficit financing to be done by the Finance Minister. Even I, with all my personal interest, could not make such a preposterous claim for insurance. But it does make a little money go a long way—at the right time and at the right place.

To be honest—there is little harm in making a light-hearted attempt at such a noble thing—insurance is really the art of making a little money go a long way. If you are a policyholder by any chance, you need not be told how artistically and artfully you and your money are being parted with. You may not feel the present pain in the promise of pleasures to come, but you really do pay a little money over a long way. You pay a little, but generally over years and years and sometimes over the entire length of a life-time. Does not it go a long way?

But, there again, it depends on the way you look at the way. Now, you take a drink out of a glass and what do you find? An half- •

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G. T., MADRAS

empty glass or a half-full one? It depends. On what? On how you see your little money go a long way and on your attitude towards insurance.

• Life is length; only none knows how short that length may be. That makes it a ticklish journey. It may be a marathon or it may be a sprint to make you gay or gloomy. And when you are caught in this uncertainty, you do not really know if you are half full or half empty. It is in this state of the body and this frame of the mind that you need a pick-me-up. Whisky and soda, burra or chota, as you please. But that would be only throwing good money down the drain, I mean your gullet.

The best half-full tonic is to make a little investment intended to go a long way. That would cover the unknown with the knowledge that that little investment automatically places you in the happy position of "Heads you lose, Tails I win." If you last the distance and break the tape, you collect your winnings. If you fall by the way side, the winnings are still there for those you leave behind. That gives you the supreme "Half-full" outlook and gears you up to run the race according to the rules without caring a brass bob for the result. That's what makes insurance the ideal instru-

ment for making a little money go a long way. The present debit is in fact so small. But the future delight is so big.

Boswell is once reported to have asked Dr. Johnson how he managed to browbeat his contemporaries so successfully. Dr. Johnson's reply was characteristic of the man. "They have what I have, possibly they have more than I have, probably I have not what they have, reasonably they are not more foolish than I am, may be they are less intelligent. But certainly I have more confidence than what the whole crowd together can collect," said Dr. Johnson, and then added deliberately, "Confidence, Boswell! Confidence in myself." Shorn of the pompous phraseology, it means that confidence can carry a man to conquests.

It is not possible for an ordinary individual to have an abundance of that commodity, particularly in respect of the unexpired span of life. But insurance does inject some confidence in the mind in that regard. The sense of security it brings puts more buoyancy in your steps. So really you walk with more sprightly steps and travel, if not longer, certainly with a lighter heart.

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The Story of our Drinking Water

Dr. T. R. BHASKARAN

IT is the habit of the people of Calcutta like that of any other large city in the world to take for granted the every day amenities that make life worth living. The people cannot be blamed for this, for in these days of competition and speed it is not easy to pause and brood over what appears to be a simple matter. It is only when a major breakdown occurs and normal life is upset, people sit back to think about them. This, however, is purely a temporary phase. When the situation gets back to normal, all is forgotten. An example of this kind of apparent indifference is the water supply of any big city. The processes involved in converting the river water into a potable supply, the ceaseless vigilance of an army of workers entrusted with the maintenance and the degree of precision to be attained form an absorbing story of which many are in the dark.

Water is one of the prime necessities of all life. The importance of good water has been appreciated from very early times but it is only within the last few decades that science has been able to perfect methods to provide and ensure an abundant supply of safe water to the people. Big cities require large amounts of water and this can be obtained only from large rivers or lakes. Water from these sources contains impurities which may sometimes include dangerous germs that cause cholera, typhoid or dysentery. Modern science has done a great deal in rendering these waters safe and palatable and thereby safeguarding the health and comfort of nations.

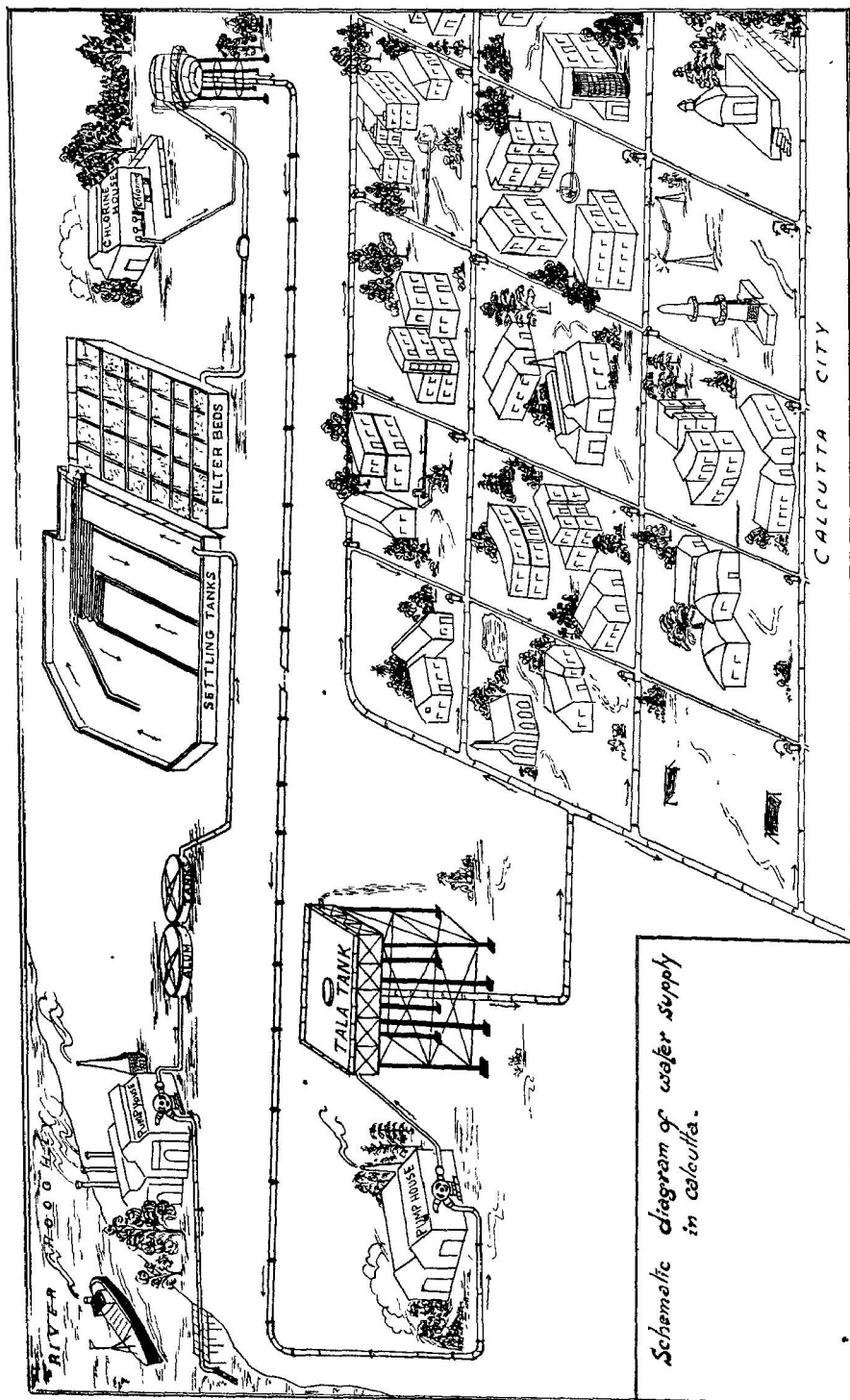
Water is taken from the Hooghly river and is purified at the Corporation Works at Palta 13 miles north of Calcutta. The water works extends over an area of one square mile and a half. This site was originally chosen for tapping water from the river in order to avoid the high salt content and impurities in the lower reaches of the river. The river water is very turbid and impure and contains larger number of bacteria.

The water is first pumped into a number of settling tanks. There are ten small settling tanks holding about 100 million gallons of water and one big settling tank of 200 million gallon capacity. These tanks are so designed and provided with baffles (partition walls) down to the bottom of the tank and the turbid water makes a long journey as it flows from one tank to another and finally leaves the settling tank. On an average it takes 3 to 4 days for the water to pass through the settling tanks. During this journey most of

the suspended mud and other impurities settle down to the bottom of the tank and the turbid Hooghly water becomes somewhat clear as it leaves the settling tanks. The river water in the rainy months, becomes much too muddy to effect removal of the suspended impurities to the desired extent, by mere passage through the settling tanks. Alum is therefore added in small doses of the order of few grains per gallon of water before it starts its journey through the settling tanks.

The alum forms minute sponge like precipitates that attract and absorb the finer particles of mud and other impurities from the water. As more and more of the finer particles get absorbed the precipitates become larger and heavier and finally settle down to the bottom. Thus addition of alum helps the settling of the finer mud particles and impurities. Alum is added only whenever it is necessary. The process of removal of suspended impurities in water by addition of alum and settling is known as coagulation and sedimentation.

The water after sedimentation and coagulation flows through weirs into a channel from where it is led through iron pipes to the filter beds. There are 59 filter beds in the works. Each filter is a rectangular tank 6 feet deep with pucca flooring and sides ranging from 100 to 300 feet. Two layers of brick are placed at the bottom and over this a 6 inch layer of gravel is placed. Two or three feet of good clean sand of proper specifications is placed on the top of the gravel. Water from the final settling tank is let into these filter units at a convenient rate so that one and half foot column of water is maintained on top of the sand. The water gradually filters through the sand at a rate of three gallons per square foot per hour and the clear water that collected at the bottom flows through pipes to the central collecting wells. When the filter is worked for sometime the top layer of sand gets choked and the rate of filtration is appreciably reduced. Whenever this happens all water is drained out of the filter and the top layer of sand is scraped to a depth of $\frac{1}{2}$ inch and the scrapings are removed before the filter is used again. When the sand bed becomes very thin by repeated scraping, the filter is replenished.



by putting in more of the clean sand. The passage of water through the filter beds is known as filtration.

Filtration removes most of the germs but there is no surety of their total elimination. Even if a few germs are let off in the water they may cause disease in people who consume the water. The water from the filters that collects in the central well is, therefore, treated with small doses of chlorine before it is distributed to the city. Chlorine is one of the most useful materials in modern water purification. It is cheap and in doses of the order of one part of chlorine to a million parts of water is able to kill all germs in water within a few minutes. Even if a little excess is put in the water it does not do any harm to the people who drink this water. The addition of chlorine to water is called chlorination. After chlorination, the water is ready for distribution to the city.

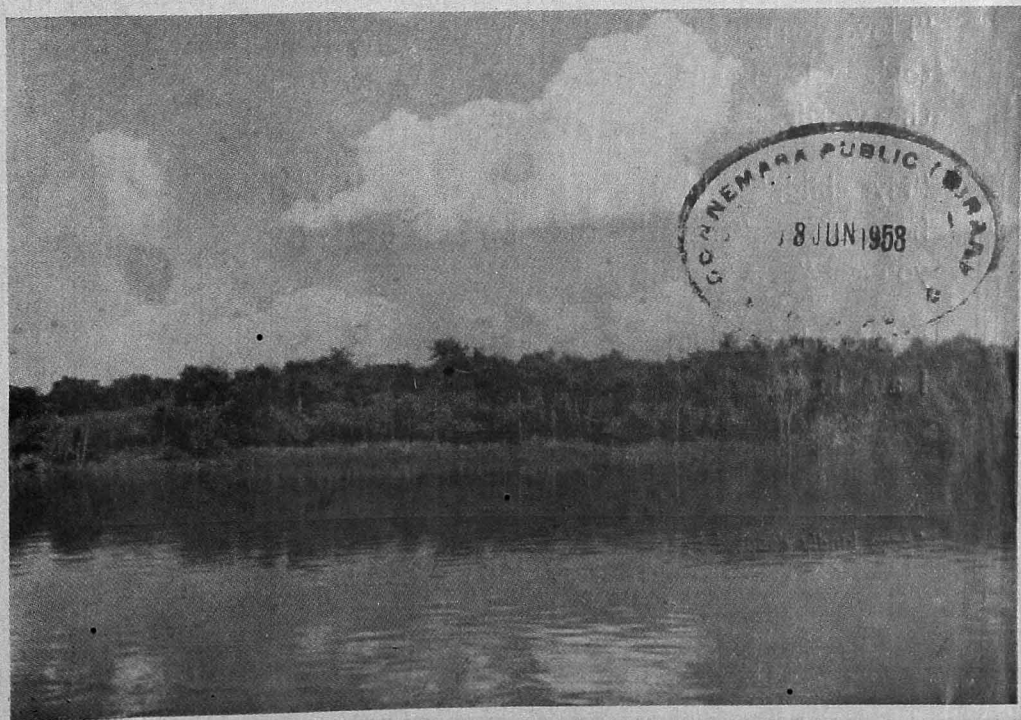
There is a well equipped laboratory at the works in Palta with qualified Bacteriologist, Chemist and Biologist. They keep a careful watch on the quality of water at various stages of treatment, prescribe the proper doses of alum and chlorine and other remedial measures for the efficient operation of the purification

processes. A good laboratory is essential for efficient water purification.

After chlorination the water is sent through big pipes 4 to 5 feet in diameter to a place called Tallah where it is stored in reservoirs. There is also one elevated reservoir at Tallah at a height of 100 feet above the ground and holding 9 million gallons of water. From Tallah the water is distributed to different parts of the city through a net work of pipes. Over 500 miles of water pipes take the purified water to different parts of the city.

A check on the safety of the water supplied in the city is maintained by systematic sampling of water throughout the year from taps located at different parts of the city and examining them for their purity at the Central Laboratory of the Corporation. Nearly 500 samples are examined every month in this connection.

Over 90 million gallons of water are treated and supplied to the city every day. The water that comes into the works from the river is muddy and highly impure containing in some months as many as a million bacteria in a tumbler of water. The water that goes out into the city after treatment is clear, sparkling, palatable and free from any disease germs.



You Get As You Give

High up in the Rockies there lived a small boy, and his mother. One day, after he had been punished severely, the lad ran to the edge of a precipice and shouted back at his mother, "I hate you: I hate you!" Across the ravine came the echo: "I hate you! I hate you!"

Thoroughly frightened, the boy ran back to his mother, and sobbed: "Who is that bad man over there who shouted, 'I hate you'?"

Taking the boy's hand, the mother led him back to the edge of the precipice. "Now, sonny," she said, "call out, 'I love you! I love you!'" The little boy did as he was told. Clearly and sweetly the echo came, repeating the words.

"My child," said the mother, taking the child into her arms, "that is the law of life—what you give, you get."

★ O Lord, teach me to be as interested in "giving" as I am in "getting".

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Smt. Indrani Rahman, daughter of Smt. Ragini Devi, well-known Danseuse.
Smt. Indrani was crowned Miss India in 1952.

A LANGUAGE

Natyakala Bhushanam
: INDRANI

*Indian Institute
of Fine Arts,
Madras.*

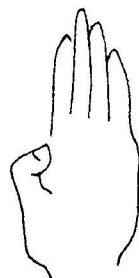
OF THE HANDS

BETWEEN the Eastern and Western styles of classical dancing is an easily perceived and distinctive difference. the use and forms of the hands and fingers. In Western ballet, hands move and bend gracefully in harmony with all the limbs composing abstract dance patterns interpreting the music and theme of the ballet. But the hands by themselves do not denote any specific objects or meanings, this is done by the entire body as a whole. The novice to Western ballet finds it difficult to follow the underlying theme of the dance through its movements, especially as European symphonic music is not accompanied by words of song. In comparison, throughout far-eastern countries, hands are used in a complex system of gesture language with corresponding facial expressions interpreting the songs accompanying the dance. The Eastern dancer creates realistic drama through the subtle uses of limbs, emotion, facial expression, eyes, and hands.

The classical dance of India had long been a highly developed art when Bharata Muni wrote his famous treatise on the subject 1500 (fifteen-hundred) years ago: The 'Natyashastra'. In this book are recorded the single and combined hand gestures rendered in the dance and their meanings. Since the time of the 'Natyashastra' the dance has taken various forms in different parts of the country and great Gurus have created many additional gesture combinations. But that form most closely following the dictates of the Shastra is the 'Bharata Natyam' of Tanjore in South India. Through 'Bharata Natyam, numerous imaginative and beautiful gestures have been

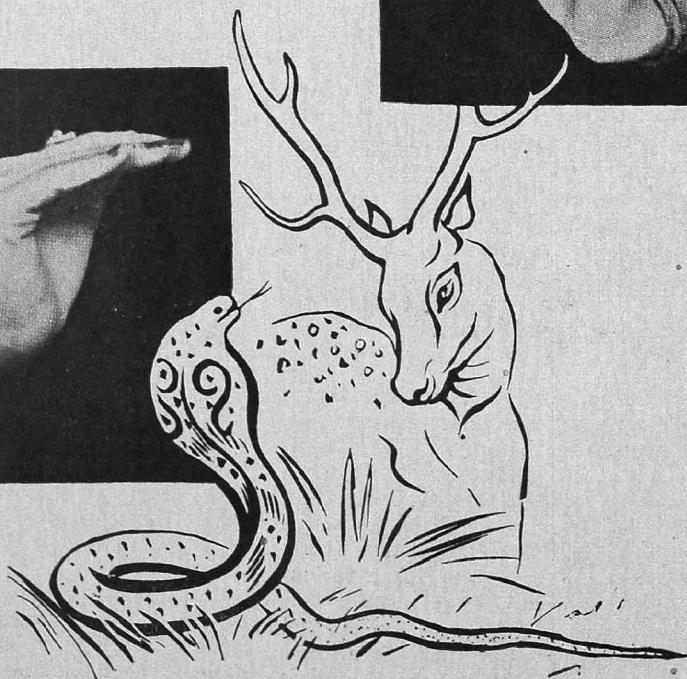
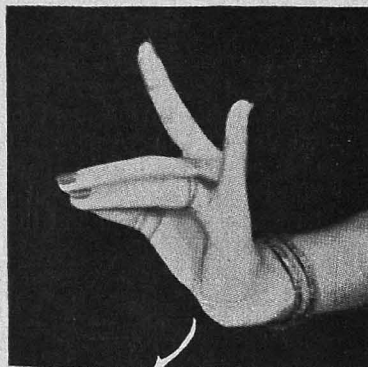
added, from generation to generation since ancient times, to the basic hands listed in the Shastra.

There are 28 single (asamyutta) hands (hastas) They form the alphabet with which a wonderful gesture language will evolve. Each hand is said to have originated from one of the Gods and the incident relating to the birth of the particular hand is described. For example



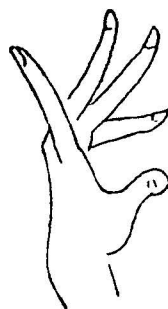
1. **Pataka** (flag hand) "It is the first of all the hands and originates from Brahma. When Brahma went to Parabrahma, he saluted him with the cry of Victory holding his hand like a flag. So since then it has been called "flag hand".

It is interesting to note that this same hand was used for salutation in the days of the Romans and more recently by the Nazis. Though called the flag-hand, the Pataka hand can denote many different meanings, depending on the way in which it is used and this is so of all the hands.





2. **Ardha Chandra** (half moon) "This hand originates from the desire of Shiva for ornaments, one of which is the half moon entwined in his hair.



5. **Ala-Padma** (full blown lotus) Originates from Sri Krishna when he was stealing butter and milk.



3. **Padmakosa** (lotus bud) "...the hand is like a perfect white lotus. Narayana used this hand when worshipping Shiva with lotus flowers to obtain the discus".

Padmakosa is a commonly used hasta among Hindu women while performing their puja.



4. **Mriga Sirsa** (deer head) It springs from Gauri who used this hand to draw three lines on her forehead when practising tapas for the sake of Siva.

This same hand is used among Shaivites to place their mark on their heads.

There are a large number of combined hands (samyutta hastani). These are in some instances with both hands in the same hasta or with each hand in a different one. Vast differences in the same combination of hands are again expressed in entirely new varieties of movements and placings depicting further meanings. ANJALI, or salutation a simple example of samyutta hastani, with both hands in PATAKA hasta, palms placed together. It is our everyday "Namaskar" greeting.

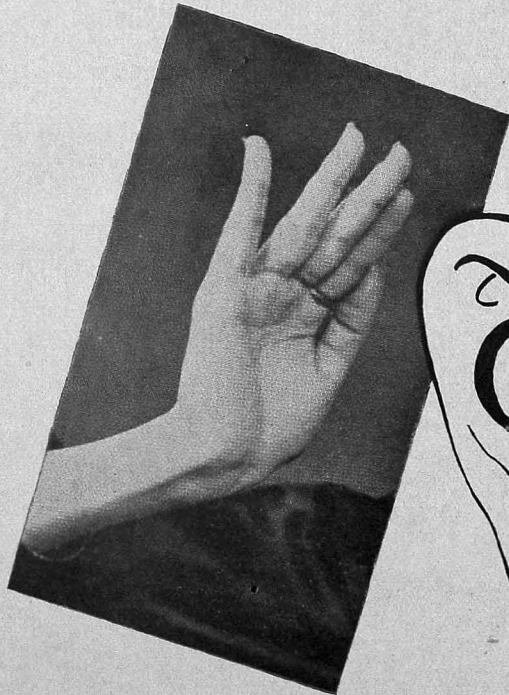
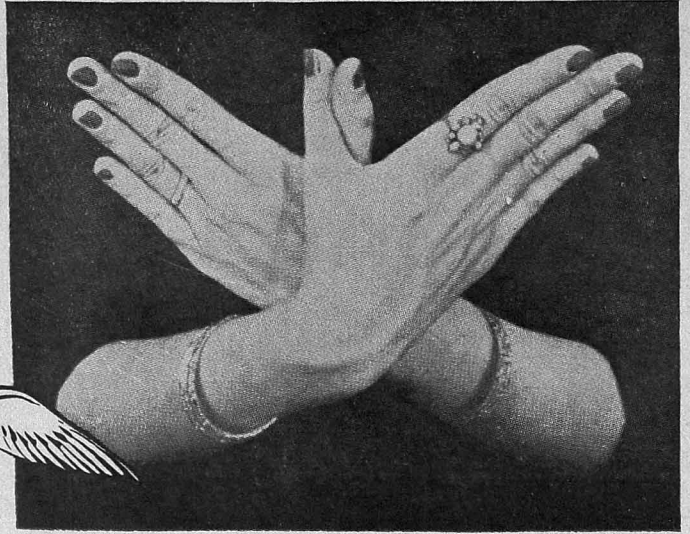
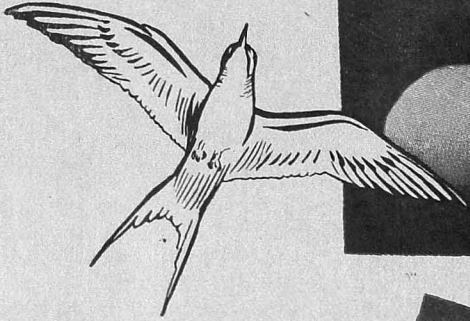
*Another example is the GARUDA (eagle) hand with two ARDHA-CHANDRA hands combined to form the wings and body of an eagle.

"The illustrated SHANKA (conch) hand shows a combining of two different hands.

Also are illustrated several single hands the snake, a modern Gurus version of deer and the gesture for listening, placed near the ear. Of course, in all instances the corresponding expression must be given.

In ancient Indian sculptures and murals the vast majority of the figures are, whether dancing or not, posing with hand gestures. A knowledge of the hand gestures will quickly reveal the subjects' identity.





THE RHYTHM OF ASIAN DANCE

"ORREN"

ASIA is the oldest centre of civilisation. Learning, culture, art, in fact in every sphere, Asia was regarded as the centre of learning. We have been carrying on with this culture thro' ages in our religious shastras, in our art, and in fine arts and in our moral aptitudes. The whole of Asia is entitled to this great heritage. We may mark a bit of difference in culture in its external play, but in the bottom, there is a great link with the spirit and therefore, it offers the same inspiration in all countries in all ages. So, whether in music or in dance, or in the artistic habits, very close unity has tied up all the countries. If we understand this close unity, then we cannot for a time think that this one is a Burmese or Indian nor would we feel that a Chinese is different from that of the Balinese. They are different families living together in a comparatively larger human society. There have been changes in the appearances and languages according to place and time but, essentially, they belong to the same society whose religion is being sung out of the lofty strain of the theme of life. The Bharatha Natyam of the Deccan which came to North India in Muslim rule, was practised by the female dancers of the Muslim court and underwent changes according to the taste and culture of the period and came to be known as "Baiji Dance".

We know what is music and dance. But it would be interesting to know how dance came into existence. Prajapati Brahma gave out instructions regarding dancing to the Gods. But, they given to luxury, paid no heed to his instructions. So, he instructed Bharatha Muni along with his hundred sons and also the Apsaras who were his mental creation. They on their turn gave a display of dancing in the Court of Lord Shiva. Shiva was exceedingly glad and then desired to bring about further

development to this practice of dancing. He gave instructions to Nandikeswara regarding Tandava Dance and Mother Parvati instructed Usha, daughter of Bana, regarding 'Lasya', Dance. Thus, dancing was first inaugurated on Earth in Sourashtra. Gradually, it extended far and wide and upto the present day. Bharatha Natyam is still as popular as ever in maintaining the pure character of the dance as described in the shastras. It is said that Bharatha Shastra as taught by Lord Shiva to Devi is divided into four kinds viz., Thandava, Lasya, Lasya Thandava and Thandava Lasya. This type of Dance is prevalent in Tanjore in the Deccan, as it is chiefly the dance of Deva-dasis or temple girls, the Deva-dasi dance prevails in the Deccan from very ancient times. There is another kind of dance, the Kathakali dance, which is equally popular. The Kathakali Dance is usually held in open spaces under the blue sky of the Malabar coast grown up with cocoanut trees. This dance is really the dance of the village people and is offered to the gods, its theme being based on the Ramayana and the Mahabharata.

In North India, we get Kathak dance, Manipuri Dance, Folk dance, Rajya-Bishek dance, Gujarati garba dance, Bhil and Santal dance etc and these are all Indian dances. Apart from these, types of dances of other countries of Asia with which we are more familiar are poey dance of Burma, the Javanese dance, dance of the South Sea Islands, Kambodian dance etc.

All these dances have distinctive ideas and modes of expression, Through these, we may acquaint ourselves with the education, culture, and ways of living of those countries. Dance in fact is the exposition of the heart thro' the



KUMARI KAMALA
in a typical pose in the piece on Sabdam.

medium of the body. Every idea which springs up in our minds has a continuous expansion which assumes its shape within the heart. What dance aims at is to express these ideas in an artistic way. So, in the case of a display of a dance-drama, we do not hear any words said. In collaboration with instrumental music, the dance expresses before us the underlying thought and touches our very hearts.

Among the sixty-four arts, the art of Dancing holds an honoured place and among the different varieties of dancing, Bharatha Natyam ranks high and is easily the best of all classical dances. Shiva, Parvathi, Nandhikeswara, Mahavishnu, Brahma, Vinayaka, Subramanya, Narada, Thathilar, Kokasa, Yagnavalkya, Indra, Ravanaeswara, Arjuna, Usha Devi, and Bharatha Muni are said to be the traditional exponents of this great Art.

Bharatha Natyam largely prevalent in Tanjore, South India has a distinct style with a richness, intricate variety of expression and symbolism not found in any of the other Indian schools of dancing. But in all the classical dances of India, the fundamental symbolism can always be traced to the great tradition that has been handed down by Bharatha. Thus, when one examines the Abhinaya (expression), and Mudra (language of gesture) which creates the proper sentiments of Rasas called Shanta (peaceful), Shringara (erotic), Rudra (furious), Veera (heroic) Hasya (comic) and Karuna (pathetic), it will be found that some of these are common to all the schools. The heroic and the furious dominate the 'Thanday' type of dance like 'Kathak', while the erotic and the quiet notes constitute the 'Lasya' type of dance like 'Bharatha Natya'. The latter is essentially soft and feminine in its expression of beauty and grace. In this style, the motions of the body of the dancer have to accord with a definite rhythm and a consciously prepared grammar of steps and gestures pressed into the service of a chosen theme. Though it followed strictly the Natya Shastra of Bharat Muni, it is even claimed that the origin of this dance is older in South India. "Silappathikaram", one of the oldest and earliest Tamil books which is reckoned to be as old as the Christian era, categorised and highly stylised in one of its chapters the heroine Madhavi, a dancing girl, describes how

she spent more than five years to learn the art of dance, because without it, education would not be complete.

Another fundamental characteristics of Bharatha Natyam is its close association with the Karnatak music, with its 'Pallavi', Anupallavi', and 'Charanam', its 'Jathis', 'Talas', 'Ragas', and 'Ragamalikas'. Dance and Music are inseparable. Bharatha Natya has two types of dances—Nritya or pure dance and Abhinaya or the art of gesture or representation. The balance between Nritya and Abhinaya is noteworthy since Abhinaya imparts light and colour to the swing and sway of the expressive movements of the beautiful body, where the former alone would otherwise be simply mechanised foot work. The name Bharatha Natyam owes its origin to Bhava, Rag, Tala and the first syllable of the three constitutes Bharatha Natyam. These three syllables are called Pranava Vitharam, and Gods Brahma, Vishnu, and Shiva are the original exponents.

There is not saint or savant or songster in South India who has not written about Nataraja, the God of Dance. Thus Bharatha Natyam has not only a vast reservoir of literary materials but has also materials in the towers of Chidambaram, the temple of Madura and frescoes of Tanjore, in the Sculptures of Ajanta, Ellora and the temple of Konarak on which it freely draws. No other school is heir to such dance wealth. Moreover it is the peculiar good fortune of Bharatha Natyam that it has a long succession of composers like Thyagaraja, Dikshitar, Arunachalam, Ponniah Pillai, Vazhuvoor Sami Nattuvanar, Gopalakrishna Bharathi, Subramanya Bhrathi, and these famous composers have enabled Bharatha Natyam to become the vehicle of not only the romantic genre but also feelings of patriotism, philosophy and national pride.

About 150 years back, the vidwans in Bharatha Natyam in Tanjore District assembled together and drew out regulation that are customarily followed in the performance of Bharatha Natyam. It starts with Alarippu, Jatiswaram, Sabdam, Varnam, Padam, and concluded with Thillana. This method is now prevalent in all the performances. Bharatha Natyam is faced today with keen opposition from other inferior varieties of the dance arts now prevalent in the country like the dancing



KUMARI KAMALA
as "Village Belle."

popular in cinemas and other mixed varieties. Meaningless dances against play-back music in cinemas, totally in appropriate to the trend of the story, have been mainly responsible for the decay of real dancing. Nowadays a preference has grown for dancers who have attained celebrity in the screen. The artistes who are really the greatest exponents of the dance arts like Bharatha Natyam in the pure orthodox style are not favoured so much these days. Sm. Shanta Rao and Sm. Indrani belong to the orthodox school of thought. My own experience with these exponents of Bharatha Natyam has been their flat refusal to introduce any new ideas to suit the modern or present-day tastes. Other finest exponents like Kumaris Kamala, and Vijayanthimala, and others have however brought about a welcome change in the method of presentation to suit modern temperament.

Kumari Kamala is accredited by all discerning critics as the greatest exponent of Bharatha Natyam. She is reputed as the best disciple of Natakala Kesari Vazhuvoor B. Ramaiah Pillai, who belongs to a family of traditional teachers of the art, and Ramaiah Pillai without

changing the traditional and basic theories has given to the public of India some classical exponents who were moulded into perfect artists under his able guidance. Among others are Kumaris Hema Malini, Komala, Saroja and others.

So, in the exposition of this art of Bharatha Natyam today Kumari Kamala may be noted as the best. She has integrated not only the fine training she received from her Guru, but also has contributed a melodious character to all her movements on the stage. Her classical beauty, her natural aptitude towards the art, her complete physical fitness as a dancer will endear her to all those dance-lovers. In her steppings, elevations, her supple wavy movements of her arms, swing-like flexibility of her neck, the translation into 'Mudras' and 'Abhinayam', the various 'Padams' sung at the time of her dance, and in the difficult rolling of the eyes, she brings to bear a rare charm and grace, all her own. She is still in her teens and to one who has witnessed her performance, there will be no doubts left that she is already an accomplished dancer.



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My Neighbour's Panacea

for Population Problems

A. V. Narsu

MY neighbour, Vidyalankar, is the Professor of Economics in the University College. Everyone knows he is an authority on population problems.

I have one advantage over other: I am Vidyalankar's neighbour. Consequently, I get the benefit of Vidyalankar's clear exposition every day, often several times a day. His ideas have been understood even by me (whom every one takes for a dullard); so you can imagine how lucid and forceful Vidyalankar's explanation must have been.

The professor is convinced that India is going to the dogs. He says, soon, very soon, we will all be caught up in the whirlpool and go down, down the bottom-less abyss. First to go will be our standard of living; next, our education, then, our culture, ultimately everything, everything we hold dear will go, and man's life will be reduced to the level of a brute's, possibly lower!

Such a contingency is inevitable, inexorable, says Vidyalankar, at the rate at which our population is growing, year after year, decade after decade. He laments that, at the end of each twelve months' period, an excess of births over death is to be noticed. His regret is that epidemics, child mortality, mass poverty, none of these checks is proving effective; population continues to grow to alarming proportions, and this can have only one result engulfing us all in ruin.

He maintains he is not exaggerating, he is not taking alarmist view. He is sure, if you look at the facts squarely in the face, you would agree with him. According to him, India's population is increasing at the rate of

5 million every year. Fifty years from now, the increase would be 250 million. Our present population is 360 million. 2000 A.D. it will be 360 plus 360 plus 250, 610 million. When all our population experts agree that India is overpopulated with her present 360 million, where is the living space, asks Vidyalankar, to be provided for 610 million in 2000 A.D.?

The professor is certain that it would be impossible for any future government to feed 610 million in this country, let alone clothing and housing them. If you are not convinced, he asks you to look at the troubles the present government is facing to feed its 360 million, though its system of rationing covers only a fraction of the 360. "See how difficult it was to obtain the wheat loan from America! Do you think loans could be obtained in this manner every year? And, when you have to feed the excess 250 million, you will have to import not 2 million tons but 200 million tons. Where from could you get them?"

I raised a few doubts whether it was not possible to raise the yield from agriculture, to bring under the plough large tracts now lying idle, whether science could not help us to obtain larger nourishment from plant and animal sources. Vidyalankar brushed all my doubts aside with one sweep of his hand. He said my talk was all fancy. He knew from the best authorities that agricultural yields could be raised with great effort by 25 per cent or at most by 50 per cent. Beyond that it was impossible to go. Irrigation helped only slightly. Deep ploughing of land did more harm than good. Collective farms meant collective waste; they did not suit our genius and, whatever virtues they showed elsewhere, he was certain they would not thrive here.

The professor is worried that living standards in India would go on falling lower and lower. His anxiety was not that the standards of the richer classes would suffer—he is sure every one's standard will go down. I hesitantly said that the poor classes practically had no standard now, so where was the fear that they would go down further! But Vidyalankar silenced me by asserting that, with reference to the future, the present will be as heaven to hell. His bother was not that large increases among the discontented might provoke a revolt. He was actuated by a sincere desire to protect the poor from their own predilection to prolific breeding, for he could well imagine the misery caused in an indigent family by the birth of extra children.

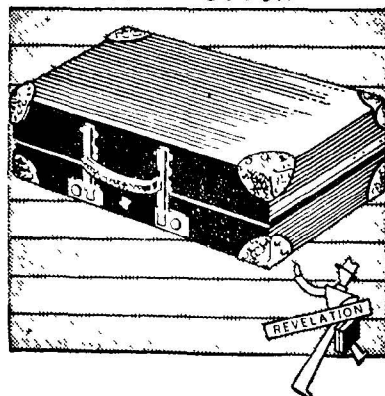
"What is the remedy, professor?", I nervously asked. The professor replied, "The remedy is there, but you cannot dilly-dally over the question. If you wish to have results, tangible results in the near future, take my advice. All the recipes so far prescribed led to nothing, absolutely nothing. For instance, how often have the poor been advised to use contraceptives? Did any one heed you? Can you point to me a single slum or mullah anywhere where people have been heard about contraceptives? No, my boy, this approach won't do. You must try something drastic. For a start, I suggest the following be immediately done:

- (1) Fathers who have four or more living children should be compulsorily photographed along with their children. These photographs should be published in all newspapers with the warning that for every additional child the father will have to suffer six months rigorous imprisonment;
- (2) Raise the minimum marriageable age for women to 30;
- (3) Stop building family residences;
- (4) Reward childless couples;
- (5) Reward persons marrying late, and those staying long periods away from their spouses;
- (6) Enforce these by ordinance.

Vidyalankar promised his second set of instructions as soon as the first was implemented.

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“V”

Whatever we may think of women in general, there is no denying the fact that today they have achieved a status of equality with man. Time was when woman was looked upon as the weaker sex; and treated as such. This attitude has now become discredited, if not discarded altogether. The atomic attack on Hiroshima and Nagasaki proved beyond doubt women's remarkable powers of resistance. Dr. M. Masuyama, a noted educationist of Japan, revealed recently that the female seemed to be more resistant to atomic explosion than the male and that the death rate among men was significantly higher than among the women.

As Shakespeare wrote:

"You are pictures out of doors,
Bells in your parlours, wild-cats in your
 kitchens.

Saints in your injuries, devils being offended,
Players in your house-wifery and house
wives in your beds."

Poets and philosophers have from ancient times paid glowing tributes to the virtues of women:

"The world was said, the garden was wild,
and man, the hermit sighed till woman
smiled.

As another poet wrote:

"If the heart of man is depressed with cares,
The mist is dispelled when a woman
appears."

A French proverb says that without women the beginning of our life would be deprived of assistance, the middle portion of pleasure and the end of consolation.

These views about women, of course, are not unanimous. There is the other side of the picture. It is not possible to state the opposite point of view in detail. One quotation should suffice.

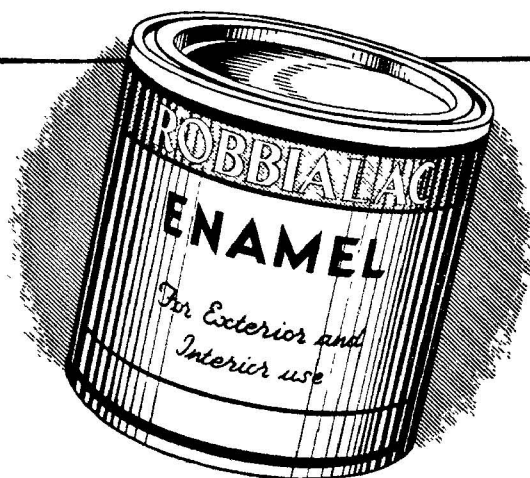
"All the woes that curse our race.
There is a lady in the case"

Samuel Johnson once said that nature has given women so much power that the law has given them almost as much power as it has given to man. This is perhaps as it ought to be. But then the question arises: are women making good use of this power? Is society better off for having brought about the social and economic emancipation of women? Theoretically of course it should be so. The education of women, for instance, is, or should be, a powerful factor in the creation of a new social order. It has been well said that when you educate a man you educate only a single individual whereas when you educate a woman you educate a whole family. But every thing depends on the kind of education we give to women and on the use to which they put it. A system of education which encourages women to neglect the home and the family is hardly in the best interests of the country. And unfortunately this is a tendency that is rapidly growing among Indian women. No longer can we say of the modern girl as we could say of the girl in olden days:

"In her very style of looking
There was cognisance of cooking!
From her very dress were peeping
Indications of house keeping."

When a young man, newly wedded, was asked about his wife's accomplishments, he said, "My wife is a very accomplished woman. She is at home in music, at home in dance, at

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home in literature, at home in everything except.....".

"Except what?"

"Except at home," came the reply.

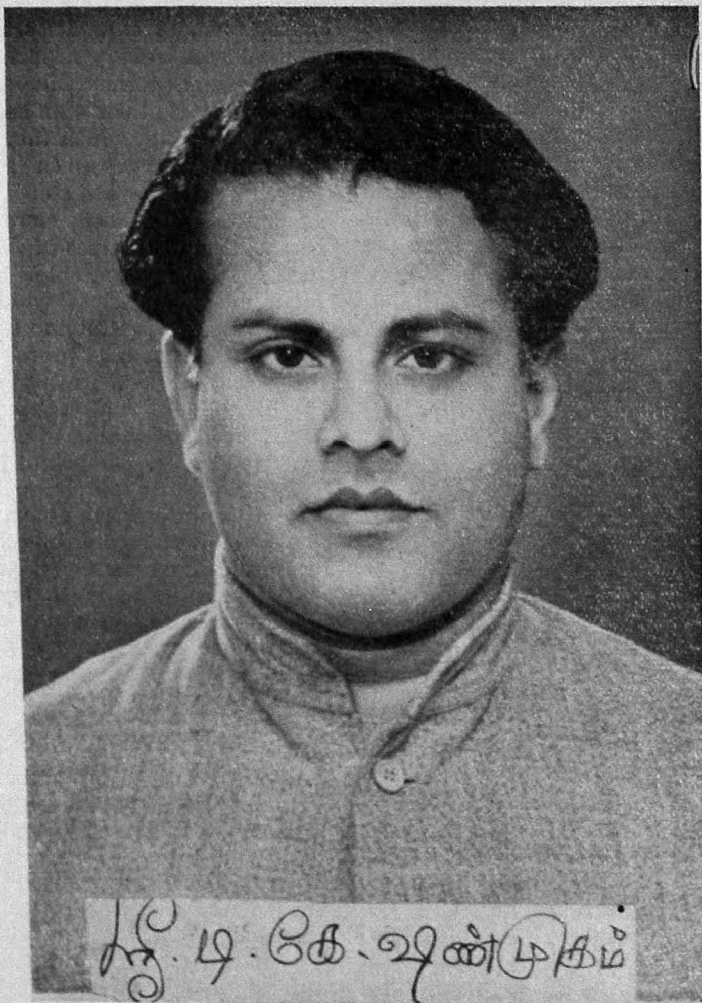
• It is time we realised that a well ordered home is the bulwork of a stable society. The failure to give the home its due importance has been responsible for the decay of several ancient civilisations. It is said, for instance, that among the ancient Greeks the husband met his wife only at table and that too when no company was present and in bed. Obviously such a casual and mundane relation between husband and wife was not conducive to the growth of a healthy family life. Similarly in ancient Rome, the members of the upper class took to mistresses and led a life of debauchery. It is not surprising therefore that both these civilizations did not last long.

In our own country there have recently been a number of forces at work which seriously threaten the stability of the home. It is therefore the duty of Indian women to resist such tendencies and devote their talents to the affairs of the home and the family. They would do well to ponder over the advice of that sagacious statesman Shri Rajagopalachari. Addressing a gathering of women some years ago, Mr. Rajagopalachari said. "All work is equally noble. Whatever task is done as appertains to one in organised society is not only noble but tantamount to divine worship. There is no high and low in the performance of one's duty. To look after the home is as noble as politics or engineering. The up-bringing of children is at least as sacred and as valuable as the production done in the heavy industries or service done in the army or in any of the official civil departments."

We are today in a period of transition from a regulatory state to a welfare State. And in

creating this new social order, Indian women have a very vital part to play. It is rather surprising that while the Government are ceaselessly stressing the role of public co-operation in implementing the Five Year Plan, nothing is being done to seek the help and assistance of women in particular. A plan is definitely something more than the achievement of some targets in the industrial and agricultural front. It is a dynamic process dealing with every aspect of a nation's life. And women, perhaps, have a greater interest in the success of the plan because of the serious disabilities from which they continue to suffer. This is particularly so in the rural area where the vast majority are steeped in ignorance and superstition. Women, more than men, are the guardians and trustees of the future citizens of India. It is regrettable therefore that the Planning Commission, while emphasizing the importance of Capital and Labour, Finance and Foreign aid, has said practically nothing about the part that women can play in implementing the Five Year Plan. It may be recalled that the National Planning Committee of 1938-39 produced a very competent book of nearly 300 pages on "Woman's Role in Planned Economy." One of the interesting recommendations of this Committee was a common standard of morality for men and women. Its words in this connection are as valid today as they were 15 years ago. "One of the greatest disabilities the Indian woman suffers from, under the social order, is the difference in the standard of morality for men and women. Society ostracises woman for any moral lapse while the man is allowed to escape for the same offence. We believe in a high standard of morality but we also believe that the standard should be the same for both. We therefore recommend that an identical standard of morality be insisted on for both man and woman, one that harmonizes social welfare with individual freedom."





T. K. Shanmugam

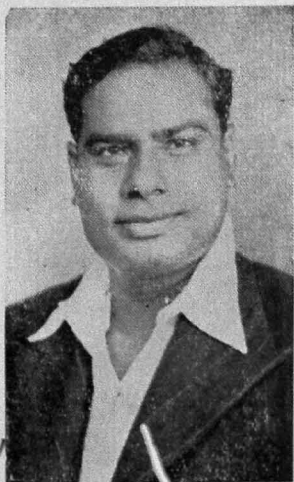
A RARE FEAST

Drama Festival by T. K. S. Brothers

(Contributed)

The Best Function during 1952 was the Drama Festival arranged by the South India Club in December, and 1952 will remain fresh in our memory for many years to come. Under the auspices of the Club, TKS Brothers came to Calcutta with their troupe and staged Five of their Dramas Viz., 'Manithan', 'Kalvanin Kathali', 'Raktha-Pasam', 'Avvaiyar', and 'Inspector'. The South India Club had this unique honour of introducing the South Indian Stage Artistes to the Stage and Screen lovers of Bengal; It was indeed the crowning achievement of the Club in 1952. The laurels were won by the TKS Brothers who have carried to Bengal something unique in ideas and technique and have shown that the South

did. The auditorium was packed to suffocation. The TKS Brothers were introduced by Sir C. P. Ramaswamy Iyer who paid tributes to



T. N. Sivabharathi

Indian Stage was in no way inferior to Bengal Stage.

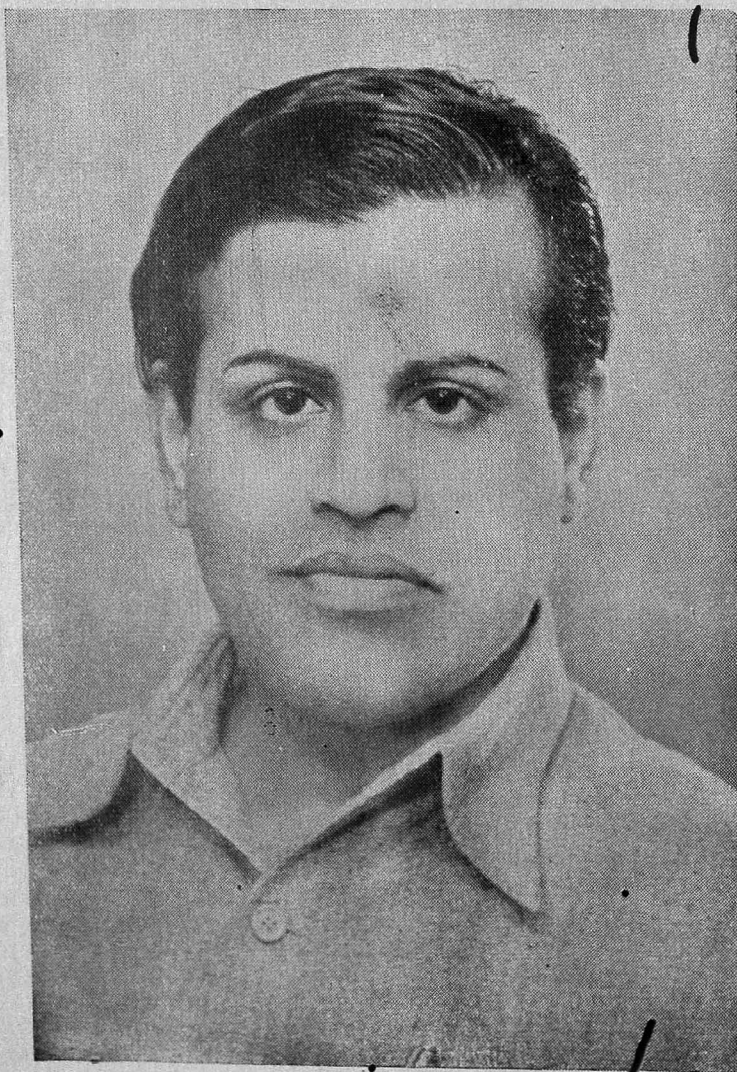
Rarely have we seen so many happy faces. All the way to Indraloke Studios they came to enjoy themselves and enjoy themselves they



K. Ramaswami

them for undertaking the mission of popularising Tamil Dramas in Bengal. The TKS Brothers showed that Bengal Stage had yet to learn something from South India. The quickness with which the scenes followed, the light effects which lent to screen tempo to the stage shows and the perfect cooperation among the artistes made the dramatic performances as fast moving films. These dramas are a testimony to the people of the North of the dramatic wealth, literary value and immense influence of Tamil as a language.

All the five dramas drew bumper houses. There can be no comparison between one Drama and another as every Drama was unique and distinct from the other. Each had a purpose behind its theme and a message to carry to the people. 'Manithan' is a play which comes



T. K. Bhagavathi

into close grips with the human mind in the present day chaotic environment. Its noteworthy story content and delicate dramatic treatment concerns a Doctor and a lovely woman who yields to raptures of the flesh in an unguarded



K. S. Rajam

moment. 'Kalvanin Kathali' is an emotional Drama where a Sub-Inspector carries out his duty and becomes a Sanyasi, which world calls as 'Their Fate.' 'Raktha Pasam' depicts a story of two brothers carrying the message that 'Blood-tie conquers at the end'. 'Inspector' is another powerful Drama with a message that 'out of the complex muddle that ensues, the righteous come untarnished'. These performances give a good idea of the way of life of the South Indian people. From 'Avvaiyar' one gets an idea of the wealth of Tamil as a language. 'Avvai', that messenger of peace goes from place to place preaching the dignity of labour and the gospel of divine love and wisdom. Sri T. K. Shunmugham, the Elder of the two brothers and an interesting personality plays this prominent role of 'Avvai', the poetess and is superb indeed. He makes himself up as an old shaky woman with a hunch back, with lips so adjusted to hide his teeth so well that he is not recognisable at all. The Brothers, T. K. Shunmugham and T. K. Bhagavathi supported by an excellent troupe of artistes acquaint to the people of the North that Tamil is as forceful as Bengali and that Bharathi was as great a Poet Tagore or Dramatist Shakespeare, and that Bengal, where

Drama was born, had something to learn about the stage from South India. The Comedians T. N. Sivathanu and K. Ramaswami keep the audience in good humour right thro'. They act with all the seriousness but what ever they do or perform seem as jokes to the audience and keeps them laughing from beginning to end. Their jokes on UNO, Kali Temple and how priests squeeze money were so real that even the mere thought of these jokes makes anyone laugh even now. Among the female cast were Kumaris K. S. Rajam, M. N. Rajam, and T. A. Jayalakshmi and of the three, Kumari M. N. Rajam was outstanding.

The last show of the Brothers 'Inspector' was in aid of the cyclone stricken people of the South, the National High School and the Madras Union Girls School, Howrah, and the club is grateful indeed to the Brothers for kindly agreeing to stage this additional show in aid of the charities.

The members of the Club, the South Indians in Calcutta, who rose to the occasion and came in large numbers to applaude the Brothers, wish them long life for carrying but their mission of singing the glories of Tamil literature through the stage.



M. N. Rajam

Calcutta is eagerly looking forward to their next visit in October this year and to witnessing yet another series of these powerful dramas full of emotions and many hilarious sequences.

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NECKLINES OF BLOUSES

AS A MAN SEES THEM

M. KUNHAPPA

THAT is a comment which appeared in the Charivaria columns of Punch several years ago. Had Punch been commenting on Indian women's dress, especially in the cities of today, his eye would have caught the dress by the neck, and the sleeves. The neck has been going down and down, while the sleeves were climbing up and up for sometime now, until just at the juncture when men began to wonder what would be left of the dress, the progress stopped and a hasty Dunkirkian retreat was beaten. The necks are now rising and sleeves are lengthening. The latest neckline is the very high neck called the Chinese neck reaching up to the chin, helping the latter to be held, "up and lofty"; while the sleeves have reached down below the elbow, in the manner sported by our Mothers and Grannies in their own young and romantic days. During this process of rise and fall, reminiscent of the Spring tides in Western Europe, the shape of the neck, (I mean of the dress and not of the lady inside the dress) has been undergoing changes that would have challenged a Darwin to trace all the links in its evolution.

Mere male can only appraise, admire and wonder, at woman's attire; classification or rationalisation, is impossible. Does the fair male reader of this article for instance, know the names of the various shapes of necks? Here are a few, which I collected by the help of a Darzi in Matiabruz, that famous Darzi zone of Calcutta. Bachelors who wish to become successful husbands had better learn them by heart. They will stand them in good stead in matrimony more than all their knowledge of the 'geometry of the contagious countries,' praised so much by the good old Mrs. Malaprop.

To begin with, there is the round neck and the square neck. It would be a folly to think that we know all about it and say, 'the round neck is round, the square neck is square, what is there to make a song about them?'. I am told by the Darzi, that the round neck is not

A geologist says that the equator changes its place from time to time.

What does he think of the equator? Is it the feminine waist line or what? •

—CHARIVARIA.

exactly round, but is an ellipse, probably in imitation of the Einsteinian shape taken by the 'Ultimate Universe'. The square neck too is not exactly a square, but is a rectangle. It looks square because your eyes are dazzled by the roundness, fairness and beauty of the neck it encloses. The round neck varies into the U neck and the V neck, which are sometimes tantalisingly long V's and U's, reminding you of the capital letters in advertisement hoardings. The length, the depth and the angle of the arms of the U and the V may vary according to the fashion of the lady wearing the blouse. Character can be read, so they say, from blouses. Listen to any woman commenting on another woman's dress and you will realise how character and dress are inextricably mixed up. A deep V indicates independence of will and candour of the wearer. She is not secretive. A broad U reveals what a broad heart, the lady has. Roundness shows orthodoxy, while a big square neck shows courage of conviction, of the woman of property. Once the round, the square, the V and U with their various changing patterns are mentioned, the average man's knowledge of neck lines is exhausted. Beyond this border, into the undiscovered country of neck lines of blouses, one is entirely in the hands of the Darzi, whose technical knowledge alone can lead us amidst the bewildering variety without losing our bearings. Let Ali therefore speak.

"The number of necks are many. I don't remember them all—Yes, I don't remember all, even though I am a Darzi and has been one for twenty years. In the beginning, woman created only one neck, which went round the human neck. Now the feminine neck is only a pedestal for the ornamental sartorial neck—Oh! the names! You want the names? How foolish of me to forget! Here you are Sir—: the round neck, the square neck, the U neck, the V neck, the sweetheart neck, the Metro neck, the high neck. The double Chinese neck.

the low neck, the low-low neck and the low-low-low neck. Got them down Sir, well then let me see; Ah! there is the boat neck. It is a horizontal neck from shoulder to shoulder, and the wearer looks as if she is sitting in a boat, with only the neck and glimpse of the shoulders being visible. "That's where" I interpolated "the shoulders do the coat hangers job, I believe". Ali, ignored the interruption. Then there is the will power blouse, which remains in place, by sheer will power "I suppose" said I again, "the will power dress like the good length ball, puts the defending batsman in two minds. He does not know whether the dress is slipping down or the girl is coming out. I would have called this will power blouse, as the Sampath blouse, after the famous character in R. K. Narayanan's story Mr Sampath had no visible means of support, but still continued to be a swank That reminds me of a quip that appeared in the Reader's Digest A man approaches a very fashionably dressed American girl at a dinner party and whispers "An expert on suspension bridges would like to have a word with you in confidence".

The cautious person keeps the neckline high, and has a small ventilator, oval or heartshaped, to simulate the V neck or the U neck. The contraption, the Darzi says, is called a locket. As my friend Shekar suggested, the golden locket is always in front, while the locket on the blouse may be either in front or at the nape of the neck. The size also varies sometimes assuming intriguing proportions.

At this stage, I had stopped to listen and had continued my reminiscence so much that, I did not notice that my friend and Counsellor Md. Ali the Darzi, had got out of the bus. I was left alone with my thoughts. Anthropologists or Paleanthologists, I don't exactly know who it is, say that primitive man began to dress more for ornamentation than for protection from the weather. They point out the feathers and paintings of the aborigines whose bodies are otherwise very economically draped.

When you see the dresses of women on American magazines, you are prepared to quite believe it. The dress is more an adornment and a flourish than a coverage in those pictures. Luckily, we haven't gone west to that extent. At first it was man who began to adorn himself, woman took to it later. At present, however, man has forgotten the chief function of dress, which is ornamentation, and thinks of it only as a necessary nuisance. Thanks to woman, the original pristine idea of decoration being the prime motive is still being pursued. Otherwise, it would be difficult to understand the shapes taken by the sleeves of the blouse.

The sleeve is to the prosaic man, only a covering for the arm, as is evidently displayed in the monotonous coat sleeve and the shirt sleeve. Not so, is the case with the sleeves of woman's dress. They are long, they are short, they are very short and sometimes they disappear altogether round the corner. They are straight and they are elliptic; they are bulging, and again sometimes they are partly bulging and partly straight. The latter is called the mutton sleeves or mutton chop sleeves, I don't know which, and my Darzi has gone away. There are I am told, nevermind by whom, pistol sleeves also. The name is very suggestive. When the wearer thereof, points an accusing finger at the spouse, the pistol sleeve becomes demonstrative also. The Indian sleeve is a tame affair while the modern sleeve is anything but modern. Why it is called modern at all, I do not know. Reason is perhaps not quite the thing to be looked into, when considering "MY LADY'S" costume. Very fashionable sleeves are not fit; they are convulsions.

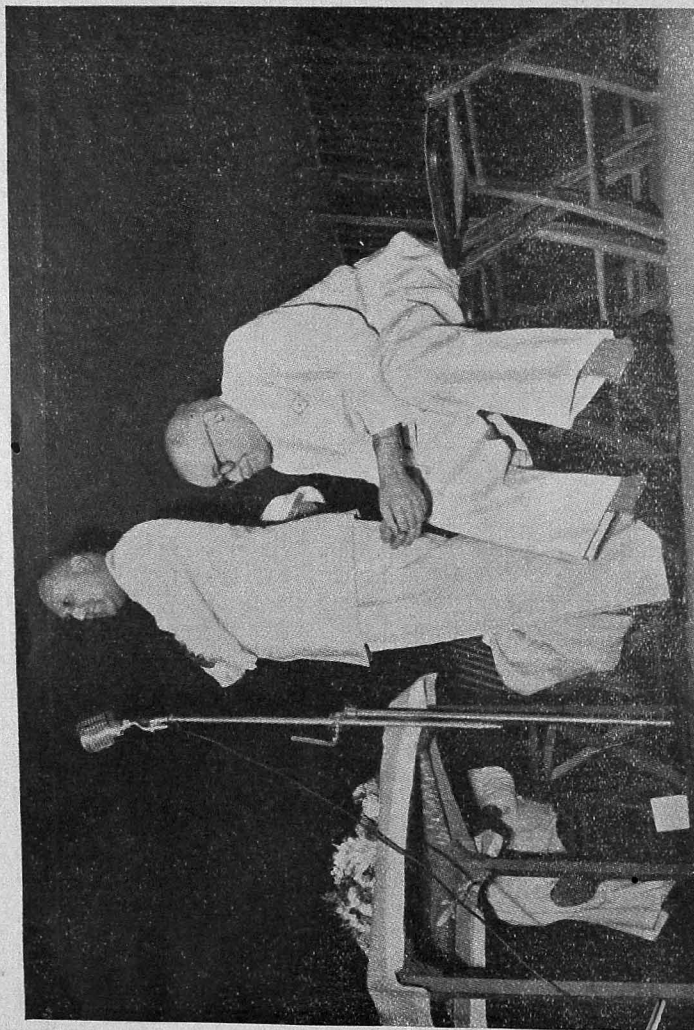
Altogether women's dresses are intriguing to watch, adventurous in their lines and interesting to write about. "The pity of it, Iago! Oh the pity of it," is, that man does not consider at all the beauty, but thinks only of the cost. What a man! If this little sketch helps him to divert his attention, from the purse to the dress, I shall not have striven in vain.



The Silver Jubilee of the Club was Celebrated in November, 1951



Sri C. S. Rangaswami, the Club-President, is seen inaugurating the celebrations on the South India Day. To his right is Sir Biren M.okerjee, the chief guest of the evening.



Sir Biren Mookerjee, chief guest of the evening, is seen replying to the address of welcome. To his left is seated Sri K. Rama Pai, an ex-President.

South India Club

Members of the Committees
for the year 1952-53

President :

SRI C. S. RANGASWAMI

Vice-President :

SRI S. GANESH

General Secretaries :

SRI R. NARASIMHAN

SRI T. E. S. MANI

General Treasurer :

SRI T. S. R. SARMA

CLUB SECTION

President :

SRI G. V. RAMAN

Jt. Secretaries :

SRI R. J. SANKAR

SRI T. R. BHASKARAN

Committee Members :

SRI S. RAMA IYER

SRI K. S. S. MANIAM

SRI G. K. KRISHNAN

SRI K. A. KRISHNA IYER

SRI E. N. VISWANATHAN

MUSIC SECTION

President :

SRI P. C. SEKHAR

Jt. Secretaries :

SRI S. NATESAN

SRI P. JAYARAMAN

Committee Members :

SRI R. R. IYER

SRI S. VISWANATHAN

SRI A. K. SITARAMAN

SRI R. BALASUBRAMANIAN

SRI N. BALASUBRAMANIAN

LADIES SECTION

President :

MRS. JANAKI SESHAN

Jt. Secretaries :

MRS. LEELA SEKHAR

MRS. PANKAJAM MURTHY

Committee Members :

MRS. JANAKAM CHARI

MRS. INDIRA NATESAN

MRS. SAVITRI KRISHNAN

MRS. LAKSHMI SRINIVASAN

MRS. LAKSHMI RAMANATHAI

YOUTH SECTION

President :

SRI R. NARAYAN

Jt. Secretaries :

SRI K. SWAMINATHAN

SRI R. V. SARMA

Committee Members :

SRI. P. R. V. RAGHAVAN

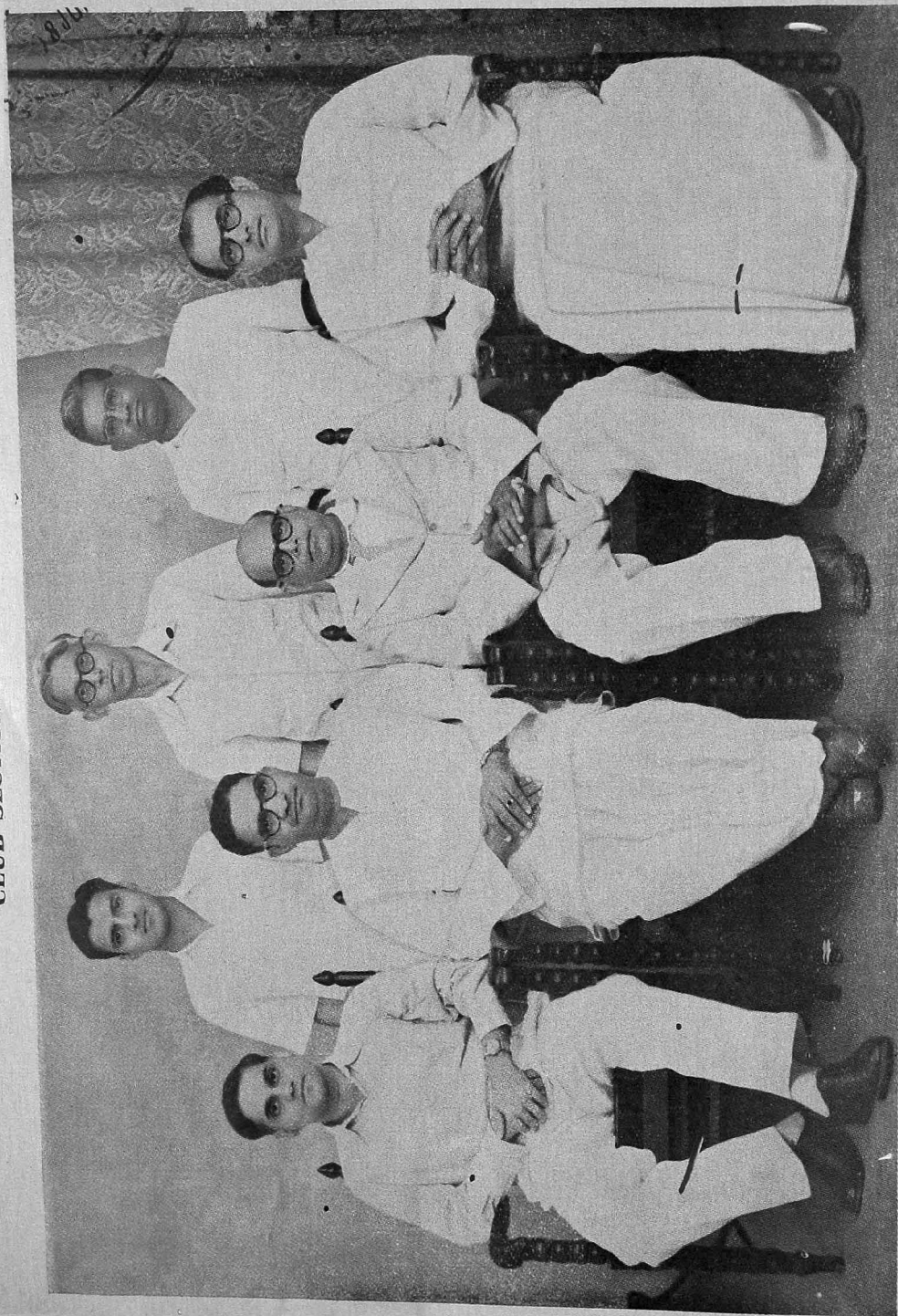
SRI. M. R. SUNDARAM

SRI. S. N. S. RAGHAVAN

SRI. Y. BALAKRISHNAN,

SRI. R. RADHAKRISHNAN

CLUB SECTION COMMITTEE—1952-1953



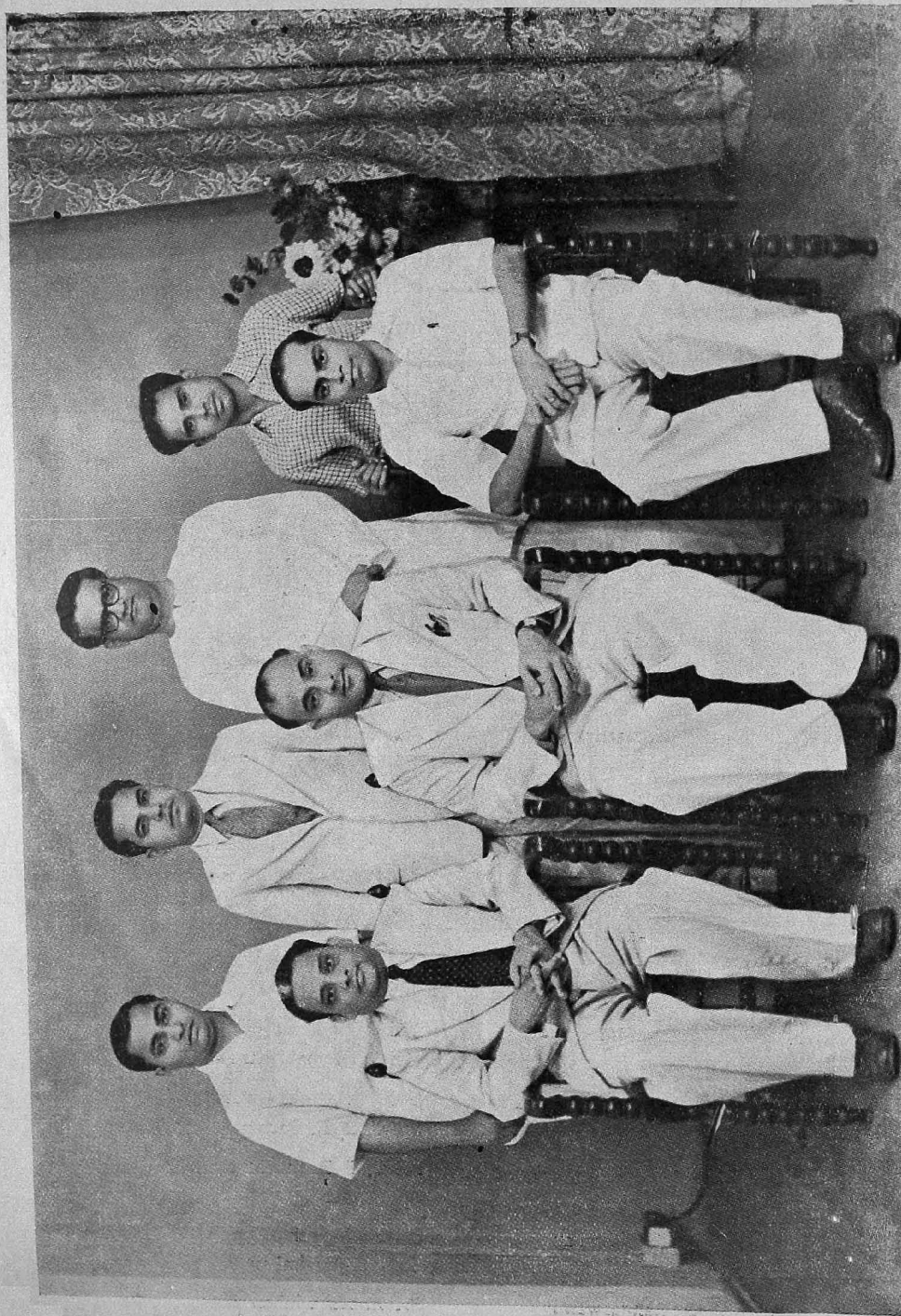
Standing (L.—R.) :—Sri G. K. Krishnan, Sri S. Rama Iyer, Sri K. A. Krishna Iyer.
Sitting (L.—R.) :—Sri T. R. Bhaskaran (Jt. Secretary), Sri G. V. Raman (President), Sri K. S. S. Maniam, Sri R. J. Shanker (Jt. Secretary).

South India Club

.LIST OF PRESIDENTS AND SECRETARIES FROM 1926 TO 1953

YEAR	PRESIDENT	GENERAL SECRETARIES
1926 ..	Dr. C V. Raman	Sri C. Bhaskarayya
1927 ..	-do-	Sri K. Rama Pai
1928 ..	-do-	-do-
1929 ..	Dr. S. Radhakrishnan	Sri R. S. Chari
1930 ..	Sri K. Rama Pai	-do-
1931 ..	-do-	-do-
1932 ..	-do-	-do-
1933 ..	-do-	-do-
1934 ..	-do-	-do-
1935 ..	-do-	Sri C. Subba Rao
1936 ..	-do-	Sri R. S. Chari
1937 ..	-do-	-do-
1938 ..	-do-	-do-
1939 ..	-do-	-do-
1940 ..	-do-	-do-
1941 ..	Sri M. Bashyam	-do-
1942 ..	-do-	-do-
1943 ..	-do-	-do-
1944 ..	Sri K. Rama Pai	-do-
1945 ..	-do-	-do-
1946 ..	-do-	-do-
1947 ..	-do-	-do- (upto June)
		Sri K. Aravamuthan (Jun/Aug)
		Sri V. D. Swami (from Aug/Dec)
1948-49 ..	Sri K. Rama Pai	Sri C. S. Rangaswami & Sri R. Ramakrishnan
1949-50 ..	Lt. Col. C. K. Lakshmanan	Sri C. S. Rangaswami & Sri T. S. R. Sarma
1950-51 ..	-do-	Sri T. S. R. Sarma & Sri S. Ganesh
1951-52 ..	Sri C. S. Rangaswami	Sri S. Ganesh & Sri R. Narasimhan
1952-53 ..	Sri C. S. Rangaswami	Sri R. Narasimhan & Sri T. E. S. Mani

MUSIC SECTION COMMITTEE-1952-1953



Standing (L.-R.) :- Sri N. Balasubramanyam, Sri S. Viswanathan, Sri A. K. Stharanian, Sri R. Balasubramanyam
Sitting (L.-R.) :- Sri S. Natesan (Jt. Secretary), Sri P. C. Sekhar (President), Sri P. Javaraman (Jt. Secretary).

MAINLY ABOUT OURSELVES

"PEECEYES"

IT is very embarrassing to write about ourselves. We may be inclined either to understate the achievements which may not be fair to the club or to over-emphasize which may savour of "BRAGGING" and therefore in bad taste. We will, therefore, confine ourselves to a recapitulation of the activities of the various sections of the Club, since the issue of our Silver Jubilee Souvenir—The last number—and leave it to the reader to decide how far this Club has fulfilled the needs of the community.

It may be mentioned at the outset, however, that although the Club functions through various sections under different Committees, every activity has been the result of close co-operation of all the office-bearers of the Club as well as certain members, who are not on any of the Committees even, and this is indeed a very significant advance which the members of the Club may note with satisfaction. The effect of this co-operation has been for all the Committees to concentrate upon the requirements of the Club as a whole and to plan the activities accordingly, and the question of which of the Sections of the Club should appropriately take the lead in respect of each activity was of secondary importance and a matter for adjustment. The emphasis has been on the Club, on its members' needs. In keeping with this spirit, the activities of the Club are reviewed in their chronological sequence rather than under the heads of each separate Section.

Our Ladies have fittingly taken precedence report, appropriately on Sankranti Day, this report, appropriately on Sankranti Day, on 14th January, 1952, in the nature of Pongal Celebrations to which members of the Maharashtra Bhajana Samaj and Gujarati Sthree Mandal were invited. Our ladies have had the most cordial relationship with the two organisations in question and have exchanged visits. It was a very large gathering, our ladies themselves prepared "Pongal" at the Club that day and distributed to all those present in addition to the usual refreshments and flowers served on these occasions. The USIS very

kindly showed a film, the 'LOUISIANA STORY' on this occasion.

The next activity was also of our Ladies. A number of our members (ladies) were interested in learning or improving upon their knowledge of English, and some of the members of the Ladies' Section Committee commenced coaching classes for the benefit of these members on the 18th January, 1952. But alas! the few honorary workers found they had not the time to do full justice to their undertaking. After about six weeks, the classes had to come to an end. The 'pupils' were however, still keen and our ladies are no doubt thinking of reconsidering the whole question with a view to recommencing this service.

The next activity was the River Picnic on the 17th January, 1952, one of the important feature of the Club's annual programme which is organised by our Club section. Nearly 500 members embarked at Chandpal Ghat after 9 A.M. aboard S. S. Cossipore and were taken down river up to Rupnarain. The weather was pleasant, and altho' the heat of the afternoon was felt, the cool northern breeze made conditions most comfortable. The presence of a number of ladies added colour and gaiety to the gathering. Lunch and Tea were served on board and everyone appeared to enjoy it. A quiz competition for ladies and gentlemen separately and a musical chair competition for the children were held in the afternoon. Those interested in photography had a busy time as the river offered a variety of subjects for their cameras. The party returned at 6-30 P.M. after nearly nine hours outing and its undoubted success was confirmed from the happy faces of our members, who joined in the excursion.

We are back amongst the ladies now; not that we got away from them yet, as they were with us on our River Picnic, but we are now concerned with them exclusively. They had a Social gathering on the 21st February with a programme of music by some of the members and distribution of prizes to the first two successful candidates in the examination held for students of the sewing class, which incidentally is another activity of the Ladies Section.

LADIES SECTION COMMITTEE—1952-1953



Standing (L.-R.): Mrs. Lakshmi Ramanathan, Mrs. Janakam Chari, Mrs. Lakshmi Srinivasan, Mrs. Savitri Krishnan.
 Sitting (L.-R.): Mrs. Leela Sekhar (Jt. Secretary), Mrs. Janaki Seshan (President), Mrs. Indira Natesan.

Our Music section now comes into the picture with a music concert on the 24th February, 1952 by Ganakaladara Sri Madura Mani Iyer, accompanied by Mayavaram Sri Govindaraja Pillai on the violin and Palani Sri M. Subramania Pillai on the mridangam. It was the latter's first visit to Calcutta. The venue was as usual the Indraloke Studios and there was a huge gathering of members, their guests



Ganakaladara
Madura Mani Iyer.

which overflowed even that big hall. Sri Madura Mani Iyer invariably satisfies his audience, and on this occasion he gave an inspired recital, lasting about five hours which kept the audience enthralled. Sri Govindaraja Pillai on the violin and Sri Subramania Pillai on the mridangam were in the top of their form and the fare provided by this combination could, therefore, be left to the imagination.

The Music section arranged a short concert by a rising artiste, Sri Madura Vidyathan on the 25th February, 1952, at the National High School Hall, with Sri Anantharaman on the violin and Sri Vaidyanathan on the mridangam. Some of the admirers of this artiste donated a Gold Medal which was presented to him on this occasion by Sri Madura Mani Iyer.

We now come to a red letter day in the annals of the Club, when we brought over to Calcutta for the first time that great Vidwan, the Doyen of the Carnatic Music World, Sangeetha Rathnakara Gayaka Sikhamani Sri Ariyakudi Ramanuja Aiyengar. The concert was arranged by our Music Section on the 16th March, 1952 at the Indraloke Studios and the accompanists were Sri T. N. Krishnan on the

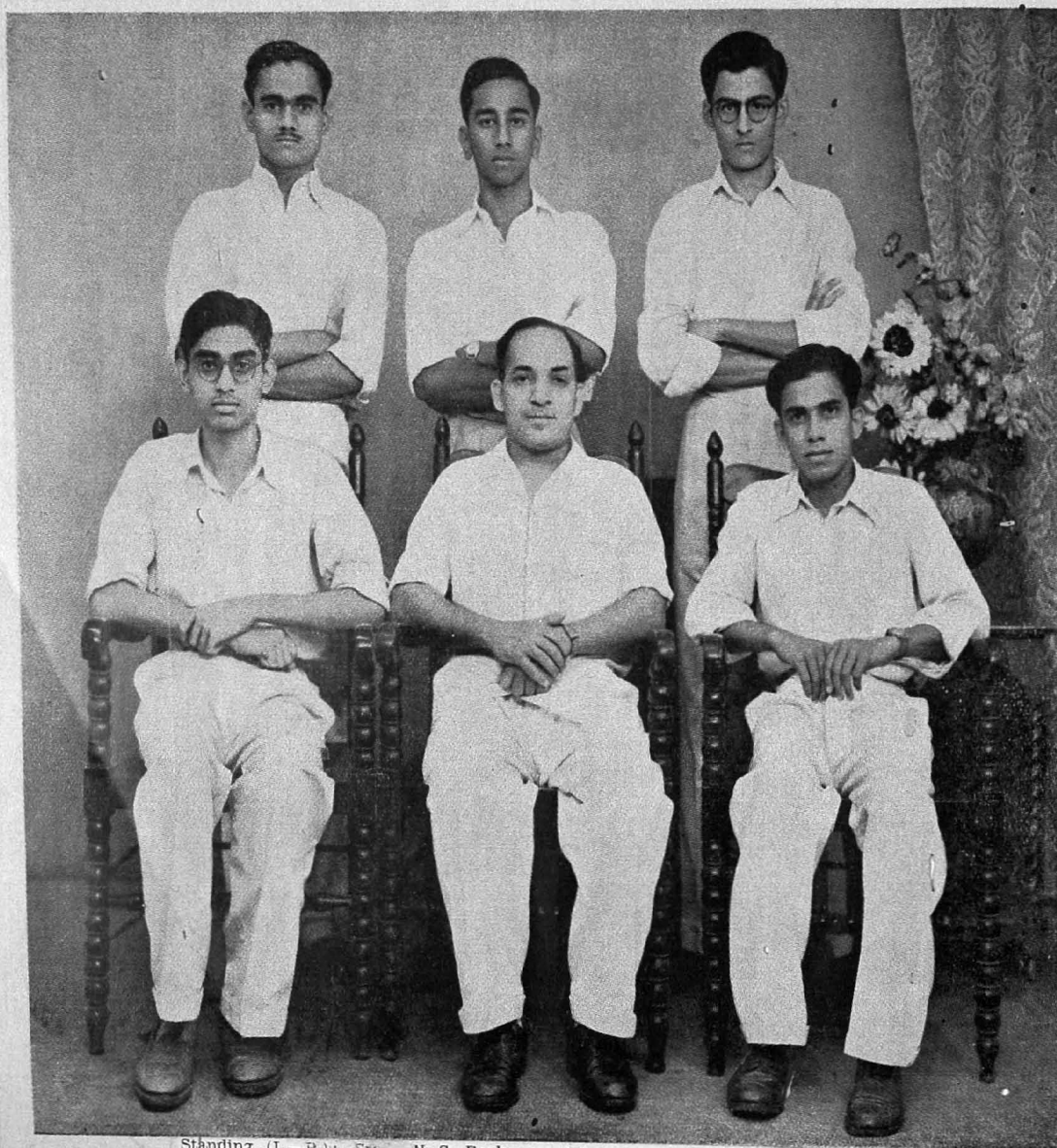
violin and Palghat. Sri T. S. Mani Iyer on the mridangam. Sri Ramanuja Aiyengar struck from the word 'go', as he usually does, kept the audience spell bound, for nearly five hours. Considering that there is hardly any pause between his songs, one can imagine the effort he put in; and considering the pin-drop silence in the hall throughout the performance one can imagine the heights to which he transported his audience. He was the master, the music was his slave; rarely does one have the privilege of witnessing such a phenomenon and it was vouchsafed to the audience that night. Sri Ramanuja Aiyengar cast his spell on the accompanists as well, both of whom rose to great heights, particularly Sri Mani Iyer on the mridangam whose masterly play left us breathless. He showed he was a class by himself 'Eclipse first and the rest, nowhere'. Playing to a great master such as Sri Ramanuja Aiyengar, keeping pace with him, Sri Mani Iyer had necessarily to rise to great heights, to be at the top of his form.



Sangeetha Rathnakara
Gayaka-Sikhamani
Ariyakudi Ramanuja
Aiyengar.

Sri Ramanuja Aiyengar is a very pleasing personality, full of humour, with ever a twinkle in his eyes and a smile on his face. It was but appropriate that his first visit to Calcutta coincided with the inauguration of the President's award for the best vocalists and instrumentalists in North Indian and Carnatic music and election of Sri Ramanuja Aiyengar for this highest honour. He was of course the obvious choice, yet we may be forgiven for our claim that his visit to Calcutta was most auspicious and the gratitude and the goodwill he earned here from us perhaps brought him the signal honour.

YOUTH SECTION COMMITTEE—1952-1953.



Standing (L.—R.):—Sri N. S. Raghavan, Sri P. R. V. Raghavan, Sri Y. Balakrishnan.

Sitting (L.—R.):—Sri M. R. Sundaram, Sri R. Narayan (President), Sri K. Swaminathan (Jt. Secretary).

We turn now to a consideration of the care of the body, of the needs of the community in this regard, our Music Section having so appropriately fulfilled the aesthetic requirements. Another milestone in the progress of the Club was reached on Sunday the 13th April, 1952 when the Popular Dispensary came into existence. The opening ceremony was performed by Mr. A. D. Khan I. C. S., when a large gathering of members was present and acclaimed this new activity as yet another essential community service of the Club. The Popular Dispensary of the Club, deserves an exclusive article all to itself, and elsewhere in this issue full details of its origin and growth have been given.

Within a couple of hours of the opening of the Dispensary there was another function at the Indraloke Studios in which our Club members took active part. It was a function got up by our Music Section in collaboration with a sister institution, 'The Kerala Association of Calcutta' and it was to honour that great poet Laureate of Malabar, Sri Vallathol and to present him with a purse on that occasion amounting to Rs 3500, Sri Vallathol arranged for his disciples to give a Katha-Kali Dance performance. The main theme was the story of Prahlada. Here is a dance at once so virile and tender with extremes of emotion and

rather a peculiar appeal to both children and grown-ups, to the naive as well as the dilettante.

The next function of the club was a social gathering arranged by the Club Section on the 17th May, 1952 when Sri A. Subram, Secretary of the Section was also the "chief guest" on the occasion of his departure from Calcutta on transfer. These gatherings serve to bring the members closer to each other, give opportunity for making new acquaintances and fellowship and therefore, constitute a very essential part of Club Service, which should be developed to greater extent.

Our Ladies have developed this Service to a comparatively greater extent with regular social gatherings. They had one on the 22nd May 1952, when they held indoor games competitions such as Carroms, Kolam, Table Tennis, Darts and also a Knitting contest. There was very keen competition and the prize winners no doubt earned their success whilst the unsuccessful too set a very high standard. There was also a Music Competition that day on Thyagaraja Kritis in Bhairavi, Kalyani, Sankarabharanam and Kambhoji and the judges must have had a very difficult task indeed choosing from a galaxy of talent.

The Music Section were responsible for the next activity of the Club, on the 25th May,



Shrinathis Radha and Jayalakshmi.

MUSIC SCHOOL



The Staff and the Pupils of the South India Club Music School. Sitting 6th from left is Sri G. Vaidyanatha Bhagavathar, the Principal. To his right is Sri P. Jayaraman, the Jt. Secretary, Music Section. Seated 5th from left is Sm. Saejini Subramanian; Music Teacher.

1952 with a music concert, by those popular juvenile artistes, Shrimatis Radha and Jayalakshmi accompanied by Sri Nellai Mani on the violin and Sri Kalpathi Ramanathan on the mridangam. The venue was Indraloke Studios as usual. It was about that time that owing to breaches on the Southern Railway, train service between Madras and Gudur was dislocated. The artistes however, made the journey by a devious route and arrived here about 2 A.M., six hours behind the schedule time, to fulfil the engagement and it was indeed most considerate of them that they should have taken all the trouble; it shows their keenness and high sense of duty and responsibility which should take them a long way in their career. Their performance was very pleasing and elicited appreciation of our critical audience.

Before the performance began, there was a small function to bid farewell to Lt. Col. C. K. Lakshmanan, a past President and Chairman of the Dispensary Standing Committee, who was leaving Calcutta for Delhi to take up the appointment of Director General of Health Services in India. The function, strictly speaking, was organised by the Club Section, and the Music Section were given the privilege of holding it at one of their own. Here is another instance of that collaboration which has been a dominant feature of the Club's activities in recent times. In the absence of both the President of the Club and the President of the Club Section, our revered past President, Sri K. Rama Pai presided on this occasion.

June is a month when too hot to hold any function, incidentally the office-bearers are busy getting ready for the Annual General Meeting. The monsoon in July makes it most inconvenient for any function quite apart from the excitement surrounding the Annual General Meeting and election of the new Committee. We can skip over this period and come to August, 1952 when on the 15th August, 1952 our activities commenced afresh with Independence Day Celebrations when our President hoisted the National Flag, our ladies sang national songs and our youths marched past an inspiring function; but we should have a larger number of our members participating in this function, making it a more imposing affair, taking the opportunity for stock-taking with regard to the country, club and ourselves.



Flag Hoisting Ceremony, Independence Day—1952.

From affairs of State and mind to aesthetics and matters touching the heart and community Service, an apt sequel to the stock-taking on Independence Day, we start off with a benefit performance by Srimathi Indrani arranged by the Club in aid of the National High School Building Fund, on the Independence Day itself, viz. the 15th August, 1952. Srimathi Indrani had just returned from her trip abroad, in connection with Miss Universe competition in which she represented our country, and it is superfluous to talk of her beauty after that; but her rendering of Bharatha Nattyam and Abhinayam was as beautiful and did credit to her guru, that great master, Natakala Visaradha Pandanallur Chockkalingam Pillai who was present. Another performance by Sm. Indrani was arranged by the Music Section on the 16th August, for our members and accordingly the audience on the first day, for the charity show, comprised in the main, north Indians, for whose patronage and co-operation



Mrs. W. F. Rivers, Presenting the trophy to Sri N. S. K. Iyengar.

we are indeed grateful. The bulk of the contribution to the School was made by them which shows that, where community Service comes in, all the people are united without



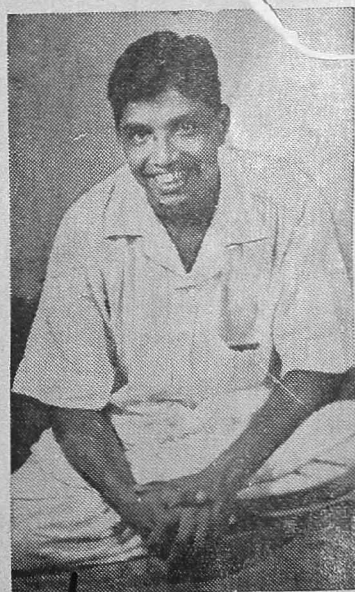
Sm. Indrani.

any reserve, without regard to provincial or any other consideration. A sum of Rs 4742/- was made over to the School as proceeds of this benefit performance.

We next have the hardy annual, The Anniversary Day celebrations of the Club. It was the year following the Silver Jubilee of the Club and whilst on the one hand the 26th anniversary could not be expected to be celebrated on as grand a scale as the Silver Jubilee, it is interesting to note that the 26th anniversary was distinctive in its own way. The celebrations commenced on the 27th September, 1952 when under the joint auspices of the Calcutta branch of the English Speaking Union and the South India Club, a reception was accorded to Mr. Louis Fischer at the Indraloke Studios, Tollygunge at 6 P.M. The hall was packed and Mr. Fischer gave an inspired address lasting an hour and a quarter. It was virtually a scoop for the South India Club; for Mr. Fischer was not making any other public appearance in Calcutta, the function was got up entirely by our Club and patronised by its members mostly. Mr. Fischer's preminent position in public life is well known and that our Club should have had him on this

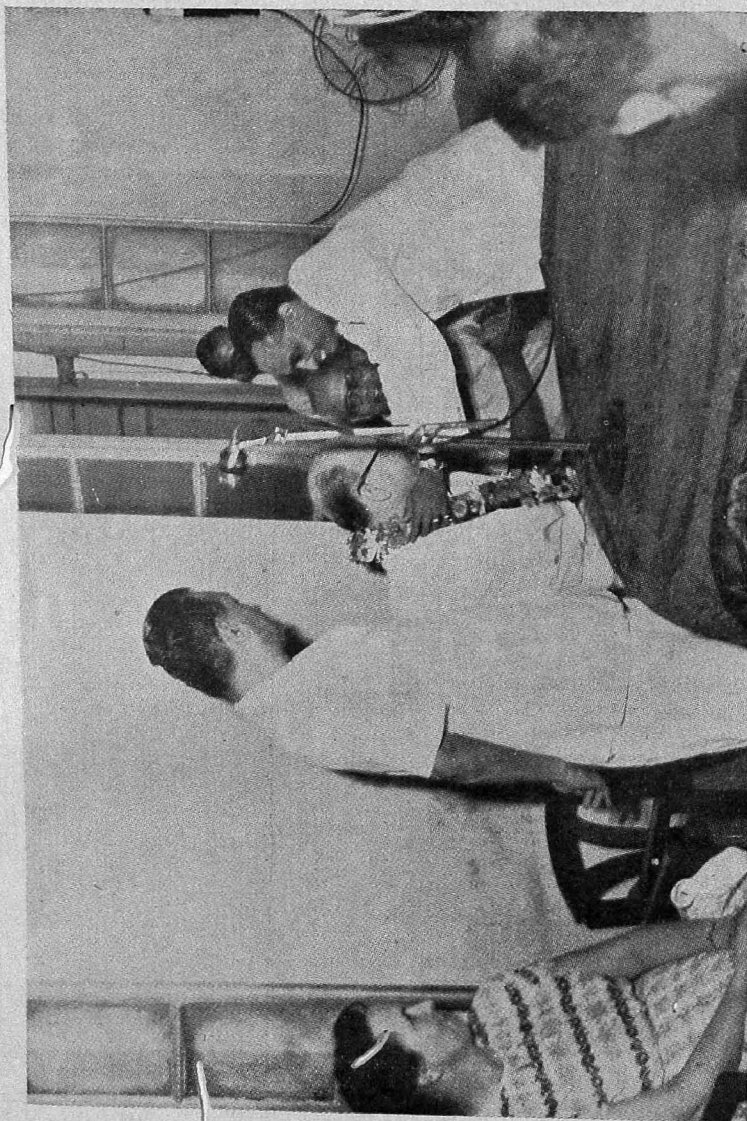
auspicious occasion was indeed a good augury for the Club entering the Twenty-Seventh year of its life. Sri K. Rama Pai next delivered the anniversary address which was inspiring; no wonder, as he is so fond of the Club, looks upon it as his own child and lives for its progress and success, for its service to the community. The function came to a close with a Dance recital by the pupils of the Saraswathy Gana Nilayam, Madras, who had come over to Calcutta at that time for a series of shows elsewhere.

The Music Section of our Club organised two musical concerts for the anniversary. The first was on the 29th September, 1952 when Sri Thirupamburam Swaminatha Pillai entertained us on the Flute, accompanied by Sri T. N. Krishnan on the Violin and Sri Palani M. Subramania Pillai on the Mridangam. The second was on the 30th September, 1952 when we had as many as five great artistes all at once on the same platform, in Sri Alathur Brothers, Sri T. N. Krishnan (violin) Sri Palghat Mani Iyer (mridangam) and Sri Palani M. Subramania Pillai (kanjira). It was



Palghat Sri T. S. Mani Iyer.

a unique occasion and the performance was acclaimed as one of the best. It is very difficult to single out any one for special distinction in such cases; but one might be pardoned for making special reference to Sri Palghat Mani



The General President, Mr. C. S. Rangaswami looks on as the General Secretary, Mr. R. Narasimhan garlands Mr. W. F. Rivers, the President of the Prize-Day Function. Others Sitting are Mrs. W. F. Rivers and Mr. S. Ganesh, the Vice-President.

Iyer and Sri Palani M. Subramania Pillai whose "AVARTHANAM" lasting over Forty-five minutes kept the audience breathless with appreciation. It was a performance befitting the occasion.

The Ladies celebrated the Anniversary with a social gathering on the 4th October, 1952 when they had music by Shm. R. Lakshmi accompanied by Shm. Padma Srinivasan on the violin, Master Parameswaran on the mridangam followed by a short dance recital by Kumari Rajam.

The next activity was a moonlight Picnic organised by the Club Section at the Indraloke Studios on the 2nd November 1952, between 4 P. M. and 8 P. M. when a Nathaswaram recital was given by Sri Kulikkarai K. S. Pichaiappa. Supper was served at about 7 P.M. and the picnic was attended by over 1000 members.

The Music Section is usually very active during this season and their next programme was on 16th November 1952, when Sri G. N. Balasubramaniam gave a concert accompanied



Sri G. N. Balasubramaniam.

by Sri Kumbakonam Rajamanickam Pillai on the violin and Sri Palghat Mani Iyer on the mridangam. This old team seemed to revel in their reunion and the result was rapture to the audience.

It is always a pleasure to arrange concerts by eminent vidwans with top-ranking

accompanists; one is assured of a minimum standard which more than satisfies most of us; often, even if not invariably one finds the performance of a very much higher standard



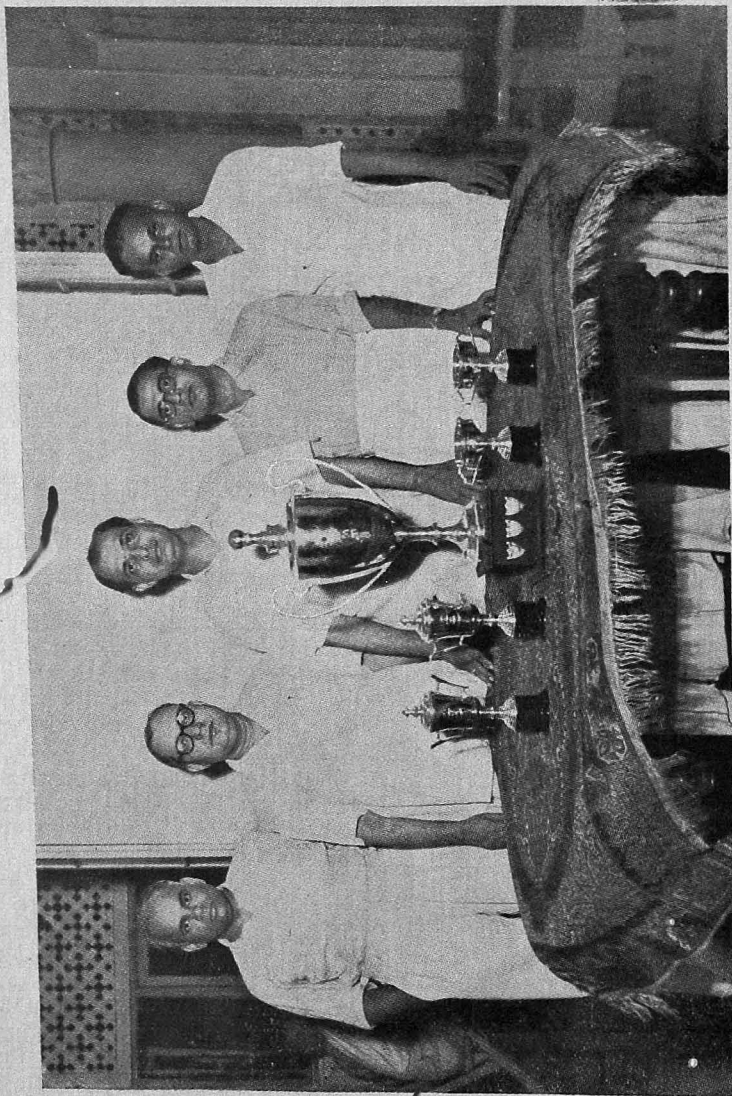
Sangeetha Kalanidhi
Kumbakonam Rajamanickam
Pillai

than the minimum which captivates and thrills the audience.

The Ladies Social is next on the list for 22nd November 1952 and this time it was featured by a Fancy Dress Competition to girls under fifteen years and boys under six years of age.

The Club Section arranged the next social on the 18th January 1953, when Dr. K. V. Krishnan was felicitated upon his appointment as Director, All India Institute of Hygiene & Public Health, Calcutta.

With the T. K. S. Brothers' Dramas in December and a music festival arranged by a sister Institution in January, the Music Section of our Club necessarily had to hold their horses for a while; but they could not remain quiet too long and come into the picture with a Bharatha Natyam recital by Kumari E. V. Saroja with her Guru Natyakala Kesari Sri Vazhuvoor Ramiah Pillai on the 1st February, 1953 at Indraloke Studios. She is certainly a rising star with a bright future and she had the approbation and good wishes of the audience present.



The Winners and Runners up of the Annual Bridge Tournament 1953 with the Coveted Trophies.
Mr. R. J. Shanker, Jt. Secretary, Club Section is seen in the Centre.

The Next function was a picnic to the Botanical Gardens on the 8th February arranged by both the Ladies and the Youth Sections. The members who joined in the picnic assembled at the Club at 9 A.M. and took off in a fleet of buses specially arranged for the occasion. It was a pleasant day and the weather too was fine. The Ladies went round the Gardens and enjoyed the Flower Show that was being held there. Meanwhile after a merry forenoon, the youths had



SRI R. V. SARMA,
Joint Secretary, Youth Section.

gathered at a place for lunch. The Ladies joined, and after lunch an interesting programme of sports competitions was held for the Youths of different ages. In the end, the Ladies' President kindly distributed the prizes to the winners of the various events. It was an exciting afternoon and everyone thoroughly enjoyed the trip. The entire party returned to the Club in the evening.

In March, being the last month of the financial year, usually all Sections review the work done and take stock of the final position. Nevertheless, the Club Section got out an interesting function on the 28th March. It was the Prize Day function of the Annual Bridge Tournament, and was a memorable one in that this Annual feature had been revived after fifteen years, the last tournament held being in 1937. Mr. W. F. Rivers of the Standard Oil Company presided over the function and Mrs. Rivers graciously gave away the trophies to the Winners and the Runners-up. There was the usual programme of speeches. The President welcomed Mr. and Mrs. W. F. Rivers. In his reply, Mr. Rivers gave a short talk on the 'Development, Prospecting and Refining of Oil in India'. Mr. K. Rama Pai who wound up the function thanked Mr. Rivers for his interesting and illuminating speech on 'Oil', his special subject and jocularly remarked that it seemed as if God had sent Mr. Rivers to pour oil in our machinery at a time when oil was needed for its smooth working. After thanks-giving, the function terminated. We can now confidently expect the Bridge Tournament to be a regular annual feature hereafter.

It is now for the reader to judge on the work done by the Club during the period under review. On looking back, one will observe that the Club has grown fast enough in the past two years. This Club has shown that the membership can be catered to entire satisfaction on meagre Subscription. Today, due to financial stringency, members have not the means to increase expenditure in clubs and on entertainments, and in fact are compelled to cut down heavily. It will be gratifying if the Club continued to maintain in the coming years the standard of service and amenities set up in recent years after Re-inauguration.

Our Dispensary

Dr. T. R. BHASKARAN

THE standard of health and well-being of people living in big cities like Calcutta, depends to a large extent on the facilities available for treatment and prevention of diseases. The cost of medical aid in big cities is beyond the means of many. A large proportion of the people who get ill are not able to obtain readily proper medical aid. It is common knowledge that sickness in the individual creates social problems in the community and these social factors play a part in the spread and persistence of disease. The community's health problems are therefore effectively tackled on community wide basis rather than on individualistic basis. The cost of medical care is also greatly reduced, if it is organised on this basis. Many such health schemes are being tried out in different parts of the world. In these schemes every member in the community, whether ill or well, participates and pays a small premium for the treatment of the sick in the community. If this principle of collective responsibility for mutual welfare is accepted, it is possible to provide modern and specialised medical treatment and other services within the means of a vast majority of the people in the community.

In accordance with this trend in public health thought, the South India Club has started a year ago the "Popular Dispensary" to serve the South Indian community in Calcutta. The present set up in the Club includes a clinic, a dispensary and a laboratory to provide medical care to about 400 families.

The services of a qualified and experienced doctor is available at the clinic both mornings and evenings for free consultation by the members of the community. The doctor also attends to minor surgical cases and gives injections to the patients at the dispensary. Outside clinic hours the doctor is available for seeing patients in their homes on request and the visiting fee charged is only Rs. 2/-. A senior physician visits the clinic on Sunday mornings to see and advise the serious cases.

Some of the diseases from which we suffer in Calcutta are preventable. Small pox, cho-

lera, typhoid, plague and diphtheria can be prevented to a large extent through prophylactic vaccination. During epidemic seasons arrangements are made in the clinic for free preventive inoculation against these diseases to those who require them.

The dispensary is stocked with necessary medicines taking care to see that they are of right quality and procured from genuine dealers. The service of a qualified compounder is available at the dispensary to dispense prescriptions accurately. The day's prescriptions, both mixtures and powders are supplied to the members at Re. 1/-. Some of the common patent medicines and injections are also supplied to the members at almost cost price.

The laboratory is an essential component of any modern set up for treatment and prevention of diseases. It helps the doctor in correct diagnosis of the disease in the patient and cure him promptly. A laboratory has therefore been set up with facilities for ordinary routine examination of blood, urine, stool and sputum. A doctor specialised in this type of work carries out the examinations in the laboratory. Specimens are examined in the laboratory at a nominal cost of Rs. 2 per specimen so that members can fully avail of these facilities. The laboratory has been useful not only for early diagnosis of cases but also to check up the progress made by patients from time to time.

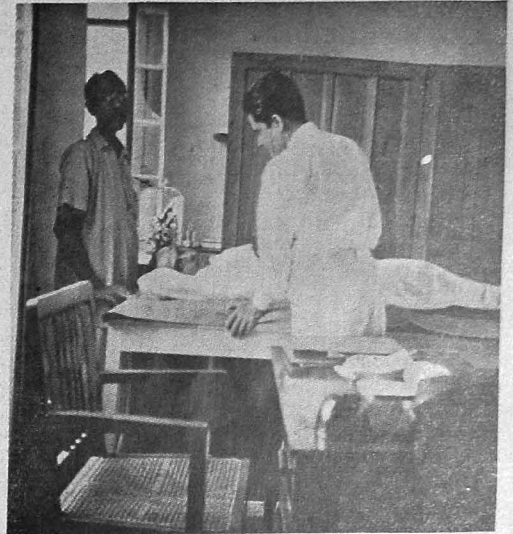
It is a common experience that about five per cent of the patients attending a general clinic require specialised services. But consultation of a specialist in Calcutta is a very costly affair. With the help of some of the influential members of the community, the dispensary arranges for consultation with well-known specialists in serious and complicated cases. Hospital admission is also arranged for patients who require them.

Some of the patients who come to the dispensary cannot afford treatment even at the low level of cost available to them. In such deserving cases arrangements are made for their free treatment at the dispensary. During

SOUTH INDIA CLUB



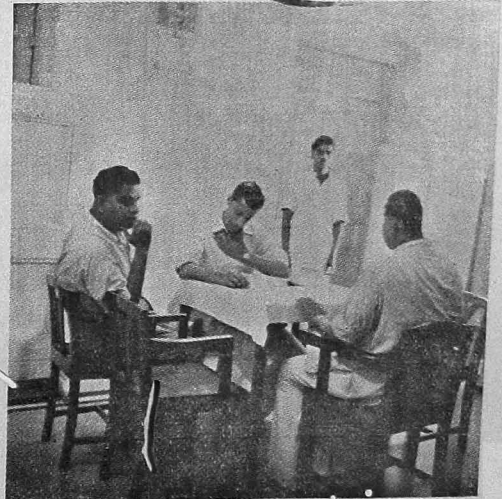
Dr. R. N. Ghose, the Resident Doctor and the General Secretary, R. Narasimhan.



The Clinic: The Doctor Examining a patient.



The Laboratory: Dr. Ghose examining a specimen Over the microscope.



A General view of the Dispensary Reception Room.

TWENTY-SIXTH ANNIVERSARY NUMBER

the year 2 patients suffering from advanced tuberculosis were provided free X-ray, A.P. and a course of Streptomycin injections from special funds donated for the purpose.

One of the immediate requirements of the dispensary is the services of a lady doctor who can attend to special needs of women patients. This will be provided very soon. A family planning unit will also be organised at the clinic as soon as the services of the lady doctor are available at the dispensary

The capital expenditure for setting up the clinic, dispensary and laboratory was met from the generous donations given by the philanthropic minded members in the community. Day to day expenses are met partly from the charges levied for injections, prescriptions and laboratory examinations and partly from the small subsidy from the Club funds. The dispensary is managed by a small Committee which includes eminent medical men and executives of the Club. The Committee meets once a month to review progress, approve tenders of medicines and other supplies and to draw out plans for the working of the dispensary from time to time.

The services provided during the year are summarised in the following Table:—

Patients attending the dispensary ..	2,650
Prescriptions dispensed ..	1,880
Specimens examined in the laboratory (for six months only) ..	190

Vaccinations and other preventive inoculations ..	No
Injection service ..	656
Outside specialist consultation for complicated cases at concession rates	8
Serious cases for whom hospitalisation was arranged ..	6

The scheme has been in operation for about a year now and this is too short a period to judge its usefulness for the community. However, the record of service rendered so far to the community has not been inconsiderable. The full resources of modern scientific medicine are available in the city of Calcutta for treatment and prevention of diseases. But the vast majority of the South Indian families living in Calcutta cannot avail them because the services are too expensive. Our experience in working the scheme for a year has shown that if a service is organised on a community-wide and co-operative basis, it is possible to provide these services within the means of all. In such a service, every member in the community, whether sick or healthy, must contribute a small premium as a part of the subscription to the Club. These subscriptions would provide the means to defray the costs of specialised services also which have hitherto been obtained through the help of influential members in the community. If such services are to be organised on a permanent basis it should be paid fully and not left to philanthropy or generosity of the practitioners. This is possible only if we accept the principle that all members of the community should share in making available to each, the best of medical service in the city

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Seth Indra Kumar Karnani.	3, Synagogue Street, Calcutta.

LIFE MEMBERS

Sri Apcar, L. G.	24, Wellesley Street, Calcutta.
" Bhargava, Motilal	Calcutta Phototype Co., 1, Gibson Lane, Cal
" Bhattacharjee, B	9, Dacres Lane, Calcutta.
" Chidambaram Chettiar, M. A.	Chettinad House, Adyar, Madras.
" Misra, Harigovind	Misra Lodge, Kanpur.
" Raghavendra Rao, K. S.	12/1/2B, Grove Lane, Calcutta
" Rama Iyer, P. C.	134, Rashbehari Avenue.
" Rama Pai, K.	37, Manoharpukur Road.
" Raman, G. V.	58, Ballygunge Circular Road.
" Rangaswami, C. S.	53, Syed Amir Ali Avenue.
" Saraogi, Dharamchand	Esplanade East, Calcutta.
" Subram, A.	10/5, S. R. Das Road.

MEMBERS

Sri Acharya, S. S.	P-244, Lake Road.
" Adishesan, T.	135, Rashbehari Avenue.
" Aiyangar, M. K. S.	166B, Lansdowne Road
" Aiyar, C. D.	18/30, Dover Lane.
" Aiyar, D. S.	79, Jenyns Road, Lillooah.
" Aiyar, K. S.	181, Lansdowne Road.
" Aiyar, S. K.	97, Manoharpukur Road.
" Aiyar, D.	2A, Pratapaditya Road.
" Aiyar, N. R.	23B, Sirdar Sankar Road.
" Aiyar, N. R. S.	P117, Lake Terrace.
" Aiyar, P. R.	32A, Dr. Sarat Banerjee Road.
" Aiyar, P. R. Y.	5/21, Sebak Baidya Road.
" Aiyar, R. R.	40B, Southern Avenue.
" Aiyar, R. V.	112B, Russa Road.
" Aiyar, T. G. V.	P133, Lake Terrace.
" Aiyar, V. A. P.	136, Rashbehari Avenue.
" Aiyar, V. R.	40/2, Manoharpukur Road.
" Aiyar, V. S.	1/19, Prince Gulam Mohomed Road
" Ananthakrishnan, R.	6B, Kunjilal Banerjee Road.
" Anantanarayanan, P. S.	90, Manoharpukur Road.
" Anantanarayanan, P. S.	74, Lake Avenue.
" Anantharaman, A.	19, Bepin Pal Road.
" Anantharaman, N.	37A, Dr Sarat Banerjee Road

Sri Anantharaman, G. K.	...	...	P-72A, Sardar Sankar Road.
" Annadhanam, V. S.	...	...	174, Lansdowne Road.
" Appa Rao, K. V.	...	...	8C, Parkside Road.
" Aravamudhan, K.	...	...	32A, Dr. Sarat Banerjee Road.
" Aravamudhan, R.	...	...	9, Parkside Road.
" Arni, Ramachandra.	...	...	Tobacco Manufacturers (I) Ltd. Kidderpore.
" Arunachalam, M. S.	...	...	179/1, Lansdowne Road.
" Arunachalam, T. G.	...	...	31, Jatin Das Road.
" Arunachalam, T. S.	...	...	13B, Palit Street.
" Bakthavatsalam, R.	...	...	147/A, Lansdowne Road.
" Balachandran, R.	...	...	P24, Lake Road.
" Balakrishnan, K. S.	...	...	8, Satyananda Roy Road.
" Balakrishnan, L. G.	...	...	102, Bakul Bagan Road.
" Balakrishnan, S. R.	...	...	1A, Motilal Nehru Road.
" Balakrishnan, T. R.	...	...	P 240, Lake Road.
" Balan, C.	...	...	5, Southern Avenue.
" Balan, P.	...	...	53, Justice Chandra Madhab Road
" Balasubramanian, A. K.	...	...	28, Janak Road.
" Balasubramanian, C.	...	...	14, Parkside Road.
" Balasubramanian, N.	...	...	25B, Lansdowne Terrace.
" Balasubramanian, R.	...	...	5, Earle Street.
" Banerjee, G.	...	...	13, Deshapriya Park West.
" Banerjee, K. P.	...	...	49/5, Hindustan Park.
" Bapu, M. K.	...	...	P156, Lake View Road.
" Bhaskaran, Dr. T. R.	...	...	136, Russa Road.
" Baskara Rao, R.	...	...	13, Hazra Lane.
" Baskara Rao, S. R. S.	...	...	1/32H, Prince Gulam Mohamed Road
" Bashyam, T. S.	...	...	11, Lake View Road.
" Bhagawadeeswara Iyer, S.	...	...	23A, Ekdalia Place.
" Bhubaneswar Singh.	...	...	Flat 4, 83, Rash Behari Avenue.
" Bhuminathan, P.	...	...	P-30, Raja Basanta Roy Road.
" Bimalendu Coomar.	...	...	18/20, Dover Lane.
" Bose, S.	...	...	174G, Linton Street.
" Bujanga Rao, K.	...	...	P 15B, Kambuliatala Lane, Shambazar
" Chakrapani Rao, T. Y.	...	...	42-B, Jatin Das Road.
" Chakravarti, S. N.	...	...	31B, Lake Avenue
" Chandramouli, T. R.	...	...	190/1, Rashbehari Avenue.
" Chandar, S. R.	...	...	Asst. Aerodrome Officer, Dum Dum.
" Chandran, T. A. R.	...	...	4/2, Justice Chandra Madhab Road
" Chandrasekhar, S.	...	...	8B, S. R. Das Road.
" Chari, P. R.	...	...	32A, Dr. Sarat Banerjee Road.
" Chari, T. A.	...	...	1, Satyen Dutt Road.
" Chellam, P. V.	...	...	43, Lansdowne Terrace.
" Chidambaram, V.	...	...	50/1, Manoharpukur Road.
" Chidambara Iyer, T. P.	...	...	P357, Kayatala Road.
" Chokalingam Chettiar, A. R.	...	...	6, Deshapriya Park Street.
" Chinnappa, K. M.	...	...	36, Brabourne Road.
" Desikachari, R.	...	...	Flat 3, 60B, Chowringhee Rd.
" Devarajulu, A.	...	...	12, Dover Road.
" Dharamarajan, C. N.	...	...	8, South End Park.
" Dikshitulu, M. N.	...	...	Senior purchase Asst., Sindri Fertilisers and Chemicals Ltd. Sindri
" Doraiswamy, S. S.	...	...	43B, Lake Avenue.
" Doraiswamy, T. K.	...	...	1/1, Bompas Road.
" Doraiswamy, R.	...	...	26/1, Satya Doctor Road.
	...	...	1, Lake Place.

Sri Ekambaram, S.	...	...	32, Lake Place.
„ Erskine, S. M.	...	...	2, Ripon Street.
„ Eswaran, S.	...	...	10, Dharma Das Row.
„ Ganapathy, K.	...	...	8, Ritchie Road.
„ Ganapathy, R. B.	...	...	8, Deshapriya Park Rd.
„ Ganapathy, T. N.	...	...	C/o Sri T. G. Narayanan. D-6/3, Canal Road
„ Ganapathy, V. S.	...	...	P-85, Lake Place
„ Ganapathy Iyer, N.	...	...	22B, Sirdar Sankar Road.
„ Ganesan, P. S.	...	...	5A, Greek Church Row.
„ Ganesan, T. N.	...	...	6, Parkside Road.
„ Ganesh, K.	...	...	31/2A, Sadananda Road.
„ Ganesh, K. S.	...	...	4, Dr. Sarat Banerjee Road.
„ Ganesh, S.	...	...	106B, Raja Basanta Roy Road.
„ Ganguly, J. C.	...	...	4, Jatin Das Road
„ Gokulanath, K.	...	...	1, Satyen Dutt Road.
„ Gopal, S.	...	...	39/1, Puddapukur Road.
„ Gopal Kailas Sankar.	...	...	6, Parkside Road.
„ Gopalakrishnan, A. S.	...	...	16C, Garcha Ist Lane.
„ Gopalakrishnan, M. R.	...	...	15/2/2, Deodhar Street.
„ Gopalakrishnan, N.	...	...	83E, Rashbehari Avenue
„ Gopalakrishnan, N. R.	...	...	18/5/B, Dover Lane.
„ Gopalakrishnan, T. S.	...	...	35, Raja Basanta Roy Road.
„ Gopalan, N.	...	...	239/1, Hindusthan Park.
„ Gopalan, S.	...	...	165/A, Janak Road.
„ Govind, M. K.	...	...	2A, Pradapaditya Road.
„ Govindarajan, S.	...	...	23B, Ballygunge Circular Road.
„ Govindarajulu, P.	...	...	10/B, Earle Street.
„ Hariharan, A. S.	...	...	114, Manoharpukur Road.
„ Hariharan, K.	...	...	3, Lansdowne Terrace.
„ Hariharan, T. E.	...	...	114B, Rashbehari Avenue.
„ Hemmad, S. R.	...	...	3, Hindusthan Park.
„ Iswaran, S.	...	...	17B, Pradapaditya Road.
„ Iyengar, A. K.	...	...	42, Garden Reach Road.
„ Iyengar, B. K. T.	...	...	9A, Chowringhee Terrace.
„ Iyengar, K. I. N.	...	...	Embassy Hotel, Central Avenue.
„ Iyengar, N. K.	...	...	58/2, Ballygunge Circular Road.
„ Iyengar, R. P.	...	...	18/20, Dover Lane.
„ Jaga leesh T. K.	...	...	109/3A, Hazra Road.
„ Jagadisa Iyer, V.	...	...	G. P. O. Residential Quarters, Koilaghat Street.
„ Jagannatha Rao, V. N.	...	...	Flat No 6, 27A, Elgin Road.
„ Jagannathan, N. S.	...	...	357, Kayetala Lane
„ Janakiraman, V. S.	...	...	42A, Lake Terrace.
„ Jayarama Rao, M.	...	...	28B, Dr. Sarat Banerjee Road.
„ Jayaraman, G.	...	...	10A, Government Quarters, Dover Lane Extn.
„ Jayaraman, P.	...	...	27, Panditya Place.
„ Kalyanaraman, K.	...	...	25L, Hazra Lane.
„ Kalyanasundaram, T. K.	...	...	21/1, Lansdowne Place.
„ Kapna, M. B.	...	...	P-232, Southern Avenue
„ Kasinathan, V.	...	...	49, Dobson Street, Howrah.
„ Kastufi, S.	...	...	3rd Floor, 30, Gora Chand Road.
„ Kausik, N. N.	...	...	1, S. R. Das Road.
„ Kedaram, A. N.	...	...	Anand Bhawan, 95, Central Avenue

Sri Kesava Menon, Y.	...	94, Russa Road.
„ Krishnan, C. P.	...	11A, Jatin Das Road.
„ Krishnan, C. R.	...	26A, Southern Avenue.
„ Krishnan, G. K.	...	80, Raja Basanta Roy Road.
„ Krishnan, Dr. K. V.	...	7, New Road, Alipore,
„ Krishnan, L. S.	...	“Wimco” Alambazar.
„ Krishnan, M.	...	184, Landowne Road.
„ Krishnan, Dr. M. S.	...	P-24, Gariahat Road.
„ Krishnan, N.	...	1st Floor, 74, Lake Avenue.
„ Krishnan, N. A.	...	Flat No. 11, 56/2A, Gariahat Road.
„ Krishnan, N. S.	...	29/1, Manoharpukur Road.
„ Krishnan, R.	...	40/2, Manoharpukur Road.
„ Krishnan, R. S.	...	106B, Manoharpukur Road.
„ Krishnan, S.	...	28, Deshapriya Park West.
„ Krishnan, S.	...	35B, Raja Basanta Roy Road.
„ Krishnan, S. A.	...	P449, Panditya Road, Extn.
„ Krishnan, S. G.	...	171A, Lansdowne Road.
„ Krishnan, S. K.	...	10A, Aswini Dutt Road.
„ Krishnan, V.	...	6 Gangaprasad Mukherjee Road.
„ Krishnan, V.	...	106B, Raja Basanta Roy Road.
„ Krishna Iyengar, A.	...	32A, Dr. Sarat Banerji Road.
„ Krishna Iyer, C. P.	...	13A, Jogesh Mitter Road.
„ Krishna Iyer, C. V.	...	Flat No. 6, 28, Southern Avenue.
„ Krishna Iyer, K. A.	...	16, Jatin Das Road.
„ Krishna Iyer, P. H.	...	P-28B, Maharaja Nanda Kumar Road
„ Krishna Iyer, V.	...	13A, Panditya Place.
„ Krishna Rao, B.	...	26A, Dr. Sarat Banerji Road.
„ Krishnamoorthy, B.	...	III Floor (South) P-240 Lake Road.
„ Krishnamoorthy, M.	...	77A, Raja Basanta Roy Road.
„ Krishnamoorthy, N. S.	...	56A, Garcha Road.
„ Krishnamoorthy, N. V.	...	22C, Deshapriya Park West
„ Krishnamoorthy, R.	...	80, Raja Basanta Roy Road.
„ Krishnamoorthy, S.	...	63/2A, Landowne Road.
„ Krishnamoorthy, V. R.	...	10A, Aswini Dutt Road.
„ Krishnamoorthy Iyer, C. R.	...	22A, Chakraberia Lane.
„ Krishnamoorthy Iyer.	...	2, Elgin Road.
„ Krishnaswamy, N.	...	39, Mahanirvan Road
„ Krishnaswamy, N. S.	...	C/o. South India Club.
„ Krishnaswamy, P. R.	...	29/2A, Lake Place.
„ Krishnaswamy, R.	...	85C, Southern Avenue
„ Krishnaswamy, S.	...	2B, Apoorva Mitter Road.
„ Krishnaswamy, S.	...	P449, Panditya Road Extn.
„ Krishnaswamy, T. R.	...	Flat No. 6, 56/2A, Gariahat Road
„ Krishnaswamy, V.	...	4A, Dr. Sarat Banerji Road.
„ Kulathu Iyer, R.	...	13D, Palit Street.
„ Kumble, Umesh, S.	...	16, Theatre Road.
„ Kunjithapadam, S.	...	80, Raja Basanta Roy Road.
„ Kuppuswamy, T. S.	...	P-97, Dr. Sarat Banerji Road.
„ Kuppuswamy Iyer, K.	...	22C, Deshapriya Park West.
„ Kutumba Rao, B.	...	41, Lansdowne Terrace.
„ Lakshmanan, K.	...	27, Lake Road.
„ Lakshmanan, Lt. Col., C. K.	...	Director Genl. of Health Services, New Delhi.
„ Lakshmanan, K. S.	...	13D, Palit Street.
„ Lakshmanan, R. S.	...	P-138, Lake Terrace.
„ Lakshminarasimhan, P.	...	36, Lake Road.
„ Lakshminarayanan, K.	...	53, Justice Chandra Madhab Road.
„ Lakshminarayanan, V. R.	...	28, Sadananda Road.

Sri Madhava Rao, N.	...	41C, Ashutosh Mukherji Road.
„ Mahadevan, V.	...	88A, Jatin Das Road.
„ Mahadevan, V.	...	28/12A, Dhakuria Station Road, First Floor (West)
„ Mahalinga Iyer, Krishna.	...	Jasoda Bhawan, II Floor, 167G, Pashbehari Avenue.
„ Mani, B. S.	...	87, Lower Circular Road.
„ Mani, C. H. S.	...	4C, Benoy Bose Road.
„ Mani, G. H.	...	106B, Manoharpukur Road.
„ Mani, K. S.	...	P-105, Lake Road.
„ Mani, K. S.	...	17C, Russa Road.
„ Mani, K. S.	...	22A, Deshapriya Park West.
„ Mani, M. B.	...	7B, Lake Avenue.
„ Mani, M. V. S.	...	240, Lake Road.
„ Mani, P. S.	...	51, Puddapukur Road.
„ Mani, N. S.	...	28, Southern Avenue.
„ Mani, R. S.	...	1A, Bharat Chandra Road.
„ Mani, S.	...	21/4 Aswani Dutt Road.
„ Mani, S. M. S.	...	110, Russa Road.
„ Mani, S. S.	...	20/B, Kabir Road
„ Mani, T. E. S.	...	21A Raja Basanta Roy Road.
„ Mani, T. G. S.	...	7A, Dover Lane Extn., Government Quarters
„ Mani, T. M. S.	...	16, Satyen Dutt Road.
„ Mani, T. V. S.	...	2nd. Floor, 50C, Mudiali Road.
„ Mani, V. M. S.	...	India Paper Pulp Company Limited, Naihati.
„ Mani Iyer, K. S.	...	2A, Canning Street.
„ Maniam, A. V. S.	...	15B, Deshapriya Park Road.
„ Maniam, G. S.	...	36, Panditya Place.
„ Maniam, K. S. S.	...	22B, Deshapriya Park West.
„ Maniam, S. B. S.	...	63/2A, Lansdowne Road.
„ Maniam, V. V. S.	...	23B, Deshapriya Park Road.
„ Manik Rao, Baloor.	...	26A, Southern Avenue
„ Marar, M. M. N.	...	92/1, Bakul Bagan Road.
„ Marar, T. R.	...	64, Theatre Road.
„ Mayuranathan, S.	...	30, Ritchie Road.
„ Mazumdar, N. C.	...	11, Christopher Road, Entally.
„ Menon, A. R. B.	...	66, Theatre Road.
„ Menon, K. G.	...	Flat 16, 3rd Floor, 7, Circus Avenue.
„ Menon, M. V.	...	30, Elgin Road.
„ Menon, N. A.	...	8A, Circus Avenue.
„ Mony, Arun. S.	...	13B, Palit Street
„ Moorhy, A. K.	...	118B, Rashbehari Avenue.
„ Moorhy, A. S.	...	39/D, Sadananda Road, 1st Floor
„ Moorthy, G. V. K.	...	88A, Jatin Das Road.
„ Moorthy, R. A.	...	34A, Manoharpukur Road.
„ Moorthy, S. K.	...	1, Lake Place
„ Moorthy, S. R. K.	...	10, Deshapriya Park Road.
„ Moorthy, V. L. N.	...	P-93/94, Manoharpukur Road.
„ Mukherjee, S.	...	79B, Rashbehari Avenue.
„ Murthi, G. S.	...	4A, St. George Terrace, Hastings.
„ Muthiah, P. L.	...	147, Rashbehari Avenue.
„ Muthukrishnan, N. S.	...	18/23, Dover Lane.
„ Muthuswamy, R.	...	240, Lake Road.
„ Muthuswamy, V.	...	103, Rashbehari Avenue.
„ Muthuswami Iyer, P. V.	...	20, Madhab Lane.
„ Nagaraj, N. Malavalli	...	Belvedere Road.
„ Nagarajan, P.	...	34, Lake Avenue.

Sri Nagarajan, S.	...	...	39/1, Puddapukur Road
" Nagasundaram, N.	...	...	13B, Palit Street.
" Nagasundaram, W.	...	...	
" Nageswaran, S.	...	...	35, Lake Temple Road.
" Nagoji, Sadasivam	...	...	120B, Lansdowne Road.
" Naidu, D. S.	...	...	Baranagar.
" Nair, K. V. A.	...	...	P-217, Landowne Road..
Nair, Rao Sahib P. P.	...	...	32, Palace Court, Kyd Street.
" Narasimhan, K.	...	...	29, Parkside Road.
" Narasimhan, O. S.	...	...	P-144, Lake Road
" Narasimhan, R.	...	...	40B, Southern Avenue.
" Narasimhan, S.	...	...	20/1/1E, & J, Ballygunge Station Road.
" Narasimhan, V.	...	...	8/2, Kalighat Road.
" Narasu, A. V.	...	...	7, Panditya Place.
" Narasinga Rao,	...	...	39/15A, Gopalnagore Road.
" Narasinga Rao, P. N.	...	...	63/3B, Landowne Road.
" Narayan, N.	...	...	P-232, Lansdowne Road Extn.
" Narayan, N S	...	...	24, Dr. Sarat Banerji Road.
" Narayan, R.	...	...	106B, Manoharpukur Road.
" Narayan, R.	...	...	4/3, Katwakoti Lane.
" Narayan, R. S.	...	...	6C, Ishwar Ganguli Road.
" Narayan, V.	...	...	6, Parkside Road.
" Narayanan, A. L.	...	...	53, Justice Chandra Madhab Road.
" Narayanan, G. A.	...	...	2/1, Lake View Road
" Narayanan, K. N. V.	...	...	14/A, Govt Quarters, Dover Lane
" Narayanan P.	...	...	12/4, 1st Floor, Lake Road.
" Narayanan, P. M.	...	...	35B, Lake Place.
" Narayanan, P. N. A.	...	...	4, Maharaja Nanda Kumar Road.
" Narayanan, P. P. S.	...	...	40B, Southern Avenue.
" Narayanan, S.	...	...	2/1, Ritchie Road.
" Narayanan, S. K.	...	...	45, Lansdowne Road.
" Narayanan, S. K.	...	...	K Block, II Floor, 167, Rashbehari Avenue.
" Narayanan, T. G.	...	...	D/6/3, Canal Road.
" Narayanan, T. S.	...	...	166C, Lansdowne Road.
" Narayanan, V. S.	...	...	P144, Lake Road.
" Narayana Iyer, M. S.	...	...	9, Dacres Lane
" Narayana Iyer, R. V.	...	...	8, Mahanirvan Road
" Narayanan Nair, K.	...	...	Flat 21, 7/A, Gokhale Road
" Narayana Murthi, Ganti	...	...	1, Satyen Dutt Road.
" Narayanaswamy, G.	...	...	18B, Rashbehari Avenue.
" Narayanaswami, S.	...	...	22C, Deshapriya Park West.
" Narayanaswami Iyer, N. R.	...	...	25, Janak Road.
" Naresh, S. V.	...	...	21/4, Aswini Dutt Road.
" Nataraj, K. G.	...	...	26, Deshapriya Park Road.
" Natarajan, G. V.	...	...	2B, Bepin Pal Road.
" Natarajan, R.	...	...	1st Floor, 4, Hindusthan Park.
" Natarajan, R. V.	...	...	35, Lake Road.
" Natesan, C. R.	...	...	60C, Raja Basanta Roy Road.
" Natesan, S.	...	...	26, Southern Avenue
" Nathan, S. V. R.	...	...	P244, Lake Road.
" Nilakantan, H.	...	...	28A, Sirdar Sankar Road.
" Nilakantan, K.	...	...	P239/2, Hindusthan Park.
" Nilakantan, P. N.	...	...	23, Janak Road.
" Nilakantan, P. R.	...	...	D 6/3, Canal Road.
" Nilakantan, P. S.	...	...	16, Jatin Das Road.
" Nilakanta Iyer, M.	...	...	59, South End Park.
Nityanand, Dr. V.	...	...	P102, Lake Road.

Sri Odayar, K. C.	...	...	17/A, Russa Road.
„ Padmanabaswamy, S. A.	...	...	8, Deshapriya Park West.
„ Padmanabhan, P. M.	...	...	P-232, Southern Avenue.
„ Padmanabhan, R.	...	...	25B, Lake Avenue.
„ Padmanabha Iyer, T. L.	...	...	15, Parasar Road.
„ Pai, C. S.	...	...	37, Manoharpukur Road.
„ Pai, R. R.	...	...	37 Manoharpukur Road.
„ Pandalai, K. R.	...	...	229E, Darga Road.
„ Parameswara, Iyer.	...	...	5A, Jagadananda Mukherji Lane.
„ Parameswaran, H.	...	...	1/1/5, Beninandan Street.
„ Parameswaran, K.	...	...	17A, Dr. Sarat Banerji Road.
„ Parameswaran, P. P.	...	...	48, Southern Avenue.
„ Parameswaran, T.	...	...	4, Bepin Pal Road.
„ Parasuraman, C.	...	...	72, Pearce Road, Railway Colony, Lillooah.
„ Parthasarathy, A.	...	...	30B, Panditya Road.
„ Parthasarathy, S.	...	...	59, South End Park.
„ Parthasarathy, S.	...	...	24, Dr. Sarat Banerji Road.
„ Parthasarathy, T. N.	...	...	P/58E, Block D, New Alipore, Tollygunge.
„ Parthasarathy, T. V.	...	...	9, Dr. Sarat Banerji Road.
„ Pillai, K. T.	...	...	82, Raja Basanta Roy Road.
„ Prabhakara Rao, K.	...	...	42B, Jatin Das Road.
„ Prahladhan, C. G.	...	...	Traffic Supdt. Office, E. I. R. Bilaspur Railway Station Post.
„ Prakasa Rao, S.	...	...	9A, Lake View Road.
„ Punja, M. R. V.	...	...	82, Raja Basanta Roy Road.
„ Purohit, B. J.	...	...	12C, Raja Basanta Roy Road.
„ Radhakrishnamoorthy, D. V.	...	...	36B, Sardar Sankar Road.
„ Radhakrishnan, A. R.	...	...	79A, Manoharpukur Road.
„ Radhakrishnan, R.	...	...	49, Jatin Das Road.
„ Radhakrishna Rao, Dr. C.	...	...	49/11, Hindusthan Park.
„ Raghavachari, S.	...	...	21C, Garcha Lane, Government Quarters.
„ Raghavachari, T. S.	...	...	39A, Manoharpukur Road.
„ Raghavan, A. R.	...	...	21/1, Lansdowne Place.
„ Raghavan, K. V.	...	...	16, Satyen Dutt Road.
„ Raghavan, R. V.	...	...	P239/2, Hindusthan Park.
„ Raghavan, R. V.	...	...	80, Raja Basanta Roy Road.
„ Raghavan, P. V. V.	...	...	29, Manoharpukur Road
„ Raghunath, Dr. N. V.	...	...	Ceramic Institute, Jadavpur.
„ Raghunathan, K. S.	...	...	13/3/2, Swinhoe Street
„ Raghunathi, T. R.	...	...	18/20, Dover Lane.
„ Raja, N. M.	...	...	P240, Lake Road.
„ Raja Iyer, S. N.	...	...	6, Bompas Road.
„ Rajagopal, Dr. K.	...	...	Flat No 6, 14, Ironside Road.
„ Rajagopal, M. D.	...	...	31B, Lake Avenue.
„ Rajagopal, M. S.	...	...	80, Raja Basanta Roy Road.
„ Rajagopal, R.	...	...	14A, Maharaja Nandakumar Road.
„ Rajagopal, S.	...	...	23A, Sardar Sankar Road.
„ Rajagopal, S.	...	...	39A, Ballygunge Place.
„ Rajagopal, T. B.	...	...	209A, Lansdowne, Road Extension.
„ Rajagopalan, A.	...	...	17A, Dr. Sarat Banerji Road.
„ Rajagopalan, A. V.	...	...	79A, Manoharpukur Road.
„ Rajagopalan, P. S.	...	...	150, Rashbehari Avenue.
„ Rajagopalan, S.	...	...	1, Palm Place, Ballygunge.
„ Rajagopalan, S.	...	...	7, Mint Quarters, Strand Road.
„ Rajagopalan, T. V.	...	...	10A/D, Hungerford Street.
„ Rajan, B. N.	...	...	108, Manoharpukur Road.

Sri	Rajan, M. R.	...	...	Flat 5, Kalidas Patutundi Lane.
"	Rajan, R. D.	...	...	36T, Russa Road, Tollygunge.
"	Rajan, R. G.	...	...	177, Lansdowne Road.
"	Rajan, R. N.	...	...	86L, Manoharpukur Road.
"	Rajan, R. N.	...	...	12B, Deshapriya Park West.
"	Rajan, R. N.	...	...	25, Parasar Road.
"	Rajan, S. S.	...	...	3, Maharaja Nandakumar Road.
"	Rajan, S. T.	...	...	1/19, Prince Gulam Ahmed Road.
"	Rajan, V. N.	...	...	14/A, Dover Road.
"	Rajaram, K. S.	...	...	12/1/2B, Grove Lane.
"	Ramabhadran, G.	...	...	23B, Ballygunge Circular Road.
"	Ramchand, V. S.	...	...	201, Ramkrishtopur Lane, Howrah
"	Ramachander, K. L.	...	...	1/19, Prince Gulam Ahmed Road.
"	Ramchander, R.	...	...	P24, Lake Road.
"	Ramachandran, K.	...	...	48, Southern Avenue.
"	Ramachandran, K.	...	...	7, Loudon Court.
"	Ramachandran, K. K.	...	...	1st floor, 18/62, Dover Lane.
"	Ramachandran, P. S.	...	...	105, Karnani Estates, Lower Circular Road.
"	Ramachandran, R. M.	...	...	27A, Deshapriya Park Road.
"	Ramachandran, S.	...	...	C/o R. S. Sarma Esq., 30, Russa Road.
"	Ramachandran, V.	...	...	22C, Desapriya Park, West.
"	Ramachandran, V.	...	...	18A, Bronfield Row.
"	Ramachandra Rao, R.	...	...	3rd Floor, 150, Rashbehari Avenue.
"	Ramachandra Rao, V.	...	...	1st Floor, 4A, Lake Place.
"	Ramakrishnan, C. S.	...	...	10A, Southern Avenue.
"	Ramakrishnan, C. V. A.	...	...	3, Poollock Avenue, Dum Dum.
"	Ramakrishnan, T. A.	...	...	18/5, Dover Lane.
"	Ramakrishnan, R.	...	...	41, Lansdowne Terrace.
"	Ramakrishnan, R.	...	...	34, Lake Avenue.
"	Ramakrishnan, S.	...	...	31B, Lake Avenue.
"	Ramakrishnan, V.	...	...	1, Parkside Road.
"	Ramakrishna Iyer, K. A.	...	...	Room 17, Kamala Vilas.
"	Ramamoorthy, A.	...	...	10, Dharmadas Row.
"	Ramamoorthy, I. V.	...	...	6B, Dr. Sarat Banerji Road.
"	Ramamoorthy, M. S.	...	...	160A, Lansdowne Road.
"	Raman, K. C.	...	...	183, Lansdowne Road.
"	Raman, K. P.	...	...	9/5, Madhab Chatterji Lane.
"	Raman, R. V.	...	...	1/1/B, Nakuleswar Bhattacharji Lane.
"	Raman, S. D.	...	...	3A, Library Road.
"	Raman, S. V.	...	...	P-237, Lake Road.
"	Raman, S. V.	...	...	Flat 7, 47, Strand Road.
"	Raman, T. N. A.	...	...	5C, Tarak Mitter Lane.
"	Raman, V. K.	...	...	23C, Sardar Sankar Road.
"	Raman, V. L. S.	...	...	16C, Bepin Pal Road.
"	Raman, V. S. V.	...	...	214/14, Lower Circular Road.
"	Ramanan, P. G. V.	...	...	10/5, S. R. Das Road.
"	Ramanan, S. V.	...	...	P51, Raja Basanta Roy Road.
"	Ramani, G.	...	...	41, Landowne Terrace
"	Ramani, P. R. V.	...	...	J. K. Iron & Steel Company Ltd., Rishra.
"	Rama Iyer, J.	...	...	240, Lake Road.
"	Rama Iyer, S.	...	...	37A, Lansdowne Terrace
"	Rama Iyer, S.	...	...	98, Diamond Harbour Road.
"	Rama Iyer, V.	...	...	80, Raja Basanta Roy Road.
"	Rama Rao, T. V.	...	...	24A, Ishwar Ganguli Road
"	Rama Rao, B.	...	...	72A, Sirdar Sankar Road.
"	Ramanujam, K.	...	...	30B, Manoharpukur Road.
"	Ramanujam, K. R.	...	...	75, Satish Mukherji Road.
"	Ramanujam, R. S.	...	...	5/2, Deshapriya Park East.

Sri Ramanathan, N. D.	..	..	254, Manaharpukur Road
" Ramanathan, P. N.	..	..	23, Janak Road.
" Ramanathan, P. V.	..	..	117, Lake Place.
" Ramarathnam, N.	..	..	P237, Lake Road.
" Ramarathnam, S.	..	..	30B, Panditya Road.
" Ramaseshan, P. S.	..	..	19A, S. R. Das Road.
" Ramaseshan, S. K.	..	..	10, Deshapriya Park Road.
" Ramaswamy, A. V.	..	..	2A, Grish Banerjee Lane
" Ramaswamy, Calambur.	..	..	22, Mahanirvan Road
" Ramaswamy, C.	..	..	Dum Dum Metrological Office, Cal. Airport.
" Ramaswamy, K.	...	...	32A, Dr Sarat Banerjee Road.
" Ramaswamy, M.	..	..	4A, St. George Terrace
" Ramaswamy, M. S.	..	..	4A, Dr Sarat Banerjee Road.
" Ramaswamy, N.	..	..	P-537, Aswini Dutt Road.
" Ramaswamy, N. K.	..	..	101A, Rash Bthari Avenue
" Ramaswamy, R. V.	...	...	P357, Kayatola Road.
" Ramaswamy T. V.	...	..	82, Bakul Bagan Road
" Ramaswamy, V.	..	..	28C, Shahnagar Road
" Ramaswamy Iyer, A.	...	...	16A, Deshapriya Park West.
" Ramaswamy Iyer, S.	..	..	82B, Mansatala Lane.
" Ramaswamy Iyengar, P. R.	..	..	23A, Deshpriya Park Road.
" Ram Mohan Rao, P.	...	...	161A, Rashbehari Avenue.
" Ramnath, K.	..	..	75, SatisMukherji Road
" Ramu, P.	..	..	53, Justice Chandra Madhao Road
" Rangachari, A.	..	..	147A Lansdowne Road
" Rangan, V. A. K.	..	..	5, Gopalakrishna Road Madras
" Ranganathan, B.	..	..	47A, Lake Avenue.
" Ranganathan, K.	..	..	209A, Lansdowne Road, Extension.
" Ranganathan, K.	..	..	P62, Lake Road.
" Ranganathan, M. K.	..	..	P115, Parasar Road.
" Ranganathan, N.	..	...	P537, Aswini Dutt Road.
" Ranganathan, S.	..	..	51, Jatin Das Road.
" Ranganathan, T. V.	..	...	5/2, Deshapriya Park East
" Ranganatha Rao, M.	...	...	11, Lake View Road.
" Rangarajan, N.	..	..	7/37A, Panditya Road
" Rangaswamy, D.	..	..	87, Manaharpukur Road.
" Rangaswamy, M. S.	..	...	3A, Wedderburn Road.
" Rangaswamy, P. V.	..	...	P-165A, Janak Road.
" Rangaswamy, S.	..	...	21/1B Chakraberia Lane.
" Rangaswamy, S. N.	..	...	19/1, Manoharpukur Road
" Rangaswamy, V. K.	..	...	Bangalow 7, Garden Reach Road
" Rao, R. S.	...	..	P-16/4/1, Manoharpukur Road.
" Rao, Dr. B. V. S.	..	...	16D, Bepin Pal Road.
" Rao, C. N. R.	..	...	22B, Janak Road
" Rao, K. R. N.	..	...	6B, Ashton Road.
" Rao, M. G. M.	..	..	Gobind Bhawan, 66/1, Rusa Road (South)
" Rao, M. G. R.	..	...	196, Ramkistopore Lane.
" Rao, M. K.	..	...	16/3D, Garcha 2nd Lane
" Rao, R. N.	..	...	17, Tara Chand Street
" Rao, S. R. K.	..	..	1/4, Prince Gulam Mohamed Road
" Rao, S. V. R.	..	...	6B, Gangaprasad Mukherji Road.
" Rao, V. K. V.	..	...	42B, Jatin Das Road
" Ratnam, C. N. G.	...	...	28, S. R. Das Road.
" Sadasivam, M.	..	...	18/84, Dover Lane.
" Sadasivam, Y.	..	..	1, Satyen Dutt Road
" Sampath, B. R.	...	...	6, Tilak Road.
" Sampath Iyengar, A. C.	...	...	Flat 7, 233, Lower Circular Road.

Sri Sampathkumar, D.	...	11, Lake View Road.
" Sankar, G. R.	..	106B, Manoharpukur Road.
" Sankar, R. J.	...	P-237, Lansdowne Road.
" Sankar, S.	...	1/1A, Beninandan Street.
" Sankaran, A.	..	32/1A, Chakraberia Road, South
" Sankaran, K. S.	...	37, Parasar Road.
" Sankaran, P. R.	...	3, Maharaj Nandakumar Road
" Sankaran, R.	..	19A, S. R. Das Road
" Sankaranarayanan, P. R.	...	2B, Lansdowne Road.
" Santanam, S.	...	16B, Manilal Banerji Road, Kidderpore.
" Santanaraman, P.	...	20/10 Aswani Dutta Road.
" Sarangachari, J.	...	132, Russa Road.
" Sarathy, S. P.	...	2, Portland Park Alipore
" Sarathy, S. P.	...	Flat No. 5, 53, Jatin Dass Road
" Sarma, G. S.	...	21/4, Aswini Dutta Road.
" Sarma, M. S.	..	132, Russa Road.
" Sarma, M. S.	...	122B, Lansdowne Road.
" Sarma, M. S. M.	...	C/o Searchlight, Patna, Behar
" Sarma, R. S.	..	30, Russa Road
" Sarma, R. V.	...	2B, Pratapaditya Road.
" Sarma, S. S.	...	80, Raja Basanta Roy Road
" Sarma, T. S. R.	...	33, Lansdowne Terrace
" Sastri, G. S. V.	...	27C, Raja Basanta Roy Road
" Sastri, M. R.	...	8, Deshapriya Park West.
" Satyamoorthy, V.	...	11B, Lake View Road
" Satyanarayana Rao, M.	...	11, Lake View Road
" Satyanath Menon, T. C.	...	5, Jatin Das Road.
" Sekhar, K. C.	...	29/1, Manoharpukur Road.
" Sekhar, M. C.	...	P-236 Lansdowne Road, Extn
" Sekhar, P. C.	...	53, Syed Amir Ali Avenue.
" Sekhar, R. C.	...	52, Lake Avenue
" Sen Gupta, R. M.	...	Flat No. 35, Palace Court, Kyd Street
" Senthippan, K.	...	25A, Government Quarters, Garcha Lane
" Seshadri, A. T.	...	29/7, Lake Place.
" Seshadri, T. C.	...	16B, Maharaja Nandakumar Road
" Seshadri, K. V.	...	91/1, Tollygunge Road.
" Seshadri, T. R.	...	39A, Manoharpukur Road
" Seshan, P. A.	...	P-82, Sardar Sankar Road.
" Seshan, P. R.	...	19A, S. R. Dass Road.
" Sesha Iyer, R.	...	18, Janak Road.
" Seshiap, S.	...	75, Satish Mukherji Road
" Seshukutty, T. S.	...	6, Fern Road, Ballygunge.
" Sethuraman, S.	...	16, Jatin Dass Road
" Shamanna, R.	...	46A, Southern Avenue
" Shiva Rao, N.	...	25, Kings Court, Theatre Road
" Sitaraman, M. N.	...	177, Lansdowne Road.
" Sitapathi, T. S.	...	13, Chowringhee Terrace
" Sitaram, S.	...	20B, Deshapriya Park, Road
" Sitaram Iyenger, K.	...	Machinery Mfrs Corpn Ltd Park Street
" Sitaraman, A. K.	...	101B, Rashbehari Avenue
" Sitaraman, G. L.	...	23, Parkside Road
" Sitaraman, G. H.	...	Flat 23, 2, Elgin Road.
" Sitaraman, K. S.	...	6/1, Commisariat Road, Hastings
" Sitaraman, V.	...	16, Indra Roy Road.
" Sitaramiah, M. S.	...	P-85, Lake Place.
" Sivaraman, G.	...	27, Panditya Place.
" Sivaraman, K. G.	...	167, Lansdown Road
" Sivaramakrishnan, T. R.	...	13, Hazra Lane

Sri Sivaramakrishna Iyer, P. M.	..	16, Lake Terrace.
" Siva Sankaran, T. G.	...	10, Ripon Lane.
" Somasundaram Chetty, P. R.	...	Brabourne Road.
" Soundrarajan, Dr. A R	...	13, Hazra Lane.
" Soundararaj, N. S.	...	24, Dr Sarat Banerji Road.
" Souri Rajan, T. K.	...	P-122B, Lake Place.
" Srinivas, K.	...	43B, Lake Place.
" Srinivas, P. R.	..	5, Harish Mukherji Road.
" Srinivasan, C A.	..	6, Tilak Road.
" Srinivasan, E K.	..	18/2, Ballygunge Circular Road.
" Srinivasan, G.	...	2C9A, Lansdowne Road, Extn.
" Srinivasan, K.	..	116, Lower Circular Road.
" Srinivasan, K. S.	..	P-80, Sirdar Sankar Road.
" Srinivasan, K. V	...	17A, Dr. Sarat Banerji Road
" Srinivasan, M.	...	4A, St George Terrace.
" Srinivasan, N.	..	38B, Raja Basanta Roy Road
" Srinivasan, N.	..	18/61, Dover Lane.
" Srinivasan, N. R.	...	26A, Southern Avenue.
" Srinivasan, P. K.	...	6, Parkside Road.
" Srinivasan, P. N.	...	40B, Maharaja Nanda Kumar Road.
" Srinivasan, P. R.	..	8, Ritchie Road.
" Srinivasan, R.	...	68B, Mahanirvana Road
" Srinivasan, R.	..	Garden Reach, Quarter No. 15, Eastern Ry.
" Srinivasan, R.	...	16A, Deshapriya Park West.
" Srinivasan, S.	..	5, Lansdowne Terrace
" Srinivasan, S.	..	2A, Bepin Pal Road
" Srinivasan, S. D.	..	Flat No 9, Loudon Court, 13, Loudon Street.
" Srinivasan, T.	...	42A, Lake View Road.
" Srinivasan, T.	...	29, Parasar Road.
" Srinivasan, T. D.	...	63E, Mahanirvan Road.
" Srinivasan, T. R.	..	2B, Pratapaditya road.
" Srinivasan, V.	...	9, Lake View Road
" Srinivasan, V.	..	1, Lake Terrace
" Srinivasa Iyer, K. S.	...	113A, Manoharpukur Road.
" Srinivasa Iyer, V.	..	4A, Bompas Road
" Srinivasa Rao, P	...	153A, Lansdowne Road
" Srinivasa Rao, Dr. H.	..	Central Inland Fisheries Research Station, Barrackpore
" Srinivasaragavan, N	...	Room 26, 73, Rashbehari Avenue.
" Subba Reddy, K.	...	147, Rashbehari Avenue
" Subban, C. R V	...	Room 5, Calcutta Club.
" Subba Rao, C.	...	8, Deshpriya Park Road
" Subba Rao, C.	...	P-357, Kayatola Road
" Subba Rao, K.	..	136B, Rashbehari Avenue.
" Subba Rao, N.	...	23, Lansdowne Terrace.
" Subbiah, H.	...	53, Jatin Das Road
" Subbia, R.	..	Officers' Colony, Kanchrapara.
" Subramania Sastri.	...	25A, Lansdowne Terrace
" Subramanian, G.	..	19, Lake Road.
" Subramaniyam, G. V.	...	88A, Jatin Das Road
" Subramanian, K.	...	68/5, Manoharpukur Road
" Subramanian, K.	..	62, Southern Avenue.
" Subramanian, K. K.	..	18/62, Dover Lane.
" Subramanian, K R	...	37A, Lansdowne Terrace.
" Subramanian, K S	..	30, Gorchand Road.
" Subramanian, M.	..	11, Jatin Das Road.
" Subramanian, M S	..	17C, Russa Road.
" Subramanian, N.	..	4, Jatin Das Road

Sri Subramanian, N. S	Room No. 3, YMCA, Chowringhee.
„ Subramanian, N. S	Geeta Bhawan 166A, Lansdowne Road.
„ Subramanian, P	... 88A, Jatin Das Road.
„ Subramanian, P.	... 25H, Hazra Lane.
„ Subramanian, P. S.	... 49, Jatin Das Road.
„ Subramanian, P. V	... P-68, Lake Road.
„ Subramanian, R.	... 74, Lake Avenue.
„ Subramanian, R.	... 8/1, Hindusthan Park.
„ Subramanian, R	... 5J, Post Office Road, Dum Dum.
„ Subramanian, R.	... 4, Dover Road.
„ Subramanian, R.	Room No 5, Komala Vilas.
„ Subramanian, R. V	... 66, Mahanirvana Road.
„ Subramanian, S. R	... 28, Southern Avenue
„ Subramanian, T. N	... 33, Panditya Place.
„ Subramanian, T. S	... P-88, Lake Road
„ Subramanian, T. V.	Flat No. 4, 77D, Park Street
„ Subramanian, V.	9A Lake View Road
„ Subramanian, U. M.	... 240, Lake Road
„ Subramanian, V. V.	... 205, Karaya Road.
„ Subramania Iyer, P. N	... 89, Manoharpukur Road.
„ Sukumar, I.	... Usha Bhawan, Prince Anwarshah Road.
„ Sundaram, C. A. M.	... P-24, Lake Road.
„ Sundaram, E. S.	... 74, Lake Avenue.
„ Sundaram, M. R.	... 8, Deshapriya Park West.
„ Sundaram, P. S. M	... 235, Lower Circular Road.
„ Sundaram, R. K	... 18/62, Dover Lane.
„ Sundaram, R. V	... 109/3A, Hazra Road
„ Sundaram, S	... Flat No. 5, 28, Southern Avenue.
„ Sundaram, S.	... South India Club
„ Sundaram, S. S.	147A, Lansdowne Road
„ Sundaram, V. G.	... P-40B, Raja Basanta Roy Road.
„ Sundaram Iyer, S.	... P-515, Aswini Dutt Road.
„ Sundara Rajan, T. B.	... P-237, Lake Road
„ Sundara Rao, S	... 8/38, Fern Road.
„ Sundaresan, N	... 39/A, Hazra Road.
„ Sundara Raman, T. R	... P.138, Lake Terrace.
„ Suryanarayanan, C. S.	... 11, Lake Avenue
„ Suryanarayanan, J	... 15/6, Deodar Street.
„ Suryanarayanan, G.	... 6, Tilak Road.
„ Swami, M. R. N.	... 22A, Deshapriya Park West
„ Swami, R. N	... 4/2, Mahendra Road.
„ Swami, R. Y.	... 2, Ashutosh Bose Lane, Howrah
„ Swami, V. N.	... 15, Belvedere Road.
„ Swami, V. S. K.	... P-237, Lake Road
„ Swaminathan, C. V.	... P-98, Lake Terrace.
„ Swaminathan, K.	... 22A, Chakraberia Lane.
„ Swaminathan, L.	... 6A, Deshapriya Park West.
„ Swaminathan, N.	... 1, Siddeswari Road.
„ Swaminathan, P. A.	... P-82, Sirdar Sankar Road.
„ Swaminathan, R.	... 53, Syed Amir Ali Avenue.
„ Swaminathan, R.	... 112B, Russa Road
„ Swaminathan, S.	... 7&8, Golf Club Road Tollygunge
„ Swaminathan, S.	... 13A, Deodar Street
„ Swaminathan, T. R.	... 32, Lake Place.
„ Thandavan, N.	... 1A, Dr. Sarat Banerji Road.
„ Thyagarajan, K. S.	... 17A, Dr. Sarat Banerji Road.

Sri Thyagarajan, K. V.	...	15A, Bepin Pal Road.
" Thyagarajan, R.	...	P-239/2, Hindusthan Park.
" Thyagarajan, S. R.	...	27, Ekdalia Road.
" Thirumalachari, S. T	...	31/B, Lake Avenue.
" Unni, M. K.	...	30A, Puddapukur Road.
" Vaidyanathan, G.	...	97, Manoharpukur Road.
" Vaidyanathan, K.	...	Usha Bhawan, Prince Anwarshah Road
" Vaidyanathan, L. V.	...	30, Ballygunge Place.
" Vaidyanathan, P.	...	200, Ramkistopur Lane, Howrah.
" Vaidyanathan, P.	...	4, Jatin Das Road.
" Vaidyanathan, S.	...	1A, Sarat Banerji Road
" Vaidyanathan, S.	...	Ist Floor, 10, Raja Basanta Roy Road.
" Vaidyanathan, V. R.	...	8/1, Hindusthan Park.
" Vaidyanathaswamy Iyer, M.	...	114/4/1, Hazra Road
" Vancheeswaran, M. S.	...	17/C, Russa Road.
" Varma, R. R.	...	Room No. 17 Komala Vilas.
" Varadachari, S	...	Hindusthan Motors, Uttarpura
" Vasudevan, A.	...	Godfrey Mansions, B. N. R. Officers' Quarters
" Vasudevan, N	...	5, Janak Road.
" Vasudevan, S.	...	11, Sultan Allum Road, Tollygunge
" Veeramani, K	...	6, Bompas Road.
" Vembu, N. S.	...	201, Ramkristopore Lane Howrah.
" Venkoba Rao, M.	...	117/1/B, Lake Terrace.
" Venkatachalam, K.	...	4, Hindusthan Road.
" Venkatachalam, V. S.	...	51, Paddapukur Road
" Venkatapathi, K. S.	...	32A, Deshapriya Park Road
" Venkatakrishnan, T. A	...	80, Raja Basanta Roy Road.
" Venkataraman, Dr. K. V.	...	1, Stephen Court, 18B, Park Street.
" Venkataraman, M. K.	...	12, Motilal Nehru Road
" Venkataraman, N. R	...	38E The Park, Ichapur, Nawabganj
" Venkataraman, R	...	31, Lake Avenue.
" Venkataraman, S	...	P-98, Lake Terrace.
" Venkataraman, S	...	37, Parasara Road.
" Venkataraman, T. R.	...	19, Lake Road.
" Venkataraman, V.	...	2B, Pratapaditya Road
" Venkatasubbiah, D.	...	39/15A, Gopalnagar Road.
" Venkata Rao, H. K.	...	28, Mahanirvana Road
" Venkatesan, V	...	18A, Lansdowne Road
" Venkateswar, A. K.	...	32B, Dr. Sarat Banerji Road
" Venkateswaran, K. S.	...	37A, Lansdowne Terrace
" Venkateswaran, P. R.	...	18/1, Dover Lane.
" Venkateswaran, P. V.	...	52, Sadananda Road
" Venkateswaran, S	...	132, Rashbehari Avenue.
" Venkateswara Iyer, C. S.	...	4, Maharaja Nanda Kumar Road.
" Venkateswara Sarma, C. V	...	"Wimco" Alambazar
" Venkoba Rao, R.	...	1/4, Prince Gulam Mohamed Road
" Venugopal, V	...	C/o Popular Canteen Rashbehari Avenue
" Vishnumurthy, K. Y	...	838, Fern Road.
" Viswam, R.	...	Flat No. 6, P-165A, Janak Road
" Viswanathan, E. N.	...	P-240, Lake Road
" Viswanathan, K. S.	...	34, Eastern Court, P-29, Mission Row Extn
" Viswanathan, M.	...	4A, St. George Terrace, Hastings.
" Viswanathan, N.	...	28B, Maharaja Nandakumar Road
" Viswanathan, P. R	...	16, Jatin Das Road.
" Viswanathan, R.	...	103, Rashbehari Avenue
" Viswanathan, S.	...	106B, Manoharpukur Road

Sri Viswanathan, S.	...	1/19, Prince Gulam Mohomed Road
„ Viswanathan, S.	...	9, Dacres Lane.
„ Viswanathan, S.	...	75, Satish Mukherji Road
„ Viswanatha Iyer, S.	...	16D, Bepin Pal Road.
„ Viswanatha Pillai, S.	...	38, Rashbehari Avenue.
„ Vittal Rao, S. N.	...	11, Manoharpukur Road.
„ Vyasa Rao, S. N.	...	7B, Deshapriya Park Road.
„ Venkatarama Poti,	...	32/1/1, Malanga Lane.
„ Werrin U. K	...	Suite 6, 7, Circus Avenue.

Music Section

Sri Chari, R. K.	...	35B, Raja Basanta Roy Road.
„ Subramanyan, K.	...	P-85, Lake Place.
„ Venkataram, Anant	...	63/2B, Lansdowne Road

Club Section

Sri Das, P. G.	...	49/1, Chakraberia Road.
„ Mahadevan, R. P	...	78/B, Sardar Sankar Road.

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Sri Andrews, George	...	132, Rashbehari Avenue.
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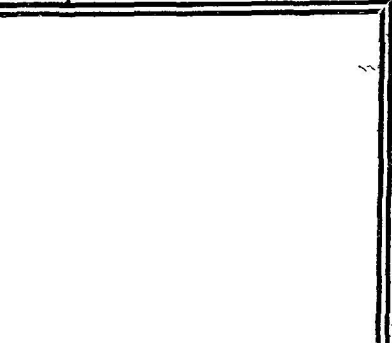
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