



COCHIN

INFORMATION



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“COCHIN”

“COCHIN” is a profusely illustrated and superbly got up publication graphically describing Cochin’s varied and various war efforts, her distinctive culture and civilisation, her arts and crafts, her customs and manners, her notable advance in industries and agriculture, her striking progress in education and other fascinating features and interesting developments.

“COCHIN” describes in about 400 and odd pictures the full story of Cochin’s magnificent war achievements, the manner in which she placed her resources in men and material at the disposal of the Allied Nations to fight the forces of evil.

“COCHIN” is a publication which everybody should possess.

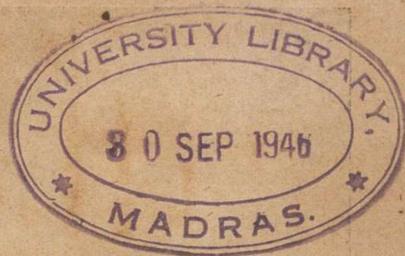
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The Information Officer,

Government of Cochin,

ERNAKULAM.



*Diwan's House,
Ernakulam, 31st January 1946.*

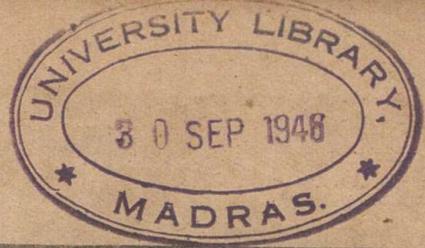
It is my melancholy duty to announce to the people of the Cochin State that our beloved Ruler His Highness Maharaja Sri Ravi Varma passed away at the Hill Palace, Trippunittura, at 7-28 a.m. on Thursday the 31st January 1946.

May his soul rest in peace.

G. T. BOAG
Diwan of Cochin



HIS HIGHNESS SRI RAVI VARMA
Late Maharaja of Cochin



HIS HIGHNESS SRI KERALA VARMA
Maharaja of Cochin



**IT IS OUR MELANCHOLY DUTY TO ANNOUNCE THE PASSING AWAY
OF HIS HIGHNESS SRI RAVI VARMA, MAHARAJA OF COCHIN, ON THE
31ST JANUARY 1946. MAY HIS SOUL REST IN PEACE.**

(The Gazette Extraordinary announcing the lamented demise of His Highness Maharaja Sri Ravi Varma was issued while this issue of Cochin Information was in the Press. Certain portions which had already been printed had to be recast.)

THE LAST ANNOUNCEMENT

His Highness Sri Ravi Varma passed away on the 31st January, a few days after celebrating His Highness' eightieth Birthday. His Highness received a public address on the 80th Birthday, a unique event celebrated for the first time by a Ruler of the 15 centuries old dynasty of Cochin. The following reply was made by His Highness:

“I CAN assure you that it always be my endeavour to enhance the prestige of the State and the happiness of my people, by leading them to an era of greater prosperity and progress in the political, social and economic spheres”, said H. H. Sri Ravi Varma, Maharaja of Cochin in reply to the

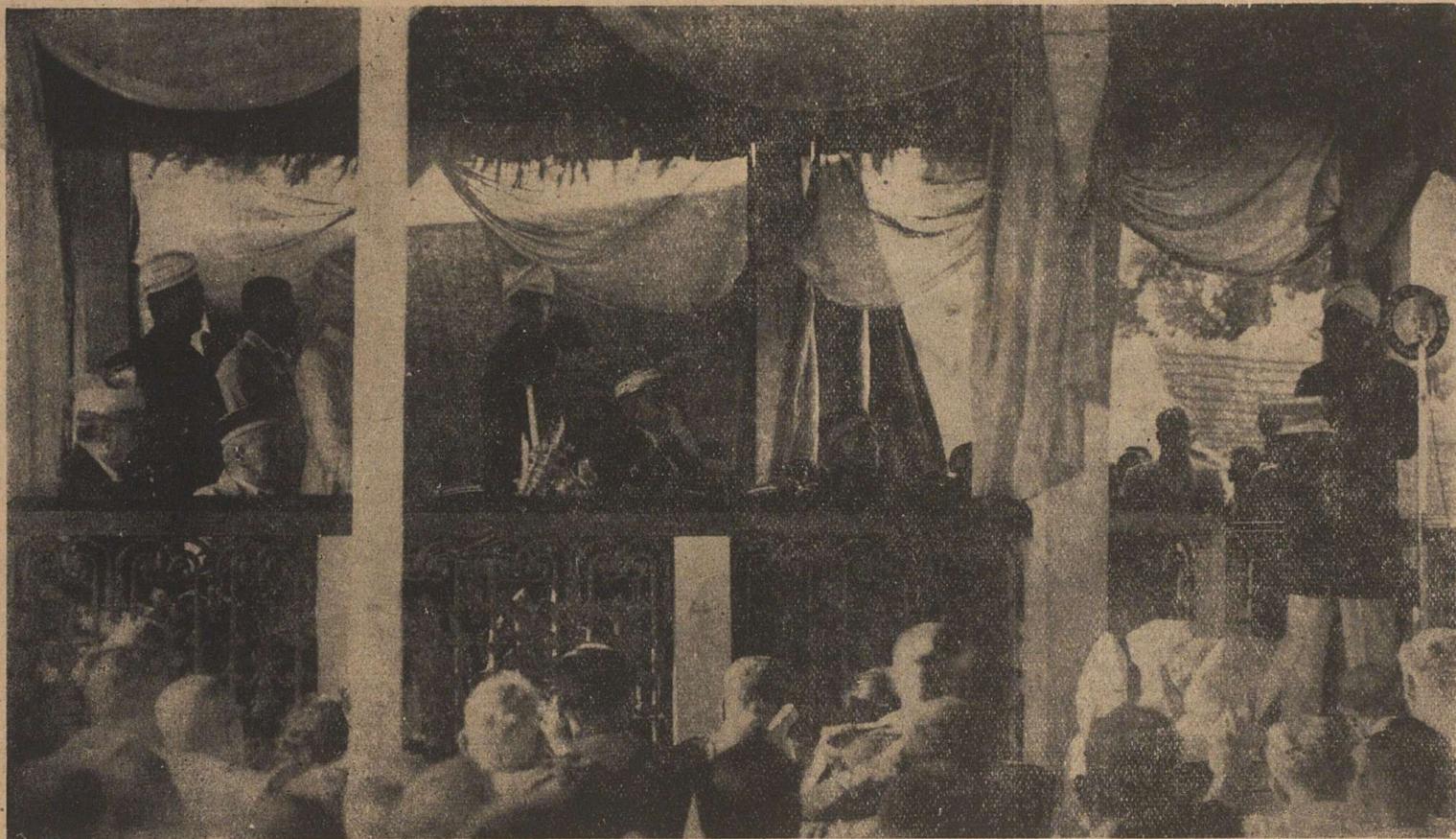
address presented to His Highness by the citizens of the State on the occasion of His Highness' eightieth birthday, a unique event celebrated for the first time by a Ruler of the 15 centuries old dynasty of Cochin. His Highness replied as follows.—



H. H. The late Maharaja's arrival in the Palace grounds, Ernakulam, to receive the people's address

“I am deeply touched by the sentiments of deep and abiding loyalty and affection which animate your address. Called to this post of responsibility and trust at a critical time, if I have the satisfaction to-day that the State is passing creditably through dark days into an era of better times, it is mainly because I,

like my predecessors, have had the loyal support of my people with whom myself and my House always owned an identity of interest. I always realise that there is a special duty laid upon me to see that all opportunities for advancing the interests of my State and my people are availed of. I can assure you that it will always be my



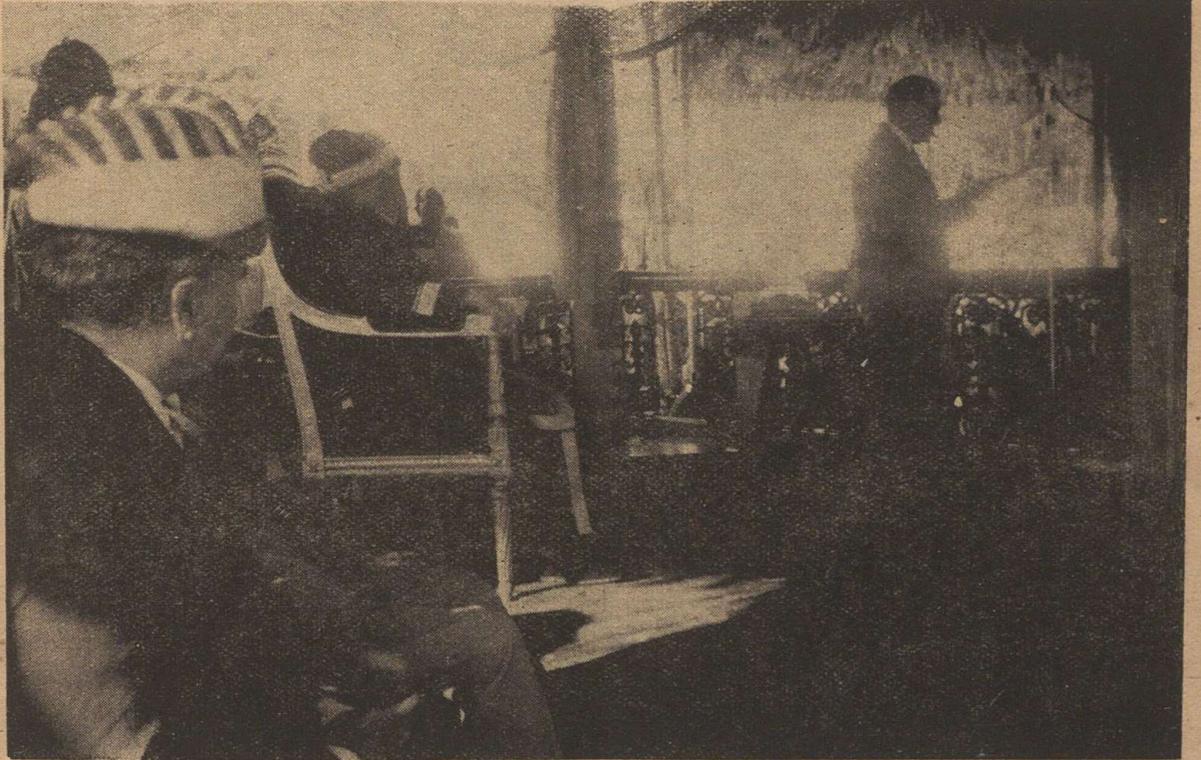
Mr. Parambi Lonappen, Minister, reading the address presented to H. H. the late Maharaja

endeavour to enhance the prestige of my State and the happiness of my people, by leading them to an era of greater prosperity and progress in the political, social and economic spheres. Appropriate steps in that direction will be taken whenever considered desirable. The separate proceedings that are being issued to-day show one such instance.

It is moreover my sincere hope that it will be possible to put into execution

without undue delay major projects vital to the State's progress like the Hydro-Electric scheme which have been under consideration for some time.

It has been and will be my earnest endeavour always to found my rule on the sure rock of your affection and devotion and to seek my reward in your well-being. With the guidance of the Paramount Power, the devoted service of my officers and the loyal co-operation of my subjects



Sir George Boag, Diwan, reading His Highness' reply to the address

and their representatives, I hope to fulfil my heavy responsibilities and so discharge my duties to you and to the State.

I thank you for your good wishes which I shall always cherish with feelings of gratitude."

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The public address stated that "we sincerely feel that in Your Highness we have a Ruler of ripe wisdom and experience, whose constant endeavour is to promote the welfare and happiness of his people and who seeks his contentment in

their prosperity", and that "throughout these dark and difficult days, Your Highness has guided the destiny of the State with firmness and foresight, a breadth of outlook and strict adherence to constitutional proprieties. Now, with the cessation of hostilities, we are gratified to find that the immense task of rehabilitation and readjustment of economic conditions in the State has already engaged Your Highness' earnest consideration and that

steps are being taken to harness the whole machinery and resources of the Government to the great objective of improving and stabilising the welfare of the common people. We beg to assure Your Highness, if any assurance be needed, that, in the solution of the problems that lie ahead, Your Highness can always count on the unstinted co-operation of Your Highness' subjects".



Departure of His late Highness The Maharaja

ANNOUNCEMENTS

THE announcements made by His Highness the late Maharaja reveal the great interest that His Highness takes in the progress of the State and in the welfare of his subjects. It was announced that a Franchise Committee would be constituted to consider the extension of the present franchise qualifications for election to the State Legislative Council and that the non-official Members of the Council would be paid an honorarium with effect from the beginning of the next Malayalam year (17th August 1946). For the promotion of technological studies in the Maharaja's College in heavy chemicals (acids, alkalies, salts, etc.), oil and soap technology and fermentation three lakhs of rupees would be set apart and one lakh of rupees to aid publication of old Sanskrit manuscripts.

A contended educational staff is a *sine qua non* for the progress of education. His Highness announced that the pay of the Primary class teachers would be raised from Rs. 17 to Rs. 20-1-30-2-40.

In recognition of the great services rendered to the cause of Malayalam Literature titles and medals were awarded to the following literary men. Literature has no territorial barriers. There is nothing parochial in the selection.

Meemamsaka Thilakan.—Brahmasri Sethu Madhava Deekshitachariar Avergal, Meemamsaka teacher, Brahmaswom Madhom, Trichur.

Vedanti Thilakan.—Brahmasri Vidwan Polpakara Domodaran Namburipad Avergal, Guruvayur.

Sabdika Thilakan.—M. R. Ry. M. B. Sankaranarayna Sastrigal Avergal, Professor of Vyakarana, Sanskrit College, Trippunittura.

Gaveshaka Thilakan.—(a) Dr. C. Kunhan Rajah, Madras.

(b) Dr. L. A. Ravi Varma, Trivandrum.

Sahitya Kusalan.—(a) M. R. Ry. A. D. Hari Sarma Avergal, Ernakulam.

(b) M. R. Ry. Puthezhath Raman Menon Avergal, B.A., B.L., District Judge, Ernakulam.

(c) M. R. Ry. Joseph Mundasseri Avergal, Professor, St. Thomas College, Trichur.

(d) M. R. Ry. P. Gopalan Nayar Avergal, Retired Pandit, High School, Kollengode.

Kavi Thilakan.—(a) M. R. Ry. Vatakumkoor Rajah Rajah Varmah Rajah Avergal, Vycome.

(b) M. R. Ry. G. Sankara Kurup Avergal, Assistant Professor, Maharaja's College, Ernakulam.

(c) M. R. Ry. P. Sankaran Nambiar Avergal, M.A. (Hons.), Principal Maharaja's College, Ernakulam.

(d) M. R. Ry. Pallath Raman Avergal, Palghat.

(e) M. R. Ry. Changarom Kotha Krishnan Kartha Avergal, President, Parappukara Village Court.

Bhaktha Siromani.—Brahmasri Vazhakunnam Vasudevan Nambudiri Avergal, Thonellur, Erumapetti.

His Highness was pleased to give a Veerasringala to Dr. Rm. Alagappa Chettiar and a gold medal to Captain C. R. Mannadiar, A.D.C. to His Highness.

FELICITATIONS

AT the meeting of the Legislative Council in December felicitations were offered to His Highness the Maharaja by the Members of the Council representing all parties and interests. Mr. Parambi Lonappen, Minister for Rural Development, in winding up the proceedings of the Council, said that it gave him great pleasure to felicitate His Highness on His Highness' eightieth birthday. In doing so he said,

"I am not influenced by reasons of convention but actuated by the deep conviction that I am paying my respectful and humble homage to a Ruler, highly religious and god-fearing one who is bestowed with great intelligence and culture acquired by deep learning and vast reading—a Ruler who is extremely anxious to promote the welfare of all classes of His Highness' subjects without the least distinction of caste, creed or religion. Without fear of contradiction I can assert in this House and for the information of the public in Cochin and outside, that but for His Highness' extreme solicitude to and equal treatment of all his subjects, I would not have occupied the trusted post of the Minister of His Highness' State. I think it is superfluous for me to dilate upon and repeat the great qualities

of head and heart of His Highness the Maharaja after the speeches you had the pleasure of hearing from the mouths of more than one honourable member of this House representing various sections. Those qualities are well known to all His Highness' beloved subjects. However, I wish to refer to one or two noble and striking qualities of his, as Ruler of this State.

I am an admirer of constitutional monarchy. I believe that a strong constitutional monarch is a check upon the vagaries of his Ministers. And his Ministers' administrative advice is an equally good guide to the benevolent administration of the country by a King. A clever and intelligent legislative body is also an equally good institution to check and regulate the actions of the Ministry responsible to the legislature and to the people of the State. That is why I stated that I admire constitutional monarchy. By a long process of benevolent gifts on the part of the Maharajas of Cochin, this State has progressed to a stage of efficient administration by a constitutional ruler and is continuing to progress towards the ideal. I know by close contact with our beloved Maharaja that he is an absolutely constitutional ruler

desirous to advance the constitution for the welfare of the State and His Highness' subjects.

Secondly, I can testify to His Highness' constant anxiety to promote the well-being of the villages and the working classes amongst His Highness' subjects. And it will not be out of place if I mention here the fact that every time I had the happiness and privilege of conversing with His Gracious Highness' in my capacity formerly as an officer of this State and now as His Highness' trusted Minister, I was invariably moved by His Highness' anxiety to know the conditions of the people in the villages and the desire to promote their welfare and that of the working classes. I request to be excused if I also mention of my personal indebtedness to His Highness our beloved Maharaja for his benevolent gifts to me. I consider them as indications of His Highness' extreme kindness and appreciation of my humble and loyal work in my former capacity as an officer of this State.

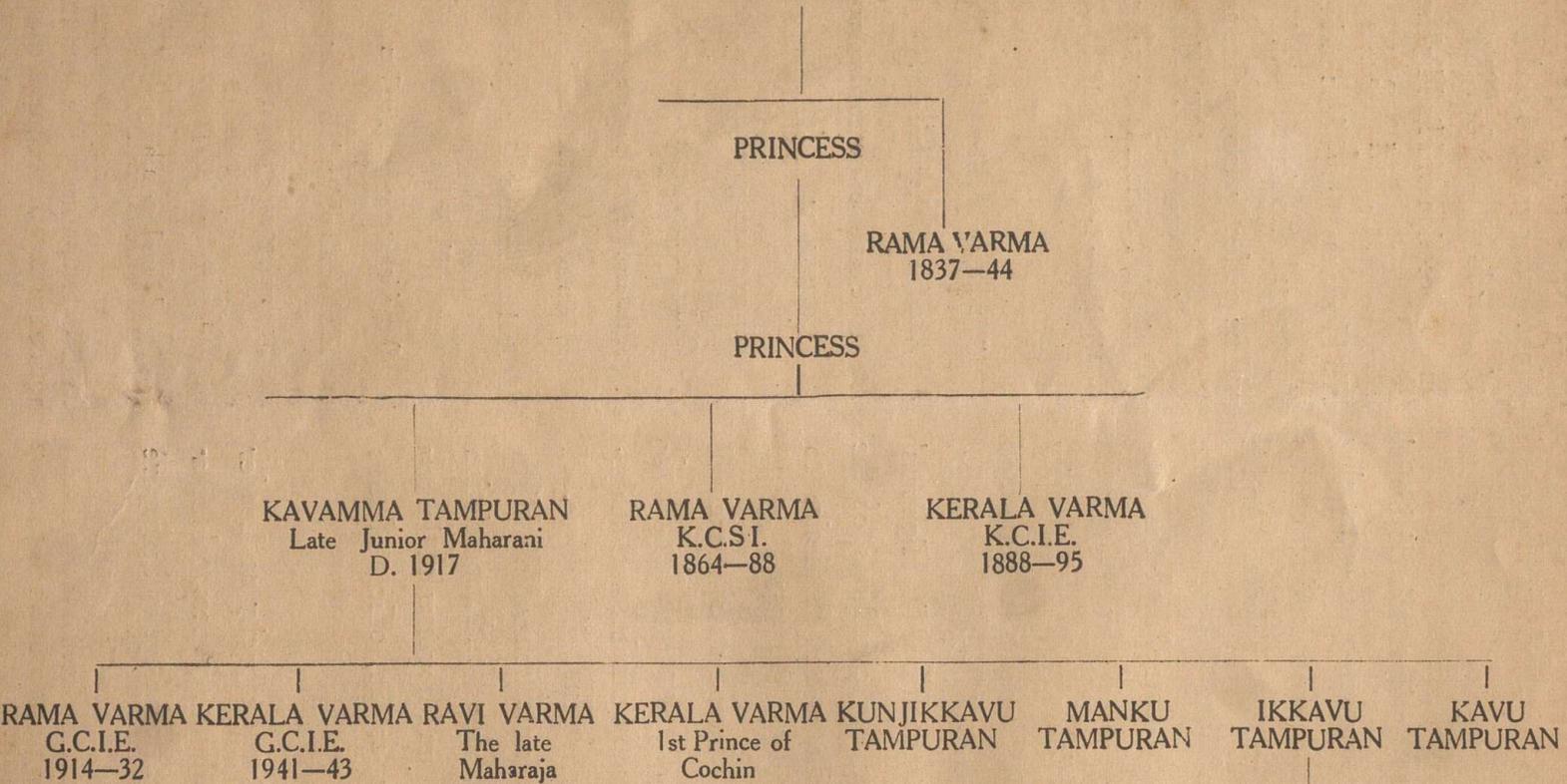
Therefore, in my capacity as Leader of this House and in my personal capacity it is my proud privilege and pleasure

to request you, Sir, to convey to His Highness our gracious and beloved Maharaja, our loyal and heartfelt felicitations on the occasion of His Highness' ensuing 80th Birthday. My God shower upon His Highness long life, continued health, vigour and happiness! And I believe it will be perfectly appropriate and will give a correct picture of His Highness' noble qualities if I conclude by referring to the poetical words of Lord Tennyson:

“ And leave us rulers of your kind
As noble till the latest day.
May children of our children say,
He wrought his people lasting good:
His court was pure: his life serene:
God gave him peace; his land reposed;
A thousand claims to reverence closed
In him as Father, Husband and King;
And statesmen at his council met
Who knew the seasons when to take
Occasion by the hand, and make
The bounds of freedom wider yet.
By shaping some august decree
Which kept his throne unshaken still,
Broad-based upon his people's will.”

RULING FAMILY

PRINCESS "CHITTAMMA" TAMPURAN



RAMA VARMA, M.B.E.,
Secretary to Government

A SURVEY OF COCHIN FINANCES

(MR. P. V. RAPHAEL, COMPTROLLER OF FINANCE AND ACCOUNTS)

THE World War II has ended and the problem facing all countries small or big is "What Next". To the Government whose motto is maximum good to the largest number of its people, the deciding factor is its financial stability to undertake development schemes of benefit to the people.

Pre-war Period

Revenues.—The revenues of the quinquennium that preceded the war were ranging from Rs. 100 to 110 lakhs of which the ordinary taxation contributed about 66 per cent. Land revenue, at one time the principal head of revenue, was almost fixed at Rs. 12·00 to Rs. 12·50 lakhs with a tendency to fall by a lakh or two owing to remissions necessary in seasons of drought; Excise, reflecting the economic condition of the masses was sinking below Rs. 20·00 lakhs with the depression that had set in before the war; Central Excise which comprised of Matches only was hardly Rs. 2·00 lakhs and Stamps and Registration together yielded Rs. 6 to Rs. 7·00 lakhs—almost a stagnant figure without any prospect of improvement in the normal economic condition of the people. Customs and Income-tax were the main sources of income. "Customs" which was mainly conditioned by the international trade situation and the All India tariff policy was recording an income of about Rs. 20 to 25 lakhs and Income-tax started a few years back with assessment rates comparatively lower than in the neighbouring province of Madras, was bringing in Rs. 6 to Rs. 7 lakhs. On the commercial side, the notable item "Railway" was giving an income of about Rs. 16 to 17 lakhs, with a per contra expenditure of Rs. 12 lakhs resulting in a net return of about Rs. 4 to Rs. 5

lakhs; "Forests", with a gross revenue of Rs. 5 lakhs was giving a net return of Rs. 2·00 lakhs and capital productive schemes had not developed to any considerable extent as to bring more than about a lakh of rupees. Under other heads, which aggregate to about Rs. 12 to 13 lakhs, the chief item is Public Works which contributes out of its toll and water receipts about Rs. 3 to 4 lakhs.

The closing years of the pre-war era were thus disclosing a revenue of about Rs. 105 to Rs. 110 lakhs.

Expenditure.—By a strict control over expenditure the annual disbursements were kept within a range of Rs. 102 lakhs with a view to be well within the revenues and provide for a Reserve Fund for Rural Development and other works on a well planned comprehensive programme. The allocation of expenditure was briefly,

	(In lakhs)
Collection services	Rs. 8·00
Commercial services (mainly railway)	16·00
Law and Order	5·50
Civil Administration	9·00
Nation Building services	43·00
Debt services	6·00
Other Non-effective services	14·50
	<hr/>
	102·00

While the expenditure was being budgetted on the basis of previous years' expenditure and the anticipated revenues on principles of orthodox budgetting, the needs of the State were rapidly expanding with the increase of population year by year, and the awakening of mass consciousness to the need for a better standard of living with facilities for education, medical treatment and other public needs as well as amenities. The condition of the agriculturist was becoming more and more

dismal; his dependence on providence with poor irrigation facilities, absence of proper marketing facilities and to crown all, the competitive low prices of agricultural products of the depression period—all were combining to make agriculture a non-paying avocation. The State was faced with the problem of broad basing education, expanding medical amenities in rural areas and improving the lot of agriculturists by providing suitable irrigation facilities, opening up of roads and land preservation with scientific cultivation with the aid of fertilisers and implements on modern lines. For this the Government started a Revenue Reserve Fund in the year 1114, to which the first contribution of Rs. 4½ lakhs was made out of the surplus of 1113. The fund was intended to provide money for rural reconstruction works on a planned programme from year to year without depending on the vicissitudes of the annual budget.

2. Repercussions of the War

The State's finances had violent repercussions from the war, which were, happily, mixed in character. On the revenue side, the vast addition to the purchasing power of the people caused by full employment to all classes of people in the State by recruitment to War, Assam and Ceylon Labour and in the State itself in various activities of War effort and large scale disbursements by the Government of India on their own behalf or on behalf of the Allied Governments resulting in inflation of the highest level, have gradually trebled the Excise Revenue. The Excess Profits Tax introduced to combat inflation has increased the revenue from income-tax to about Rs. 45.00 lakhs. The introduction of the tax on betel nuts on an arrangement of pool with Government of India has brought Rs. 12.00 lakhs in 1120. But corresponding payment of contribution to Government of India has not yet been made. It is yet to be seen

whether this much agitated tax will continue to bring in revenue in this measure. Under "Stamps and Registration" together, there has been an increase of about Rs. 3.00 lakhs mainly on account of the war boom and the craze for acquiring land by all those who had an immense addition to their income. "Customs" has not shown any striking improvement owing to the deadlock in the international trade situation caused by war. Whatever increase that had been recorded as a result of imports made for increased civil and military consumption was practically offset by the exemption from duty given to Military goods. The direct taxes have thus shown large increases chiefly under "Excise" including "Central Excise" "Income-tax" and also to some extent under Stamps and Registration. Under commercial services the "Forests" has recorded the peak revenue of Rs. 32.00 lakhs in 1120, owing to the large and intensive exploitation of timber for war supplies, fuel for civil needs, etc. The movement of military personnel and goods, the transport of food and other supplies, and the intensification of traffic of all sorts necessitated by the activities or avocations of war effort have almost doubled the Railway earnings. There have been slight additions under other heads also.

To sum up, the revenues have mounted to Rs. 264.16 with the quinquennium that closed the war, the largest additions being made by Excise, Income-tax, Forests and Railway.

The expenditure also has been rising year by year partly due to the enhanced prices of all articles, partly due to various war efforts undertaken by the State and partly on account of the Food Supply and other Control Schemes that the State had to undertake to procure and distribute the necessaries of life, food, clothing and several other essential but scarce materials. Defence measures including war subscription, temporary establishments

to handle the growing work connected with war and the resultant situation in the country, Dearness allowance and Town allowance to State employees, and lastly the inflation of expenditure under the normal Governmental activities have all contributed to raise the annual expenditure from Rs. 101.92 lakhs in 1115 to Rs. 182.76 in 1119 and Rs. 242.39 lakhs (approximately) in 1120. A review of the war-time expenditure will reveal the volume to which the expenditure was swelled by the above factors.

	Rs.	
Defence measures including		
Publicity, War subscription,		
Police security, State Forces,		
Education concessions to		
Military dependants, etc. ..	7.00	lakhs
Dearness allowance, Town ..	33.45	"
allowance, etc.		
Temporary establishments ..	12.16	"
Supply Departments, etc. ..	13.80	"

Besides, there have been phenomenal increases under Public Works due to high tender rates, and under Railway and Forests due partly to more intensive operations bringing in large revenue. Fortunately for the State, the repercussions of the war were felt only gradually and were more than resisted by the buoyancy of the revenues with the result that the State has been able to steer clear of the situation with comfortable surpluses as indicated below.

	(In lakhs)				
	1114	1115	1116	1117	1118
Receipts ..	110.23	112.69	121.46	132.75	170.60
Expenditure ..	101.91	101.92	109.42	114.00	144.39
Surplus ..	8.32	10.77	12.04	18.75	26.21
	1119		1120 (approximate)		
Receipts ..	216.63	264.16			
Expenditure ..	182.76	242.39			
Surplus ..	33.87	21.77			

N.B.—The expenditure is exclusive of the transfers to Revenue Reserve Fund

The war has thus swelled revenue and expenditure alike and left the State in a

state of inflation, abnormalities and ever-changing perspective of the future though the excess of revenue over expenditure has so far been consoling enough.

3. Post-war Period

In the contexts of the upheavals of the war, a clear relation of the present financial position to the future one of normal days of peace cannot easily be perceived yet. A tiny unit bordered on one side by the Madras Province and on the other by Travancore, Cochin has little option to force in any original fiscal policy which is to be necessarily conditioned by the policies in the neighbouring provinces. One serious handicap is the size of the State. There is little of mineral wealth and the State is deficient in food crops. Indirect taxation in the shape of duties on consumption is likewise delimited by the population being only 14 lakhs. The only elastic sources of revenue are thus Customs and Income-tax. The subject of post-war reconstruction is engaging the serious consideration of the nations all over the world and in India too every province or State is evolving schemes for industrial regeneration, success whereof ultimately means self-sufficiency or approach thereto. The future of Customs which banks for its revenues on the trade imports and exports is thus bound to be one of hesitant rise while Income-tax which is largely dependant on trade with places mostly outside and to distant parts of the country is also likely to cry halt when the post-war aims of self-sufficiency are achieved by the provincial units of India. The other more important item of revenue, at present ranking as the first item, thanks to the economic prosperity of the people, is "Excise". There have been certain new impositions like the duty on vegetable products, betel nuts, etc., which are to be pooled with the Government of India. Some of these Central Excise duties introduced to stamp out inflation might disappear and the bulk of the other revenue, depending on the pros-

perity of the masses, is likely to shrink down with the economic depression setting in in the cycle after war. An estimate of revenue has therefore to be made with due regard to these fortuitous conditions. The anticipations all over the world are that price levels will not drop down to anything like the depression period of the pre-war and that the standard of living will generally be stepped up with the result that there will be generally larger wealth with the people than before the war and that therefore the taxable capacity will be sufficiently well above the pre-war levels. Anticipation of increases under Customs, Income-tax and even under Excise over the pre-war levels may not be a too optimistic forecast. "Excise" may retain Rs. 15 lakhs of the increase of Rs. 25 lakhs recorded during war, "Income-tax" about Rs. 20 lakhs out of the buoyancy of Rs. 30 and odd lakhs and "Customs" should show a rise of at least Rs. 5 lakhs over the pre-war level. The Department of Anchal which was on expansion when the war was on and whose further expansion with post-war schemes is still under consideration, is expected to bring in slightly larger revenue. The "Forest and Tramway" need not also be going in to the old level; and under Railway also a decent extra income may be looked for. The State has under active consideration various productive schemes that are to be executed as part of the post-war reconstruction; they will bring in returns in excess of their margin of interest on capital outlay and sinking fund only after 4 or 5 years of complete materialisation, that is after a decade probably. The estimate thus works up to a little more than Rs. 180 lakhs.

Expenditure.—Public expenditure of a developing State like ours, with population growing year by year can be delimited only by the revenues; no amount will be surfeit. For one thing, important services conducive to the well-being of the people had to be restricted in the years of war for

unavoidable reasons, scarcity of labour and materials, limitations of resources, in short by a rigid enforcement of the inescapability criterion. The measure of expenditure hereafter under these services has thus necessarily to be largely-expanded. The long overdue reforms on "Education" under contemplation in the Code Revision Report coupled with the scheme of feeding all necessitous school children are expected to result in large additional expenditure. The Development Services—the foremost among them, medicine including Ayurveda, Public Health and Veterinary—are to be kept in full swing so as to subserve the needs of the growing population; likewise Panchayats and Public Works which provide irrigation facilities, communications, drinking water, etc., should claim their legitimate attention and other departments like Agriculture, Industries, etc., will also demand increased allotment. Besides, increased expenditure has to be provided for under the various departments of general administration in view of the expanding activities, revision of basic pay scales in all departments, increased provision for interest and sinking fund, etc. In short expenditure in all branches will rise corresponding to the growth of revenue. The post-war annual expenditure mostly a disposition of the available resources may thus be fixed at Rs. 196 lakhs with a necessary marginal surplus of Rs. 4 lakhs which would come to Rs. 200 lakhs against an income of about Rs. 180 lakhs. It is now the problem for all concerned to see how the revenues can be augmented to meet the increasing demands on the State. One feasible suggestion, which is in line with the taxation policy obtaining in the adjoining provinces and in consonance with sound principles of taxation, will be to introduce the sales tax and to step up the rates of income tax.

4. Ways and Means

The revenue surplus at the end of 1119 was Rs. 131.90

lakhs. The surplus as per the 1120 preliminary accounts comes to about Rs. 21.77 lakhs thus making the total surplus Rs. 153.67 lakhs. To this has to be added the ear-marked Revenue Reserve Fund of Rs. 73.50 lakhs which also forms part of State's surplus. The total surplus at the end of 1120 would thus be Rs. 227.17 lakhs. Of this, a sum of roughly Rs. 121.00 lakhs lies sunk in Capital Outlay such as Railway, Harbour, Water Works, etc., leaving a liquid surplus of Rs. 106.10 lakhs, about Rs. 99.5 lakhs whereof lies in Fixed Deposits and Securities. These

resources and the new loan of Rs. 100 lakhs floated this year would enable the Government to carry on the Post-War Schemes most vigorously.

The astonishing success of the recent issue of the Loan for Rs. 100 lakhs which was responded by applications to the extent of over 11 times affords striking proof of the stability of the State's financial position. Credit for this enviable position is due to the enlightened Ruler and the unstinted sacrifice of the advisers at the helm of affairs of the State.

CENTRAL WAR COMMITTEE

AT the final meeting of the Central War Committee held on the 1st December certificates of merit were awarded by the Government to all members of that Committee, the leaders of the National War Front Organisation, members of the Recruitment Committees and those who actively participated in the war efforts of the State. Sir George Boag, who presided, briefly reviewed the various activities of the Central War Committee.

He said: "We have come to the end of the business of this Committee. The Committee was started soon after the beginning of the war. Its first meeting was held, I think, in 1940, more than 5 years ago; and during these 5 years of war, this Committee has done very good work indeed. It undertook in the first place war propaganda and war publicity. Sub-committees were set up in municipalities, in taluks and in villages. The whole State was covered with a network of committees which drew their inspiration from this Central Committee. No less than 969 meetings have been held throughout the State, and I think a word

of thanks is due to the officials of the Revenue and Education Departments for the great help they rendered in carrying out this most important work. Then the Committee made itself responsible for the recruitment of candidates to the various defence forces and to carry out this work, a Recruiting Sub-committee and various local committees were set up. In this matter, the Police rendered great help. Sub-Inspectors of Police were the Secretaries of the local committees and the Commissioner of Police was the Chairman of the main Recruiting Sub-committee. The total number of the candidates recruited to the various defence services was nearly 20,000 and considering the population of the State, I think that is a very creditable record indeed; and for the success of these efforts all those gentlemen who sat on these recruitment special committees deserve a special word of thanks.

Another activity of this Committee was the collection of money. Nearly 5½ lakhs was collected of which about half went to pay for "H.M.I.S. Cochin". The motions that you have just passed

give a fair indication of the directions in which the rest of the money collected went. It went to provide amenities, which the official funds were not able to provide. It went as contributions to various charities working to help servicemen, their families and dependants.

I must also mention the Ladies Committee which made itself responsible for certain aspects of the war effort, more particularly within the domain of the ladies, for example, hospital comforts. There has also been another outlet for their activities in the Hospitality Committee which visit hospitals and entertain patients. I should like to say a special word of thanks to that committee particularly to Mrs. Thankamma N. Menon, the Secretary of the Ladies Committee and Mrs. Kurian, the Secretary of the Hospitality Committee.

Now, a number of people have been invited to this meeting who have not been directly connected with any of these committees, but who have taken a large part in the State's war effort. I refer to those who have been connected with the National War Front. I have taken the opportunity of this final meeting to invite representatives of the National War Front activities here in order that we may bid good-bye to them and thank them for the work done by the National War Front. The National War Front was constituted in the rather gloomy days of 1942 when there was a certain amount of alarm and despondency, and the first business of the National War Front was to correct this alarm and despondency and to strengthen the morale of the general population. Very properly the Minister accepted the office of State Leader and to assist him he had the Divisional Leaders and leaders in every municipality and in every panchayat. Without this strengthening of the morale of the populace, the appeal made by the various sub-committees of the Central War Committee might not, certainly would not,

I think, have met with the response which it did and therefore to the National War Front, we feel a special debt of gratitude for the manner in which they prepared the way for the effective work of the War Committees. But the National War Front went on from this strengthening of morale to help to deal with the difficult food situation which had arisen. They took up the work of persuading the people to grow more food. They also took up the work of popularising unfamiliar food-grains in the days when there was not a sufficient quantity of rice for everybody to eat. It created a very healthy public opinion against black-market transactions and against hoarding and profiteering; and in all these respects, it did very valuable work to help and support the war effort.

I should now like to refer to one or two activities which have been started during these war years which are not coming to an end today. In order to draw off some of the surplus money in peoples' hands, we have had campaigns like the National Savings Campaign to encourage savings. The inculcation of the virtue of thrift should not be confined to times of war alone. It is a virtue of universal application, and for that reason it has been decided to continue this appeal for savings in order to try and get people into the habit of putting aside spare money whenever they have it, so that they may have something to draw upon when bad times come. That is one of the activities which will continue. Another one is the welfare work for servicemen and their dependants. That is likely, as far as one can see, to be of great importance during the coming months and years and the State Sailors', Soldiers' and Airmen's Board will continue in being and I hope will continue to turn out the very fine work which has already earned the praises of those responsible for servicemen's welfare throughout the country.

I must not take too long. I just wish to remind this meeting of all these different activities and to say a word of thanks on behalf of His Highness and His Highness' Government to everybody who has contributed, whether in a large or small measure, to carry out the work of these committees. A special word is perhaps due to one, whom I am very glad to see here this afternoon, Mr. V. K. Krishna Menon, to whom was entrusted the difficult business of organising War Propaganda and War Publicity. Not only did he carry out that work with conspicuous success but he also trained up his assistant so well that when Mr. Krishna Menon himself was called to other spheres of activity his assistant was able to take on the work and carry it on with similar success. I should also like to say a word of appreciation of the services rendered by Mr. Poulouse who has been the Secretary of this Committee from the day on which it was started until today.

Now, as I said, the work of the Committee is finished. But I do earnestly hope that the spirit in which this Committee has worked throughout the War will

continue. We are already beginning to see that peace has its troubles and difficulties no less than war. I believe myself that the secret of the success which has attended the work of these War Committees has been due to the fact that everybody, all sections of the community, all ranks, creeds and castes have worked together in a spirit of unity. That has in a very large measure produced the very fine results on which everybody today who has taken part can congratulate himself. Now, let us remember this fact in the time before us. Let us face the problems and the difficulties of peace in the same spirit of unity. In that way the work that has been inspired by the Central War Committee will make permanent contribution to the well-being of the people of the State. It will enable each of us who has taken part in this work to feel not only that we have had the privilege of doing our bit in the war effort but that we have also helped to develop that spirit of co-operation and united action which will enable the State to face the future, no less successfully than it has come through these difficult years of War."

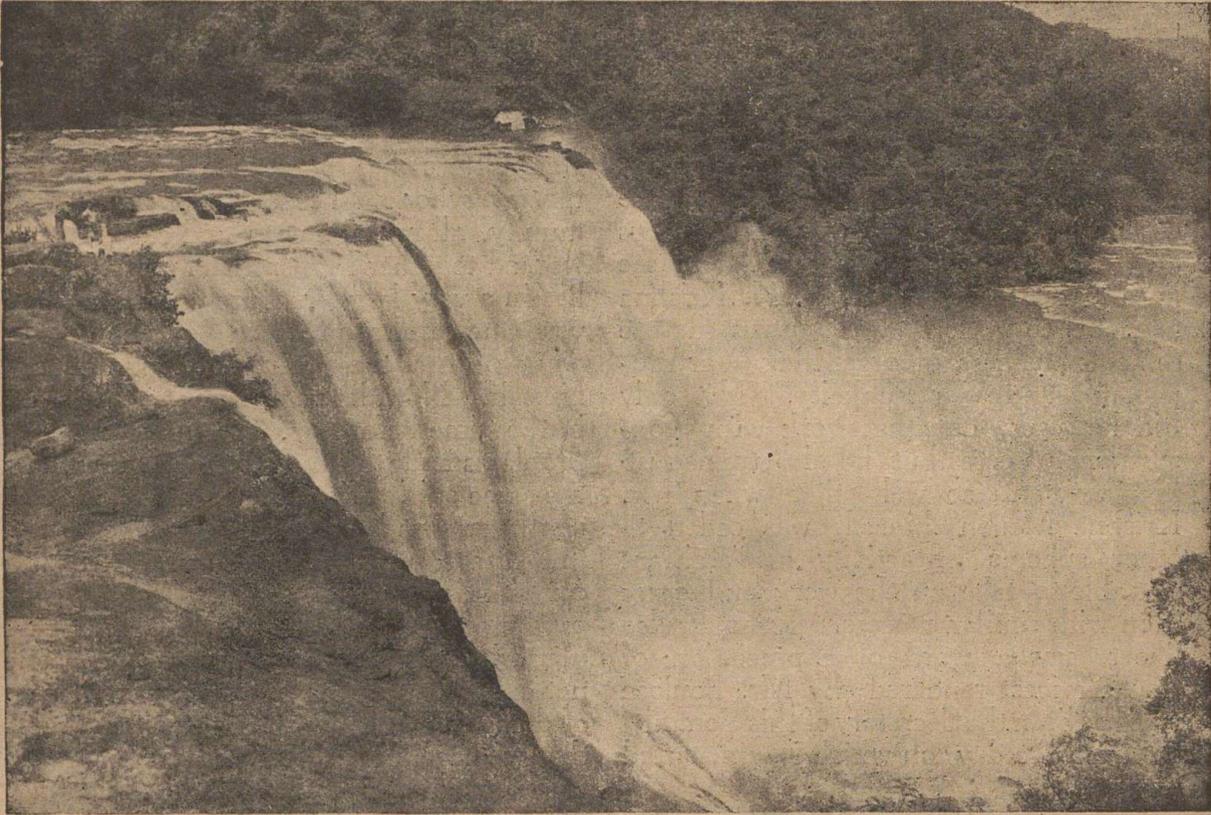
HYDRO-ELECTRIC SCHEME

HIS Highness the late Maharaja in reply to the people's address, announced that it would be possible to put into execution without undue delay major projects vital to the State's progress like the Hydro-electric Scheme.

Two water-falls in the State received attention for some time—one in the Sholayar river and the other at Adirappalli in the main Chalakkudi river. Preliminary investigation of the possibilities of the former being harnessed for generating electric power revealed that exploitation

would be unwarranted owing to its long distance from the power-consuming centres and the small amount of power procurable. The project was, therefore, abandoned. The Adirappalli Falls was never seriously considered owing to the comparatively inconsiderable nature of the falls. It is a sheer drop of 100 feet, a magnificent sight during the monsoon period.

The question of harnessing the Peringalkuthu water fall on the Chalakkudi river and the transmission of power to



Adirappilli Water-falls

Ernakulam and other places has been engaging the attention of the Government for some time. The Chalakkudi river starts at Karapparakkutti which is the junction of the Karappara river coming from the west and the Parambikulam and Sholai rivers from the east. The Karappara river rises in the Nelliampathies while the other two rivers drain the hills of the Annamalai Range. The catchment area of the Karappara river is 46 square miles, of the Parambikulam river 206 square miles and of the Sholai river 86 square miles. The Chalakkudi river has in its course at the place called Poringalkuthu a drop of 550 feet. The scheme now under final consideration is to develop this fall for the generation of electrical power. The catchment of the river at the site of the fall is 370 square miles. The whole area is thickly wooded. The vegetation

is luxuriant. The datum level of the site is 1353 feet above the sea level. The Chalakkudi-Annamalai road now under construction will pass by the side of the fall. The road under construction has already opened up new country and is facilitating the scientific exploitation of virgin forest areas.

Investigations connected with the scheme were first conducted in 1917 by the British Westinghouse Company and the Chief Electrical Engineer to the Government of Mysore, Mr. S. G. Forbes. The scheme was subsequently surveyed and investigated by the Public Works Department as per the lines indicated in the previous reports. The detailed scheme was closely gone into and after some modifications put up as final by Messrs. Rendal, Palmer and Tritton, Consulting Engineers, Westminster.



Poringalkuthu Water-falls

The dam is proposed to be built up at the site where the foundation is of solid rock. The water will be diverted from the river through a small stream on the left bank, upstream of the dam running to a tunnel about 4,100 feet long blasted through solid rock. The power house will be on the left bank of the river.

There are no unusual engineering difficulties to be anticipated in the construction and equipment of the installation. Skilled and unskilled labour required to carry out the project and for the subsequent operation of the plant is available. The works could be completed in two years after commencement. The access road to the site has been completed and the main volt line from Alwaye to Trichur is under construction. The voltage will be stepped up to 66,000 and transmitted

from the Power House to Chalakkudi where it will be connected to the 66,000 volt line from Alwaye to Trichur. There will be extra high tension sub-stations at Ernakulam, Kodakara and Trichur for stepping down the voltage for distribution. There is already a load of 6,728 horse power waiting to be converted to electricity in the existing industries in different centres and a definite load of 14,450 horse

power immediately visible in these centres for industries proposed to be developed as part of the post-war industrial development projects.

The demand for power is growing and having regard to the benefits which will indirectly accrue due to the supply of electricity in the State the project contains all the elements of a successful undertaking. It will bring the advantages and



Thannikudam Dam Site—(a part of post-war irrigation scheme)

amenities of chief electric power to a large and growing population and thereby improve the standard of living in the State.

The probable estimate of cost will be 108 lakhs of rupees and the annual recur-

ring expenditure is estimated at 3.65 lakhs. The scheme is productive as it is considered that it would yield a return of about 7 per cent on capital outlay. The scheme will be taken up as a part of the post-war scheme as soon as circumstances permit.

THE FRUIT AND VEGETABLE FARM— NELLIAMPATHIES

(MR. M. SANKARA MENON—DIRECTOR OF AGRICULTURE)

THE cultivation of fruits and vegetables in the Nelliampathies was undertaken by the Government partly to meet the requirements of the Army and partly to meet the Civilian demands at a time of extreme scarcity of essential articles of food. Preliminary enquiries conducted in the Nelliampathies showed that fruits like oranges and other citrus varieties, as well as potatoes and varieties of English vegetables could be successfully grown in the hills. On the first of April 1944 the honourable Minister for Rural Development, the Conservator of Forests, the Director of Agriculture and Mr. P. F. Warne, one of the Resident Planters met in conference in the hills and decided upon a definite scheme of cultivation of 500 acres of the Pulayam Para Forest Reserves.

Clearing work was immediately started and before the close of the year 1119 (August 1944) an area of 100 acres was cleared and brought to a stage of cultivation. Of this area of 100 acres cleared, 35 acres were planted up with Coorg oranges in the month of June itself. The rest of the area was got ready for planting potatoes and vegetables.

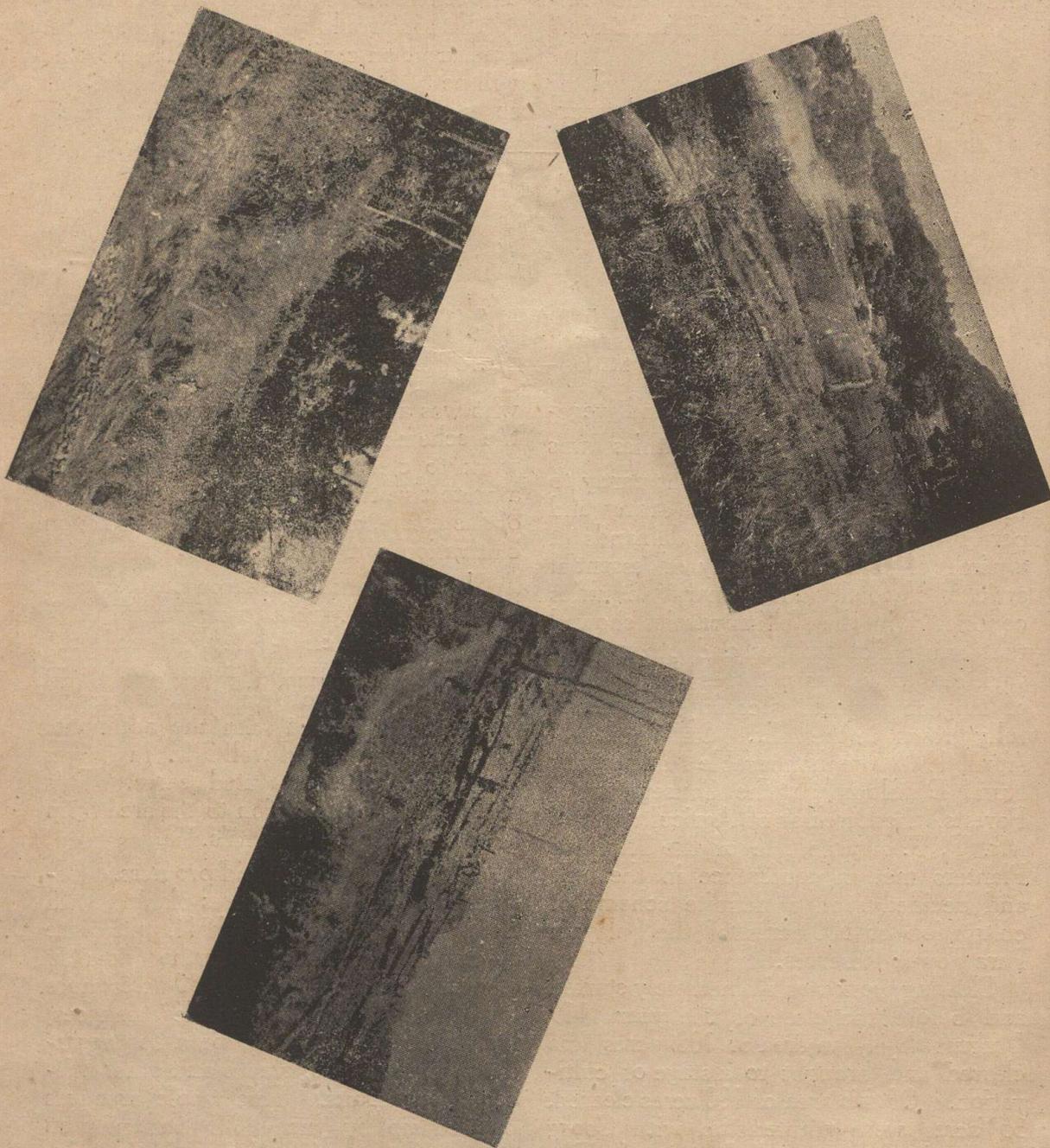
A very large labour force was necessary to work out a scheme of this nature within the limited time available. The work of recruitment was entrusted to Mr. Warne

who was appointed Honorary Advisor for the scheme. Six hundred men had to work to clear the forest and to put up a protective trench around the whole area of the estate, and 150 coolies were put on cultivation of the cleared area.

Clearing work made rapid progress and by the end of April 1945 a further area of 500 acres was clear-felled, cleared and burned. A protective trench 7 miles in length, 5 ft. in depth and 4 ft. broad was dug round the area with the additional protection of a mud wall 3 ft. in height formed by the excavated earth. This gives adequate protection to the area from the ravages of wild animals.

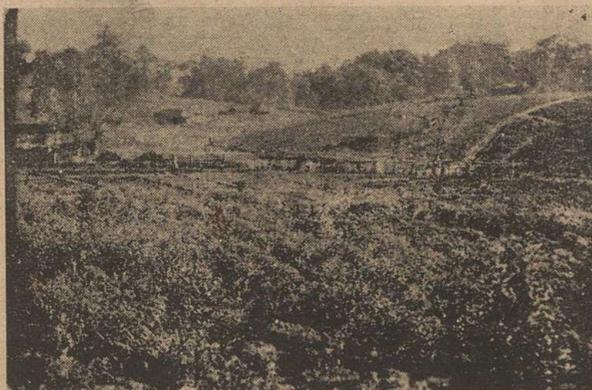
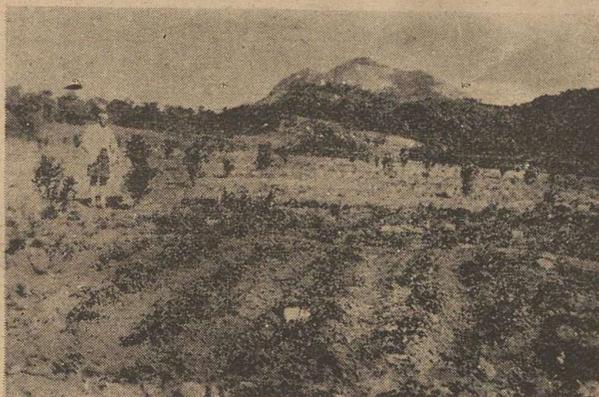
Cultivation made rapid progress. Besides the area of 35 acres planted with Coorg oranges in June 1944, pits were opened for planting a further area of 65 acres under oranges and 50 acres more for fruits of other citrus species, mangoes, liches plums, country peas, pomegranates, figs, guavas, grapes and other miscellaneous fruits. This whole area was planted up by June 1945 and now an area of 150 acres is under cultivation with fruits of different kinds. The fruit trees planted are growing up nicely and there are indications that the grafts gooty plants of oranges would give early fruiting.

Potatoes were cultivated in two seasons viz., October 1944 and April-May 1945.



Top and bottom—Forest areas in the Nelliampathies before clearance for fruit cultivation

Right—Forest areas being cleared for cultivation



Top—Nelliampathies—area planted with potatoes

Middle—A plot with orange trees

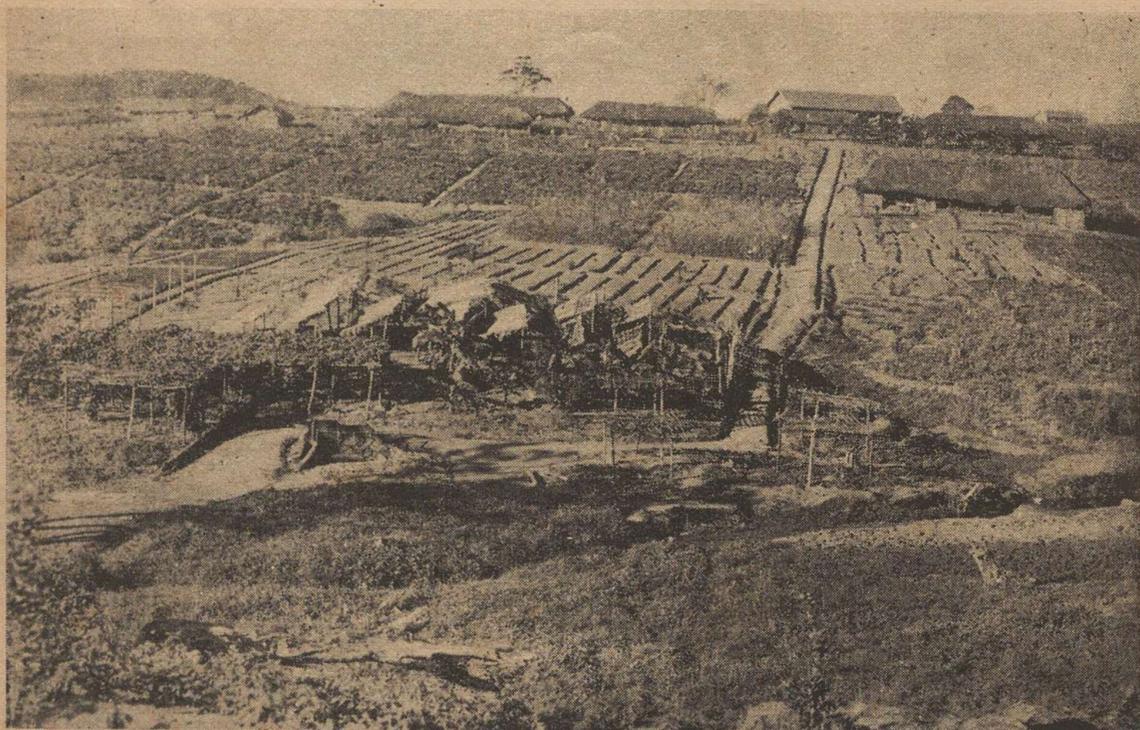
Bottom—An area planted with potatoes

The October planting covered an area of 50 acres and the April-May planting 80 acres. The crop in some of the potatoes gave very promising results, but it failed to have satisfactory returns over other potatoes. From the two crops together 60 tons of marketable potatoes were harvested of which ten tons were

supplied to the army, 21 tons were sold in the Trichur, Ernakulam, Cochin and Chittur markets and the rest utilised for seed. A third crop planted in September 1945 is now in the field and it is expected that this crop would give more satisfactory results.



Orange trees inter-planted with potatoes



General view of the Fruit Farm

English vegetables were tried on a small scale during the early months of 1945 and it was found that vegetables like peas and beans, cabbages and Beet roots, carrots, turnips, radish, tomatoes and lettuce could be grown fairly well in the Farm. An elaborate programme of cultivation was drawn up and an offer was made to the army in Cochin to supply 1,000 lbs. of vegetables per day. Due to the cessation of the war, the needs of the Military became less and hence they could not avail themselves of the offer made. The vegetables produced are now sold in the markets at Cochin and Trichur and it is proposed to carry on an intensive campaign of popularising these English vegetables among the people all over the State.

The labour recruited had to be provided with quarters and for these large numbers of temporary sheds had to be hastily put up. Malaria and other diseases were prevalent and both the staff and

coolies suffered badly in the early stage. But thanks to the several measures taken by the Government such as the opening of the Dispensary, grant of free medical aid, Anti-Malarial operations, and noon-day feeding of non-working children, malaria and other diseases was kept under control and the sufferings of Farm population were largely minimised.

The Farm has now made a good beginning. It has for its aim the production and distribution on a large scale of such protective foods as fruits and vegetables among the population. The cultivation of fruits especially oranges will be a highly paying proposition. The scheme undertaken is not only useful, but also financially sound. It is expected that the example set by the Government will be followed by others also so that there will be planting of fruits and vegetables which are so essential for maintaining the health of the population.

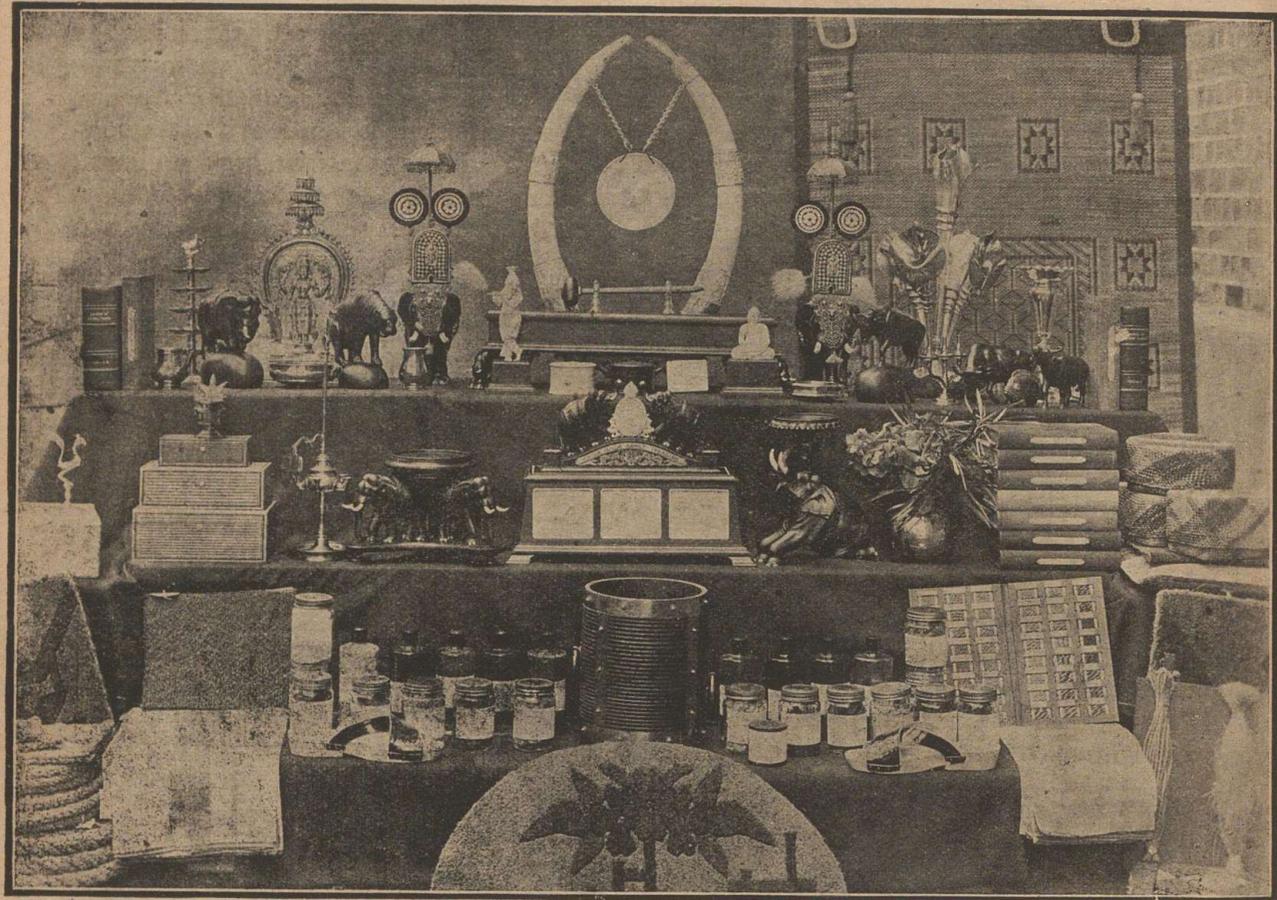
WOOD CARVING IN COCHIN

(Mr. V. K. ACHYUTA MENON, DIRECTOR OF INDUSTRIES)

THE hereditary "marasaris" or carpenters of Cochin are famous for their workmanship. They have been specialising in house construction. The skill they display in this work has been marvellous. With hardly any pencil work they have been doing things correct to the point of a pin. With the increase in the demand for other items of wood work like furniture, carpenters have been specialising in these items also. There is a large export of furniture from the State.

Some of the carpenters excel as carvers, but their number is limited. In early days scope for carving was more or less restricted to temples. Even here

carvings in stones were more prominent than in wood. It has been suggested that wood carvings had more or less its origin at Cherpu and Ooragam in the vicinity of the famous Thayamkulangara temple dedicated to Sree Subramania where the annual Thai Pooyam festival gave the local carpenters an opportunity to show their artistic talents in the manufacture of "Kavadis". The latent talent could not be satisfied with Kavadis. It was drawn out in other directions and found expression in the manufacture of elephants and other familiar objects associated with elephant procession which is a feature of local festivals. Possibly they began with toys



Articles made in the Arts and Crafts section

which gradually developed into good pieces of artistic merit. They were doing things, however, unorganised. At the same time the markets for these pieces of work were found to expand.

This expansion in the trade of wood carvings attracted the attention of Government. The question of improving the art was taken up by them. A workshop under the immediate supervision of Government in the State Museum was organised. This workshop did yeomen service to the development of wood carving. The market expanded still further. In the early years models were limited to elephants and such like familiar objects. Other lines of models with local colouring were adopted.

Wood carvings of Cochin got a name and a fame. This expansion, however, tended to develop features of unhealthy competition. Vendors of artistic wares in places outside began to organise workshops in Cherpu for the manufacture of wood carvings in a wholesale fashion. Individual carvers themselves have been contacting dealers and selling carvings of indifferent merit. Art came to be sacrificed at the alter of cheapness. The main item of cost of a good model is wages of labour. When wages for the work could not be had, art should suffer. It was found useful to have a central institution to control the making and marketing of quality carvings in wood and ivory also. Accordingly a Government

carving Workshop has been organised under the Department of Industries with the idea of improving and encouraging the art. Every piece of carving that goes out of this workshop carries with it a genuineness both in respect of the materials used and workmanship. The workshop articles have been greatly appreciated by Art Critics and have given complete satisfaction to persons of culture and refinement.

Though the demand for carvings is expanding, generally speaking they have only a limited market. As such, there are not many who have specialised in carving. It is necessary in the interest of the art to train up workers. With a view to facilitate this training the Carving Workshop has been transferred to the School of Arts and Crafts, Trichur which school is being so organised as to make it a storehouse of art and design.

SCOPE FOR DEVELOPING CHINA CLAY INDUSTRY IN COCHIN STATE

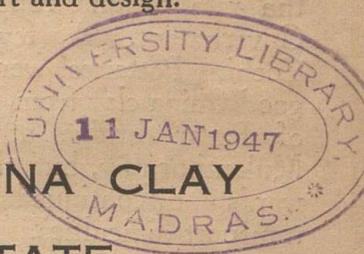
(T. SUDHAKARA MENON, M.Sc.)

STATE GEOLOGIST

China clay, also known as white clay or kaolin, is hydrous aluminium silicate, formed by a process of natural decomposition known as kaolinisation of felspars. It is the purest form of clay. Its chief use is in the ceramic and procelain industries to produce a white body which is not sensitive to sudden changes in temperature. It is used for sizing purposes in textile industry and as a filler in paper industry. Superior China clay is also used in medicine. In spite of the industrial and commercial importance of this mineral, no serious attempt has hitherto been made in Cochin State for the exploitation of the China clay deposits occurring almost everywhere in the lateritic regions. The results of the geological investigations so far carried out have revealed that there is a bright future for the development of the China clay industry in this State. If the deposits of China clay found below the laterites at Kundara in Travancore and Kannapuram in North Malabar can be successfully worked, there is no reason why the deposits occurring under

identical geological conditions in Cochin State should lie neglected and unworked.

The China clay deposits of Cochin State are all confined to the lateritic regions. Almost all the wells dug in these regions reveal heaps of white clay thrown out from them, and these heaps provide us valuable clues in the prospecting of white clay deposits. Good China clay deposits are seen at Mulanthuruthy, Amballoor, Perumpalli, Kanjiramittam, Iyyakkunnu at Kicheri, Kanayannur, Ponnancheri and Thrikathara hills at Irimpanam, Kottayil Kovilakom hill at Chennamangalam, Krishnankotta, Poyya, Chappara and Pandirampala at Pulloot, Areepalam, Shanmukhom Canal area at Irinjalakkuda and Kizhupillikkara. Detailed investigations of the China clay deposits of Pulloot have been completed and a report has been published in "Cochin Information," Vol. 3, No. 7, 1944. A sample of clay collected from a well at Chappara was found, on chemical analysis to contain 59.39 per cent silica and 29.71 per cent



alumina. No attempt has so far been made to work these deposits at Pulloot.

The only China clay deposit which is now being worked is the one exposed on the precipitous bank of the Karuvannoor river at Kizhupillikkara. The clay is quarried by the Cochin Potteries, Chalakkudi, for the manufacture of firebricks and saggars; 750 tons were quarried in 1120 M. E., paying royalty at the rate of one rupee per ton to the Government. A few years ago, the Cochin Potteries were quarrying very good China clay from the neighbourhood of Panar bridge at Amballoor near Mulanthuruthy, but the work was afterwards discontinued chiefly due to transport difficulties.

The purification of China clay was first started at the Cochin Ceramic Works at Kottapuram in Cranganur. The clay used for this purpose was brought from Kizhupillikkara in country boats. The purification plant constructed in this factory consists of a mixing tank to which water is supplied from a well, three overflow tanks through which the clay slip is allowed to flow for the removal of sand and other impurities, and a drying flat where the slurry-like purified clay is exposed to the sun for drying. The whole process is very simple, and it is desirable to start the purification of China clay in a number of suitable places in this State.

Purified China clay commands at present a high price in the market, and there is a growing demand for it in textile and paper industries. There is very good scope for exporting this material from Cochin State. The demand in this State alone is considerable; the chief consumers being the Cochin Potteries at Chalakkudi, the Sitaram Spinning and Weaving Mills at Trichur for sizing, and the Tata Oil

Mills Company Ltd., at Tatapuram for oil-refining. If, as is already proposed, a paper mill is started in the State, the demand will be much greater. All the China clay now required in the State is imported from outside.

There are proposals to manufacture chalk pieces for use in our schools and colleges as a cottage industry at the Industrial Centre at Cherpu. All the chalk pieces now used in our educational institutions are imported from Kumbhakonam, Madura, Trichinopoly and other places. Chalk manufacture is a simple process and it can be started as a minor industry in Cochin State. A mixture of 60 parts of China clay and 40 parts of plaster of paris is converted into a loose paste by adding water, and this paste is allowed to set in brass moulds, specially made for the purpose. The gypsum for plaster of paris is not found in Cochin State, and it has to be imported from Trichinopoly district. Soft timber, for making the boxes in which pieces of chalk are packed, is available in large quantities in the State.

Another minor industry, in which China clay can be used, is the manufacture of white canvas-shoe polish. A substitute for "Antiphlogistan" can be made with China clay and glycerine, and other pharmaceutical preparations with China clay can also be attempted.

The China clay deposits of Cochin State, if investigated and developed on a commercial scale, will certainly yield very good returns on the investment. Our ceramic industry has much scope for development, and the manufacture of porcelain and sanitary-ware deserves special encouragement.

NOTES

A Notable Birthday*Writes "The Mail"*

"The Maharaja of Cochin on Friday celebrated his eightieth birthday. This event is unique as none of his predecessors, old as most of them were, attained the same age. His reign has been eventful. At the Durbar on November 14, 1943, when he was invested with ruling powers, H. H. Sri Ravi Varma, renewing a pledge given in September, 1939, by the then Ruler, declared that "in the great struggle which the United Nations are engaged the resources of my State are at the disposal of His Majesty the King." That promise was honoured by sustained work, and increased contributions in men, money, and materials to the common cause until final victory was achieved.

Though the normal course of a well-organised administration left little that

was new for the Ruler to initiate, His Highness has been able to enhance the usefulness of the administration in various directions. Special mention may be made of the creation of a Labour Department, which is assisted by an Advisory Committee of the Legislative Council. In its labour, literate for the most part, Cochin has an invaluable asset and the new Department should be able to make it more contented and more efficient. His Highness has helped to increase the popularity of the State's Legislative Council by a slight increase in the number of its non-official members, correspondingly reducing the seats for officials, who now number ten out of 58 members of the House. These are but a few examples of his constant solicitude for his subjects. All who have watched the progress of Cochin will wish him continued prosperity in his reign."



Sir George Boag in the Vanitha Mandiram, Ernakulam

Vanitha Mandiram.— Sir George Boag, Diwan of Cochin, recently opened a hostel at Perumanur, Ernakulam, conducted by a few prominent ladies of the town under the guidance of Mrs. A. N. Menon. The need for more hostels to provide convenient accommodation to the growing girl-student population of the town was pointed out by Sir George Boag.



Sir George Boag speaking on the occasion of the opening of Vanitha Mandiram

Savings Bank System.—There have been representations more than once, both in the Legislative Council and outside, for the introduction of the Savings Bank System in the State Anchal Offices. There is now a perceptible increase in the income of the people. The Savings Bank System will be beneficial as affording opportunity for saving to the small investor. There is scope for the productive utilisation of the savings deposited by the investors in the various development schemes contemplated in connection with the post-war schemes. Government have now sanctioned the introduction of the Savings Bank System in 18 Anchal Offices as an experimental measure.

Public Accounts Committee.—Under the provisions of the Government of Cochin Act the major portion of the annual expenditure is subjected to the

vote of the Cochin Legislative Council. But the Council has at present no opportunity to satisfy itself that its intentions in voting the demands for grants have been faithfully carried out and that no expenditure has been incurred without proper authority. With a view to remove this disability Government have constituted a Public Accounts Committee of seven members of whom three will be elected by the Legislative Council and the rest nominated by the Government. A fresh Committee will be constituted for each financial year.

Cochin State Labour Units.—In a letter addressed to His Excellency the Viceroy by Major-General Terry, Commanding General of the U. S. Forces, India-Burma Theatre, he acknowledges in appreciative terms the

assistance rendered by the Indian States Labour Units. He states. —

“On behalf of the American Forces in this Theatre, I should like to express our appreciation of the invaluable assistance rendered by Indian Labour Units in support of the mission of the India-Burma Theatre.

The mobility, military training and excellent discipline of these units permitted their use in every conceivable type of work. Often in close support of the front, they manned air-drop stations and handled air freight and advance supply depots, duties in which they sustained a number of casualties. They assisted in the construction and maintenance of the Stilwell Road, cut the right of way for Signal communications, maintained polelines, and helped to lay and maintain the pipelines in Burma.

Individually and collectively, the members of the Indian Labour Units are to be highly commended for devoting themselves unselfishly to duty, and for rendering invaluable assistance to the American Force in this Theatre.

I should appreciate it if Your Excellency could convey this commendation and expression of appreciation to the Governments of Assam, Cochin, Nepal, Orissa, Pudukottai and Travancore”.

Discovery of Roman Coins in Cochin.—Not far from the pre-historic burial caves of Eyyal (about 20 miles from Trichur), away from the madding crowd's ignoble strife, a lonely agriculturist while digging a trench for planting bananas discovered an earthen jar in which were found 120 coins of which 12 were gold and the rest silver. All the gold coins and more than half of the silver coins have impressions of the busts of the early Roman Emperors with inscriptions in Roman Script. About a dozen of the silver coins have punch marks. Nine of the gold coins are either of Augustus or Tiberius and three are of Nero. Of the silver coins two are definitely of Caesar

and the rest of the early Roman Emperors. It has to be remembered that the Romans carried on trade with Kerala on an extensive scale and kept it up for nearly two centuries. Among the articles imported by them were spices, cotton goods, glass, copper, brass, tin and lead and among the exports were pepper, ivory, pearls and silks. The hoard of coins now discovered for the first time in Cochin's history is being carefully examined by the State Archaeological Department.

House Building Scheme.—Difficulties experienced by the middle and poor class people in the matter of construction of houses for dwelling purposes have been great, more especially in the urban areas. The Hon'ble Minister in his budget speech referred to this acute problem and envisaged the possibility of formulating proposals for the establishment of Building Societies on co-operative basis. To implement these proposals a Committee has been appointed by the Government to formulate schemes for solving the problem of dwelling houses, for finding funds to carry out the schemes and for evolving a scheme for starting Building Societies under the Co-operative Department.

H. H. The Maharaja's Cup.—The Challenge Cup recently instituted by H. H. The Maharaja was won by the C. M. S. High School, Trichur, in the Cochin Inter-school Sports conducted under the auspices of the Cochin Athletic Association. Sir George Boag's Cup was won by the Chalakudi High School. Eight hundred and thirteen competitors from 44 High Schools participated in the competitions. Sir George Boag presided and distributed the prizes. The trophies were won by the following institutions.—Sub-Junior Association Cup—Vivekodayam High School; Mr. Nanu Menon's Junior Cup—St. Sebastian's High School, Palluruthi; Mr. I.N. Menon's Cup for Tug-of-war—Perimpilavu High School; Davies Cup for Tug-of-war—Kunnamkulam

High School; 4×400 metres Relay Cup—
Irinjalakkuda High School; Diwan's
Cup for second in Seniors—Chalakkudi
and Vivekodayam High Schools; Kuppatt
Govinda Menon Memorial Shield—
Vivekodayam High School.

Cochin Franchise Revision.—The Mail of Madras makes the following observations on the decision of the Government to constitute a Franchise Committee—"The Cochin Government's decision to appoint a committee to consider the extension of the franchise is in keeping with the liberal spirit that has inspired the reforms introduced in the State since 1920, when the Legislative Council was established. The Legislative Council Act of 1922, defining the composition, powers, and functions of the legislature, led the way to greater association of the people with the administration. It was then followed by the extension of the franchise in 1932, and by the introduction of the more democratic Constitution of 1938, under which wider electorates were created. Under the provisions of the Government of Cochin Act 1938, governing franchise, which are still in force, every one who pays any tax to the State or to any local authority, or who has passed the School Final Examination or its equivalent, is qualified to be an elector in a general constituency of the legislature. Public opinion in Cochin has since demanded further liberalisation of the electoral qualifications, a demand well supported by the success that has attended the operation of the existing system. The literacy franchise obtaining in the Madras Presidency has inevitably influenced opinion in Cochin. The adoption of a similar franchise should considerably add to the strength of the electorates in the State and make the legislature more popular."

Cochin's Financial Position

The Cochin Government
3 per cent Loan 1955—58

For financing the post-war development schemes Government propose to float a public loan of Rs. 100 lakhs. Government have had occasion to float only very few loans in the past—the first more than 40 years ago when a small debenture loan of Rs. 20 lakhs had to be floated in 1900 to finance the construction of the metre gauge railway and Forest Tramway. This was redeemed in 1911. The following three loans were floated in recent years.

(i) 5 per cent Loan 1943—53 for Rs. 75 lakhs in 1933 since repaid in 1943.

(ii) 3½ per cent Loan 1956—61 for Rs. 30 lakhs in 1936.

(iii) 3 per cent Loan 1953—55 for Rs. 70 lakhs in 1943.

The first two loans were floated to meet the cost of broadening the Railway and this Government's share of the Harbour IV stage works. The third Loan of Rs. 70 lakhs was floated to redeem the first loan which fell due for payment in 1943. The established policy, as evident from these loans, was to utilise the loan proceeds only for productive and remunerative purposes. The loan in the present case is for financing important productive Post-war Development Schemes.

Cochin Government Securities generally keep pace with the Government of India securities in the Money Market and are now quoted at the following rates—

3½ per cent loan 1956—61 at Rs. 108—12—0 per cent

3 per cent loan 1953—55 at Rs. 105—2—0 per cent

(2) The following review of the financial and budgetary position of the Government is published for the information of the investing public.

The annual revenue of the State is very near to Rs. 2 crores. For the last 30

years the accounts were recording surpluses year after year despite the several vicissitudes in the international developments and the budgets were being balanced without any recourse to loans. Taxation is almost on the same lines as in the neighbouring State of Travancore and the level of taxation should be considered comparatively light or beneficial. Public expenditure had for long been regulated by well known principles of Public Finance and very strict control is exercised over expenditure. A brief summary of the financial position of the State as on the last day of Mithunam 1120 corresponding to 15th July 1945 is given below.

The Assets and Liabilities of the State on the above date were Rs. 543.06 lakhs and Rs. 365.56 lakhs respectively. The Government's Public Debt stood at Rs. 100 lakhs (Rs. 30 lakhs in 3½ per cent loan 1956—61 and Rs. 70 lakhs in 3 per cent loan 1953—55). The 3½ per cent loan was mainly utilised for productive works such as Railway and Harbour and the 3 per cent loan of Rs. 70 lakhs to redeem the 5 per cent loan of 75 lakhs floated for productive works. The returns from Railway and Harbour are increasing year by year and the works have proved quite successful. The excess of assets over liabilities amounts to Rs. 177.50 lakhs. Out of the total assets a sum of Rs. 97.48 lakhs lies invested in Fixed Deposits in Banks and Government Securities. Besides the above, the return of the Capital amounting to Rs. 63.43 lakhs on account of IV Stage Harbour

Works and Rs. 1.13 lakhs on account of Ware House will be coming in equated instalments from 1946 onwards. These receipts together with the liquid assets will alone be sufficient for repayment of the existing Public Debt of Rs. 100 lakhs and other liabilities. The liquid assets are now made use of for tackling the food problems in the State. The State has also built up a Revenue Reserve Fund amounting to Rs. 76.75 lakhs and has also started an Industrial Development Fund with a nucleus of Rs. 25 lakhs to which will be added Rs. 5 lakhs annually. In addition to the above Public Debt of Rs. 100 lakhs the Government have guaranteed the following debentures.

i. Cochin Co-operative Land Mortgage Bank Debentures issued for Rs. 15 lakhs for purposes of granting advances to Agriculturists on the security of their lands.

ii. Trichur Municipality Debentures for Rs. 6½ lakhs for the supply of electricity to Trichur Town and its suburbs.

According to the Revised Estimate for 1944—45, the Revenue of the State is estimated at Rs. 253 lakhs and the expenditure at Rs. 252.84 lakhs leaving a surplus of Rs. 15,600 at the close of the year and these estimates are expected to be fully realised, as judged from the trend of the actuals. The Budget Estimates for 1945—46, have also been framed with a revenue of Rs. 294.25 lakhs and expenditure of Rs. 287.48 lakhs leaving a surplus of Rs. 6.78 lakhs.

COCHIN STATE

Facilities for starting industries

COCHIN State situated on the South West coast of India has an area of 1480 sq. miles and a population of one and a half millions. Though tropical, its climatic conditions are equable and salubrious. Small as the State is, it is

singularly diversified in physical aspects. The eastern portion forming the highland covers an area of 600 sq. miles and contains besides valuable timber and a variety of fauna, tea, cardamom, coffee and rubber plantations and other forest produce which will prove an unfailing source of raw material for several large-scale industries. Stretching west-ward up to the back-waters in gentler slopes and widening valleys are the plains intersected by many rivers and extensively cultivated with paddy, cashew-nut, arecanut, tapioca, various vegetables, fruits, etc. Groundnut, cotton and sugar cane are also grown in some parts. The coastland on the west, washed by the Arabian Sea on one side and a chain of lagoons and canals on the other, is a long and narrow stretch of sandy seaboard with ever green groves of luxuriant cocoanut palms and paddy in banded areas.

The continuous system of back-waters, the extensive sheets of fresh water lakes and inland waters yield an abundant and inexhaustible supply of fish to support a flourishing fish industry. Along the beach, in certain areas workable quantities of illeminite sand, a valuable material for paint industry, are found. Recent geological investigations have revealed the existence of lime-stone and clay of suitable quality and in sufficient quantity to justify the establishment of a cement factory. Raw materials required for glass industry are also available.

The magnificent harbour at Cochin is the only safe and sheltered harbour on the West Coast, South of Bombay. The Port of Cochin with the great commercial emporium of Mattancheri on the one side, and Ernakulam the seat of Government and a growing industrial centre on the other, forms the nerve centre of commerce and trade in the State. The port is connected by a three-fold communication—railway on the main line and a net-work of road and water transport—with a vast and rich hinterland comprising not only

whole of the State but also parts of Travancore and British India. Chalakkudi, the terminus of the Cochin Forest Tramway, situated on the banks of a perennial river, is an important centre of industrial activity now containing a Ceramic factory, a Plywood factory and a Saw mill. It is linked with the port by rail, road and water. Trichur, the largest town in the State is the meeting place of road transport of the State and has similar communication facilities to the Harbour. There are advantageous sites for locating various factory industries in and near these places.

Labour in Cochin is cheap and abundant. Power is now supplied to Ernakulam, the capital of the State, from the Pallivassal Hydro-electric system in the neighbouring State of Travancore. This system has a highly developed scheme of extension with which it is proceeding rapidly. There will be little difficulty to get increased blocs of power from the Pallivassal system for industrial purposes in the next two or three years. Cochin, however, has a Hydro-electric scheme of her own, *viz.*, Poringalkuthu Scheme, which has been fully investigated. Government propose to undertake the execution of the scheme as soon as possible and steps have been taken to secure necessary plant and equipment. Ere long there will be an ample supply of cheap electric power in the State.

The Government of Cochin have decided to foster an intensive development of industries in the State with a view to further its economic progress. The report of a Committee of Industrialists recently appointed by Government with Mr. Manu Subedar, B.A., B.Sc. (Econ.) London, Bar-at-Law, M.L.A. (Central) as its Chairman to enquire into the possibilities of industrial development proves that there are adequate facilities for a number of industries in the State. Apart from the industries based on the forest and fishery resources of the State, prominent amongst

the other promising industries are sugar, paper, textiles, ship and boat building, wood distillation, paints, glass, rubber and rope manufacture. The importance of an all-weather harbour and broad gauge railway connections which offer a good location for All-India major industries has been emphasised in the report. In pursuance of the recommendations of the Committee, the Government of Cochin have formulated a definite policy of active assistance for the establishment of new industrial enterprises in the State. They propose to give suitable sites for industries in

deserving cases besides providing finance on easy terms. To deal with matters connected with the development of industries in the State, Government are contemplating the appointment of an Industrial Development Commissioner with an Advisory Board to assist him. An Industrial Fund is being constituted to render financial assistance in deserving cases of industrial undertakings.

In short, all possible assistance and co-operation will be extended by Government to those who wish to start new industries and to develop the existing ones in the State.

“GROW MORE FOOD” IN COCHIN, 1942-45

Introduction.—For a long time past, Cochin has been a deficit area in the matter of the food supply of its people and has been dependant on the rest of India and latterly on Burma also for its requirements of paddy and rice.

The statistics of production and consumption collected revealed that the rice produced in the State would be just sufficient to feed the people of Cochin for about 6½ months only in a year and that for the remaining 5½ months Cochin would be dependant on imports from the rest of India and Burma. The population of Cochin is about 14¼ lakhs and there is only 2 lakhs of acres of land under rice. The population has been increasing by about 2 per cent every year, while the area under rice remained almost stationary. Though the area of the State is about 1,480 sq. miles, only about 800 sq. miles remain for a population nearing a million and a quarter excluding Reserve Forests and back-waters.

With a view to make the State self-sufficient in the matter of food supply, an investigation was started to bring in

more waste lands under cultivation particularly by the disafforestation of reserves not required for forest purposes. As a result an extent of about 20,000 acres of reserve forest land mostly on the fringes of existing cultivation was decided to be excluded from reserved forest and made available for food crop cultivation.

It was also decided that schemes for the improvement of existing sources of irrigation and for the construction of new ones should be taken up. The Department of Agriculture was also directed to investigate the possibilities of more intensive cultivation by means of better manuring, selection of seeds, rotation of crops, etc.

Of the 20,000 acres of virgin forest land made available for cultivation, only about 12,000 acres had been disposed of and brought under some form of cultivation. No purchasers could be found for the remaining 8,000 acres in spite of every possible concession held out to prospective purchasers. This state of affairs continued till the very eve of Japanese occupation of Burma. With the complete cessation of imports of rice from

Burma, it soon became apparent that Cochin will have to face a serious shortage of rice. The imperative need of the hour was to increase the food resources of the State.

The Japanese occupation of Burma was complete by January 1942. In March of that year, the Diwan convened a conference of the Hon'ble Minister for Rural Development, the Secretary to Government and the Heads of Departments most directly concerned with the subject and definite conclusions were arrived at.

A. Lease of Government lands

In order to give speedy effect to the proposals, a Department of Food Production was organised under a Commissioner with a field staff and an office staff.

The areas to be leased out were selected and these comprised of the following categories of land.—

1. Forest exclusions originally made available for assignment but which had not yet been leased or assigned.

2. *Village Reserves and Cattle grazing grounds.*—It was decided that roughly one-fourth of these areas should be reserved for common benefit and that the balance alone made available for leases.

3. *Railway Lands.*—There were Railway lands along the entire length of the Shoranur-Cochin Railway. Though small, narrow strips of lands, these were eminently suited for paddy cultivation, being mostly ditches formed by the removal of earth for embankment works. A considerable portion of these lands had already been relinquished by the Railway Company as no longer required for Railway purposes, and were revenue porambokes at the disposal of Government. The Railway Company also agreed to place immediately at the disposal of Government as much of the remaining extent as possible, consistently with the Railway interests.

4. *Forest Lands.*—The Forest Department was in possession of area consisting of scrub-jungle devoid of tree-growth. There was also area expected to be cleared for "taungya" cultivation in time for the planting season. These lands were made available for temporary cultivation only as they included portions of Reserved Forests which could not be permanently excluded for assignment but would have to be resumed for re-afforestation according to the exigencies of the Department.

5. *Tank beds, beds of irrigation and drainage channels and margins of public roads.*—Many tanks and irrigation and drainage channels which were in a silted-up condition and which could not serve their original purpose in their then condition were made available for food crop cultivation.

6. Public Office compounds and gardens attached to Government buildings were also brought under cultivation by being leased out to the menial staff of these offices at concession rates.

These categories almost exhausted the lands at the disposal of Government which could be made available for cultivation without serious detriment to public interests. It was decided to limit occupation and leasing to a maximum of 5 acres to an individual.

By the time the Food Production Department ceased to function as a separate entity, more than 13,000 acres of Government lands were given on lease.

In order to enable the lessees under the Food Production Scheme to start immediate cultivation advances not exceeding Rs. 15 per acre according to the nature of the locality were given. Most of the lessees were poor agriculturists who but for the advance made by Government would not have been able to do anything immediately on the lands. Arrangements were also made through the Agricultural Department for advances of seeds and advances for the purchase

of Agricultural implements in necessary cases. The advances made to the lessees of Government lands through the Agency of the Food Production Department amounted to nearly Rs. 17,000 and resulted in a large portion of the forest exclusions and village reserves being brought under immediate cultivation. In the first year of the lease, however, about 75 per cent of the leased areas was brought under cultivation mainly under paddy and tapioca. But after this, enthusiasm appears to have waned mainly due to the indifferent result of the first year's cultivation. There was shortage of labour and what little there remained could be procured only under very unfavourable conditions. The season was very unfavourable for Hill Paddy cultivation. Tapioca failed to prove attractive owing to unfavourable market conditions.

B. Measures to enforce cultivation on private waste lands

When Government were doing so much to promote food crop cultivation they could not view with equanimity large areas of privately owned lands being left as waste. Before resorting to coercive measures, however, it was decided to appeal to the good sense and patriotic duty of the land-owning class to contribute their mite towards the success of the Government's scheme. A notice that all lands in the State held by pattadars or Pandaravaka or Puravaka tenures of any kind and suitable for production of food crops, should be brought under cultivation and that all land holders and persons in possession of lands should bring under cultivation lands in their possession or control for the production of food crops of some kind or other before 30th Edavam 1117 was issued. Failure to comply with this request was proposed to be penalised.

Advances to Private land holders.—Representations having been received

for financial assistance from private land-owners to enable them to bring waste lands under cultivation it was decided to grant loans in cases where private lands were newly brought under cultivation and where the persons concerned would, but for the loan, be unable to undertake the work. Each applicant was to be given a loan of Rs. 75 provided he would bring under cultivation a minimum extent of 5 acres of land. If the extent land was less, the loan would be proportionately reduced. This was besides the usual agricultural improvements loans granted by the Department.

In spite of the appeal made to owners and occupiers of private waste lands to bring all such lands under cultivation four to five thousand acres of cultivable lands registered in the name of private individuals were seen left uncultivated. In view of the extreme urgency of the food production question, it was realised that some amount of coercion was necessary. The initial step taken was the decision to levy penal assessment on such lands, not exceeding 25 times the land revenue assessment on the lands left uncultivated without reasonable excuse being shown to the satisfaction of the Diwan Peishkar.

Incidentally the Proclamation provided also for the penalisation of cultivation of sugar cane on lands till then used for food crop cultivation. It was observed that, owing probably to its more remunerative character, sugar cane was replacing paddy in some of the eastern villages of Chittur Taluk and in Malayattur Village of the Cochin-Kanayannur Taluk.

C. Direct cultivation by Government

Hill Paddy Scheme.—At the suggestion of Mr. H. J. Walmsley, Ex-M. L. C. an experienced European planter of the State, Government took up the Scheme of Hill Paddy cultivation. An area of 15,000 acres of forest land in the Kormala, Muppilam, Ollookara, Killannur

and Nelluvaya blocks together was proposed to be cleared and cultivated with Hill Paddy and crops like tapioca and ragi. The work of clearance of the forest areas commenced on 1st December 1942. By the end of March 1943, cutting of undergrowth had spread over 10,000 acres in which clear felling or girdling, pruning and partial felling were over in 7,000 acres. The work of clearance continued till the end of May 1943 and a total extent of 12,000 acres was cleared. Terracing and contour trenching were attempted on a small scale in some of the blocks and wherever this was done it was found to be very effective to check the soil erosion along the slopes.

The total extent put under paddy was 5,350 acres. The extent that could be covered under paddy depended upon the availability of the land cleared and found suitable for paddy, availability of seeds and availability of labour during the limited period through which paddy sowing had to be rushed through.

The period of sowing extended over 2½ months. The season was favourable for

sowing till the end of May but the sowing work was continued for another month not unmindful of the risk but with the hope that at least a second rate crop could be obtained from these virgin area. Out of the total extent of 5,350 acres under paddy, only 2,000 acres could be sown in the right time.

Tapioca was planted in an area of 4050 acres. This was the next most important crop after paddy.

Other crops raised were Chama, Ragi and pulses like red gram, blackgram, horsegram, sesamum and vegetables. The area under these crops had to be very much restricted for want of favourable season. Vegetables, mainly cucumbers, were raised in the midst of the paddy crop. They were also cultivated in separate plots of limited extent. Exotic vegetables like radish, and carrot were also tried in a small extent.

From the time of clearance till the end of sowing there were on an average 5,000 coolies at work in the several blocks.

The following quantities of food were produced.—

<i>Name of Produce</i>	<i>Quantities</i>	<i>Remarks</i>
Paddy	75,307 paras	Expected yield was not obtained on account of adverse season and late sowing. The yield obtained was mainly from the 2,000 acres of timely sown paddy.
Other Cereals.—Chama and Ragi	509 ..	Owing to the very low prices and lack of demand the crop could not be harvested. In the consequent delay in harvest nearly 3 times the quantity harvested was lost in wilderness by decay and damage from wild animals.
Pulses.—Blackgram, Horsegram and Redgram	3,839 ..	
Tapioca	2,000 tons	
Gingelly	142½ paras	
Vegetables	Rs. 1,200 worth of vegetables	

Direct cultivation of the Hill paddy area by Government was done only for one year. It was considered by Government that Government supervision and departmental execution had not produc-

ed the desired result and that the Hill Paddy area could best be leased out for cultivation.

Out of the total area of 3,701 acres leased out 1,972 acres were cultivated with

paddy and other crops were raised on 673 acres. The results of cultivation by the lessees have caused greater disappointment than the results of departmental cultivation in the previous year. Cultivation by the lessees suffered for want of rains. In all about 14,000 paras of paddy only were obtained by the lessees.

The Scheme was launched at a critical period when food ceased to be an article obtainable for mere cash. It had to be produced before it could be purchased. Irrespective of the risk and financial commitment production alone was aimed at. The Scheme itself was a novel one for nowhere in India has such a piece of agricultural work involving clearance of forests on such a gigantic scale been rushed through in so limited a time. It is worth attempting only when the exigency of the hour calls forth such a risky undertaking.

D. Government help to Agriculturists

A very effective propaganda was carried out by the Officers of the Agricultural Department and through the agency of the National War Front. Informative articles and leaflets were published and lectures and demonstrations were given in association with the Village Committees, Co-operative Societies and Panchayats.

Seeds of paddy and other cereal and tapioca sets were issued on loan by the Agricultural Department on an extensive scale repayable in cash at the time of harvest. During the last three years, seeds and planting materials to the value of Rs. 32,341 were issued to deserving ryots on the recommendation of the Village Committees.

A vigorous campaign about manuring of paddy and other food crops was conducted all over the State. Manure Depots were started under the auspices of all the Panchayats. There are now 85 Panchayat Manure Depots operating in the State in addition to 6 Taluk Depots and another

half-a-dozen depots under Co-operative Societies. In order to encourage the ryots to use more manure Government have offered a subsidy of 25 per cent in the selling price of all manures sold from the depots. The result is very encouraging. Sales of manure rose by leaps and bounds. From Rs. 5,500 in the year 1117 (41-42) the sales of manures rose to Rs. 20,000 in 1118 and Rs. 1,25,000 in 1119. The important manures sold are groundnut cake, fish, bone meal and ammonium sulphate.

One big difficulty experienced by the ryots was the shortage of iron and steel for the manufacture of agricultural implements. The State has now begun to get limited supplies of iron and steel for agricultural implements at control prices.

Another difficulty experienced by the people was with regard to cattle. The State was getting its supplies of cattle both for work and for milk from the neighbouring districts of the Madras Province. But with the imposition of the ban on the exports of cattle from the Madras Presidency by the Madras Government, the State found all its supplies cut off. Negotiations were conducted with the Government of Madras and later with the Government of India and Mysore as a result of which the Government of Madras permitted an import of 1,200 cattle per year from the Coimbatore District to the Cochin State.

The problem of milk supply has also assumed great importance and in order to cater to the increasing needs of the people the dairy at the Government Central Farm has been strengthened. A goat dairy consisting of 50 milking goats has also been started at the Central Farm to popularise the use of goat's milk among the people.

A vigorous propaganda was conducted to push on with the cultivation of vegetables. Large quantities of seeds and seedlings of vegetables are now distributed from the Government Central Farm



Milk distribution in Y. W. C. A., Ernakulam

and every ryot advised to put some area under vegetables. In the demonstration conducted by the Department and also in the village centres opened under the auspices of the National War Front due prominence is given to vegetable cultivation. A scheme to run a fruit and vegetable farm of over 500 acres in the Nelliampathies has been undertaken by the Government.

The fruits of jack, mango, and tamarind form an important item in the dietary of the people of the State. In order to conserve these resources these trees are not allowed to be cut for use as timber or fuel except under permits given by the officers of the Agricultural Department.

In order to conserve the cattle population of the State, Government have prohibited the slaughter of all cattle fit for agricultural or dairy purposes except under permits given by Veterinary officers. Government are also following a very liberal policy in the issue of grants to Panchayats and other institutions or

private persons for the maintenance of stud bulls.

E. Improvement of Irrigation

Minor Irrigation and Protection Works.—There are large areas of single crop paddy lands on high ground or on the slopes of hills which depend entirely on monsoon storm water from the hills, diverted through high level channels by diversion arrangements by the agriculturists themselves. These lands are often adversely affected by scarcity of water, due to the crude diversion arrangements during scarce rainfall periods. This defect was remedied by the construction of pucca masonry diversion weirs across valleys with necessary surplus flood arrangements. This ensured adequate supply for these single crop high level lands and in addition when the south-west and north-east monsoons are both very good, even second crops are being cultivated there. Also, by the construction of such diversion weirs and opening out channels at high levels

existing dry lands or parambas are converted into single and sometimes even double crop lands.

A second type of work taken up by the Panchayat Department was the "Tank Renovation" works. Most of these tanks served double crop lands, the first crop being more or less dependant on the south-west monsoon and the second depending on the combined effects of the north-east monsoon and storage in these tanks for the latter half of the crop period. In the past, many of these tanks had been completely neglected resulting in the bed silting up. One of the chief reasons for the frequent failure of the second or mundakan crop in the State is the total neglect of these storage tanks. Quite a considerable number of these tanks were restored by the clearance of silt and construction of permanent sluices to regulate the draw off.

A third type of work undertaken was the construction of the usual typical small storage reservoirs by throwing masonry or earthen dams across narrow valleys with necessary draw off sluices and surplus arrangements. These reservoirs have fair-sized catchment areas and store up the south-west and north-east monsoon rain water. Several such small reservoirs have been constructed.

Another type is the construction of permanent masonry sluices to replace the temporary bunds put up by the agriculturists annually across storm water courses to head up water particularly during the second crop season—what are known as mundakan chiras. These temporary bunds were a constant source of worry to the agriculturists. They were liable to breaches when the north-east monsoon was very heavy and had to be put up again at considerable cost, if the crops were not to suffer. The expenditure was ever recurring. The construction of masonry sluices has solved this difficulty and has ensured adequate supply for the second crops.

Yet another type of work was the clearing up of and opening out of new drainage channels in the low level areas near the sea coast. During heavy monsoon these low level lands are very often submerged, causing damage to the monsoon crops due to want of effective drainage. This is remedied by the deepening and widening of existing drainage courses and by opening out fresh courses where none existed. In practice, this work was found to be very effective, without being showy.

In the coastal areas affected by salt water ingress, permanent masonry sluices have been constructed replacing the usual temporary sluices, with all their defects of leakage, etc. New bunds have also been put up enclosing large areas of single crop lands to ensure good protection against salt water ingress.

Nearly 300 items of minor irrigation works costing about 6 lakhs of rupees were undertaken during the war period.

Major Irrigation works by Public Works Department.—These works were naturally more ambitious in scope. It was realised that some of the bigger schemes like the Chalakkudi Irrigation Project, the Puthur River Diversion Scheme the Thanikudam (Naduthode) Reservoir Scheme would open up large new areas for paddy cultivation and afford better irrigation facilities for existing cultivation. But they would necessarily take some time to complete. The scheme of converting single crop lands by affording better irrigation and drainage facilities was therefore taken up. Bunds were constructed in lands in Trichur, Talappally, Mukundapuram and Cranganur Taluks. The area brought under this second crop was 4,650 acres.

Protection of existing wet lands where ingress of salt water affected crops was taken in hand and also steps were taken to provide drainage facilities for preventing possible inundations. 935 acres were thus protected in the various taluks.

The Chalakudi River Diversion Scheme, the investigation of which is over, is the most important irrigation project. The scheme is estimated to benefit 22,900 acres of lands as detailed below—New conversions 10,500 acres. Single crop to double 4,000 acres. Existing double crop 8,000 acres.

The scheme is ready for execution. It is pending settlement of the *riparian* question with the Travancore Government.

The Naduthode Scheme which is under investigation is intended for the conversion of about 4,000 acres of dry lands to wet.

The works connected with the Kamalathara Eri in Chittur Taluk when completed will ensure adequate supplies of irrigation water to a large area of wet lands now depending on a precarious supply in years of insufficient rainfall.

F. Concessions to ryots

Waiving of occasional double crop charges.—The Land Revenue system of the State proceeds on the assumption that the State is entitled to a share in the produce of the land. To this principle is traceable the provision in the Settlement Proclamation laying down the liability to pay assessment on all single crop paddy lands on which a second paddy crop is raised. With a view to encourage holders of such lands to take as many crops as possible, Government have given up, for the duration of the War, the right to levy such assessment. It is estimated that this concession and the impetus of the high price of paddy coupled with the additional irrigation and drainage facilities provided by Government have enabled the ryots to raise a second crop of paddy on an extent of about 20,000 acres of land that was previously yielding only one crop.

Concession rate for lift irrigation.—There are certain localities in the Chittur Taluk where direct irrigation is impossible owing to the lands being situated on

a high level. Nevertheless, these lands could be cultivated with paddy if water could be taken to them by mechanical contrivances. Regard being had to the high cost of lifting water by mechanical contrivances it was ordered that only half the normal rates would be charged for taking water from Sirkar irrigation source by installation of pumping sets.

Legislation conceived in the interests of the ryots.—The Cochin Verumpattamdars Act and the Cochin Devaswam Verumpattandar's Proclamation conferred permanent occupancy rights on a large class of tenants who were previously, in the eyes of the law, mere tenants-at-will. This security of tenure so graciously granted by the late Maharaja gave additional impetus to the cultivators to put heart and soul into the production of more paddy.

G. Guarantee of fair price for Agricultural Products

In order to allay the apprehensions of a sudden and heavy fall in the price of agricultural products soon after the cessation of hostilities the Government of India have announced in a Communique that steps are being taken to prevent such sudden and heavy fall and to guarantee a minimum fair price for agricultural products. This Government also took the necessary measures.

Conclusion

Owing to the small area of the State, the limited extent available for cultivation and the steady and rapid increase in population, the State may find it hard to attain the goal of self-sufficiency in regard to its food supply, however much she may try to do it. However, our efforts to grow more food, even after the present crisis is over, should not be relaxed. It is incumbent on us to make greater and ever greater efforts to get the maximum out of the soil. Government stand

committed to the policy of making more and more land available for cultivation by throwing open forest areas and by reclamations from the back-waters. More and more irrigation facilities will be made available. The efforts to introduce and popularise scientific methods of cultivation will be continued through the officers of the

Agricultural Department. The entire machinery of Government will be available for advice and guidance. But Government can only help, it can never replace the cultivator. It is up to the people of the State to co-operate heartily with the Government's efforts in this direction.

A GENERAL SURVEY OF THE HISTORY OF MATHEMATICS AND ASTRONOMY IN KERALA FROM 1400 A.D.—1750 A.D.

THE period 1400—1750 A.D. may be rightly called the Golden Age in the history of Malayalam literature. The Malayalam language passed through a great revolution during this time. It freed itself from the shackles of Tamilian bondage, then struck up an incongruous combination with Sanskrit and finally evolved itself into the beautiful Manipravala style which was purified and perfected by the great Tuncat Ezhuttaccan, the father of modern Malayalam. This spirit of change is visible also in the secondary history of Kerala Mathematics and Astronomy and its study is of considerable interest as this virgin field is only very sparsely worked upon.

So far as is known, Charles W. Whish of the Hon. East India Company in the Madras establishment was hitherto the only mathematician who tried to probe into the secrets of the history of Kerala Mathematics of this period. In 1832, he read a paper "on the Hindu Quadrature of the circle, and the infinite series of the proportion of the circumference to the diameter exhibited in the four Śāstras, the Tuntrasaṅgraha, Yuktibhāṣā, Karanapaddhati and Sadratnamālā," which was published in the Transactions of the Royal Asiatic Society, Vol. 3, 1835, pp. 509-

523. He has given quotations from all these granthās and their translations which are more or less correct. A few errors have crept in in actual facts and subject matter, perhaps due to his scanty knowledge of the languages. But undoubtedly he has done some creditable work in the field. One of his conclusions is "It is a fact which I have ascertained beyond a doubt that the invention of the infinite series of these forms has originated in Malabar....." Whish's collection of manuscripts were, after his death, donated to the Royal Asiatic Society. Under the circumstances it is surprising that G. R. Kaye, the eminent historian of Indian Mathematics asserted, "after the time of Bhaskara (born 1114 A.D.), no Indian mathematical work of historical value or interest is known."

It may be true that after Bhāskarācārya there did not arise a conspicuous mathematician in Northern India, perhaps due to the frequent foreign invasions of the Mohamedans. Though there were some internal quarrels between the local chiefs in Kerala also, the prevalent system of warfare did in no way disturb the civilian life. So the progress of the science was kept up to some extent in the small country of Kerala. The movement

here took the form of a reformation of the original methods, necessitated by the inconsistencies in the calculated results when compared with the actual phenomena. The central figure in this Reformation movement is Vadassēri Paramēśwarācārya, the illustrious author of Driggaṇita which system is still peculiar to Kerala and not widely known outside. He established his system in 1430 A.D. (ശാക്രതൃഷ്ണവീശ്വമിതേ *i.e.*, Śāka 1353), after fifty-five years of experimentation. Almost all the mathematicians of this period belonged to Paramēśwarācārya's School and worked for the improvement of the system.

The people of Kerala followed the Brahmasiddhānta system of Astronomy and so naturally accepted Āryabhatācārya's system which was based on Brahmasiddhānta. Āryabhatīyam was compiled in 499 A.D. It is rather curious that in the whole history of Indian Astronomy we do not find anybody suspecting the ancient fundamental conception of the epicyclic motion of the planets and suggesting a different theory to explain the inconsistencies. Every mathematician only introduced different astronomical elements for the correction of the errors observed. The failure of Āryabhatācārya's elements led only to the introduction of some empirical corrections in 683 A.D. Calculations according to these is called Parahitaganita. This ganita was also found wanting and it was only in 1430 A.D. that the great Paramēśwarācārya overhauled the whole structure by completely changing the values of most of the astronomical elements. His chief contribution to the science of Astronomy is his correction formula for the planetary longitudes on account of the angular difference between the ecliptic and the celestial equator. This correction is known as Prānākālāntara samskāram. (പ്രാണകാലാന്തരസംസ്കാരം).

This Paramēśwarācārya, a Namburi Brahmin, was born in the Alathur Grā-

mam in South Malabar. Besides Driggaṇita, he has written commentaries in Āryabhatīya, Līlāvati, Bhāskariya and Mānasa and another original work Gōḷadīpika a work on celestial Sphere and Paramēśwara Vr̥tti. The tradition goes that he watched the heavenly bodies for fifty-five years on the sandy banks of the Nīla river (the river Bhārata).

Another notable personality of this period is Velattur Nilakhaṇḍa Sōmāyājīpād. He belonged to the Trikkandiyūr Grāmam in South Malabar. He was an expert in all Śāstr's and studied Astronomy from Dīmōḍaran Nambūri, a son of Paramēśwarācārya and a great astronomer too. The most important and interesting of his works is Āryabhatīya Bhāṣya (about 1498 A.D.), a detailed commentary of Āryabhatīyam in which besides the elaborate explanations of the texts he has given us the Hindu conception of the law of Planetary motion and the rationals of all the mathematical and astronomical formulae used in the original. In another of his authoritative works, Tantrasamgraha (date: ഹൈന്ദവശാസ്ത്രം *i.e.*, 1500 A.D.), the whole system of Driggaṇita is explained and codified. Mention may be made here of Somāyājīpād's attempt to correct the error in the Moon's longitude on account of the Sun's attraction of the Moon and the consequent changes produced in its orbit. Gṛhanirṇaya and Sindhāntadarpaṇam are also said to be his works.

Sphutanirṇaya is a later work which deals with the Driggaṇita System. Its author is said to be Trikkandiyūr Acyuta Piṣarōti, the teacher of Mēppattūr Nārāyaṇan Bhattatiripād of Narayaṇiyam fame. Herein also many changes are made in the values of astronomical elements. These values are the ones used by the modern Hindu astronomers for calculations according to the Driggaṇita System. His other main works are Karaṇōttamam and Kriyā Krama. The Kriyā Krama was finished on the Kali day

പ്രോക്തഃ പൃഥ്വീയസംബന്ധാനാൽ *i.e.*, in 1592 A.D. The above mentioned Damōdaran Namburi, Suryadēvā Yajwā, Govinda, Mazhamāṅalam Nambūri and one Kshe-tranārāyara, to name a few, more were Kerala pandits who greatly contributed to the development of Kerala Astronomy.

Then in order of time comes the famous Yuktibhāṣā. (date: യേശുമാതാപിതാസ്തൗ— in 1750 A.D.). This work cannot be called original as most of the subjects treated herein have been dealt with by his predecessors. It seems to be only a compilation of the rationales of all the mathematical and astronomical formulae in a systematic manner for easy study and reference. It is written in old Malayalam Prose. Nilakanda Somayajipad in his Bhāṣya and an anonymous author in his commentary of Lilāvātī, called Kriyākramakari (1504 A.D.) have given the same proof of the formulae as are given in the Yuktibhāṣā. Further, in the Madras Government Oriental Manuscripts Library there is a gaṇita Yukti Bhāṣā written in Sanskrit language. Except for the change in the benedictory stanza, this seems to be a Sanskrit version of the Malayalam one. The author of the Malayalam Yukti Bhāṣā is a Namburi Brahmin, Paramgōt Brahmattam Namburi of Alattūr Gramam.

In this school of reformers there is one other personality, Sankaravarma (Appu) Rāja of the Kadamād Royal family who cannot, strictly speaking, be said to belong to this period. He is the author of Sadratnamālā which was completed in the Kaliday (ലോകാഞ്ചലി സിദ്ധസേവ്യഃ *i.e.*, in 1819). He seems to have contacted modern mathematicians. The definitions of Sina (Sine), Kōsina (cosine), Tāgendam (tangent), Kōtāgendam (cotangent), Sēkhandam (secant) and Kōsēkhandam (cosecant) are given after the Hindu manner. Further the author also says that the angle between the ecliptic and the celestial equator is $23^{\circ}-28'$, same as that according to the modern observation

and has made the corresponding formulae according to this value while the Hindu astronomers up to his time used 24° . He has also introduced some changes in the methods of calculations. His value of π is correct to seventeen places of decimals.

The period previous to this Golden Age is quite dark and we have no record of any kind about it except for the names of two persons, Vararuci and Talakkulathu Govindan Bhattatiripād who both belong to Kerala. Vararuci, the father of പരച്ചിപെരമ്പന്തിരകലം—the twelve children born of a Paraya woman—is the inventor of പരൽപ്പേരൂ, *i.e.*, the representation of numbers by alphabets and the author of the Vakkyams—ശിനുശ്രയഃ, യേനവക്രീഃ, etc. The Bhattatiripād is the author of Desādhāyī, a commentary of Varāhamhirā's Hōrū sāstra. He was born in Talakkulam near Tirur in 1235 A. D. (രക്ഷൽഗോവിന്ദമഃഃ). He is now popularly known in Kerala as the progenitor of the Pāzhūr Kaniyāns.

To two other personalities who do not actually belong to this school of reformers may be mentioned here. They are the anonymous author of Karanapaddhati and a Madhavan. Karanapaddhati, a very popular work among the astronomers even now, is only a table of the astronomical formulae and explains how they are derived from the fundamental astronomical elements. The name of the author and especially his date are very controversial subjects. A commentator says the author is a Sōmayāji belonging to Nūtanagraham (നൂതനഗ്രഹം) in Sivapuram. Nūtanagraham is interpreted as Putu-mana (പുതുമാന) and Sivapuram as Trichur. A Brahmin house of this name now exists in South Malabar and there is no family of that name in Trichur. Further the Brahmins of Trichur at least at present are not authorised to perform Yāgās and thus become Sōmayāgīs. Sri Vadakkumkur quotes a verse from one Govinda

Bhattā's Ganita Sucika saying that the name of the author's house is Navīnavipina (നവീനവിപിന) and the date of compilation is ത്രിപഞ്ചശതാബ്ദം (i. e. 1353 Saka). Navīnavipina is interpreted by some as പുതുവന another form of പുതുമന and by others as പുതുക്കൂട്ട' a family still extant in Trichur, the members of which might have at one time been authorised to perform Yāgās. The date is still more uncertain. The earliest one is that given by Ganita Sucikā, namely Saka 1353 or 1430 A.D. the same as the date of compilation of Paramēswarācāryā's Drigganita. Whish says that the kalichronogram ഗണിതമേതൽസമൃദ്ധി gives the date i. e., 1733 A.D. The internal evidence however lends weight to the earlier date i. e., just before the compilation of Drigganitam.

Mādhavan seems to us to be the most original and most intelligent of all the mathematicians of the period. In pure Mathematics he stands supreme. He leaves us only some formulae and probably one work Vēnwāroham (വേണ്വാരോഹം). Sphutanirṇaya, in one of its benedictory slokas, enlogises one Madhava who, its commentator says, is the author of Vēnwāroham and an expert in the science of the celestial sphere. In this work, the author gives his name and also the name of his house thus “ഖകളായിഷ്ഠിതരേപന വിഹാരോയദ്വിശിഷ്യാതേ ഗ്രഹനാമ നിരോയംസ്യാൽ നിജനാമനിമാധവഃ”. Thus his own name is Madhava and the name of his house contains the words ഖകളം or എലിഞ്ഞി and വള്ളി. Nilakhanda Somayaji quotes one Saṅgamagrāma Mādhava and sometimes simply Madhava as a great authority. The question whether the two Mādhavans are the same or different is left to the workers in the field.

The variety of such a phenomenon of two big men of the same name in the same period works against the theory of two different Madhavans. By interpreting സംഗമഗ്രാമ as Irinjalakkuda, Sri. Vadakkumkur says that സംഗമഗ്രാമമാധവൻ was a member of Tekkewariam in Irinjalakkuda. Another version is that there are instances in Kerala literature where സംഗമഗ്രാമ is applied to Kūdallūr and that Madhava might quite reasonably belong to the Brahmin house Kūdallūr. Yet another opinion is that he might have been a member of the എരിഞ്ഞാടപ്പള്ളി—a Brahmin house near the Irinjalakkuda Railway station—which would satisfy all the known conditions regarding the two Madhavans.

Nilakhanda Somayajipad in his Bhaṣya quotes the formulae “വിദ്യാംസ്തു നഖലഃ” etc., and “തല്പരാദിമഹാജ്യാ”s from Madhava as his authority. These can be created only by a knowledge of the infinite series for finding the value of π . Many different infinite series for the derivation of the value of π are given in Somayājipād's Tantrasamgraha and some in Karaṇapaddhati also. These series are not found in the works of the earlier astronomers, Bhāskārācārya and others. From this and for other reasons, we can pertinently assume that this Mādhava is the inventor of these infinite series which are developed in Europe by Newton, Gregory and others only in the latter part of the 17th Century. It is a certain fact that he found out the identity $\sin(A+B) = \sin A \cos B + \cos A \sin B$. The expansions of \sin° and \cos° in terms of $^\circ$ are also, his inventions. The rationales of all these are given in detail in Yuktibhāṣā.

Rama Varma Maru Thampuran

ACHIEVEMENTS OF COCHINITES

Major Ayyappa Menon

A Reuter's message dated 17th December 1945 appearing in the Madras dailies reads thus:

"By making a 30 yard dash across the Wonokromo Canal and back again, towing a heavy boat under mortar, machine-gun and super fire, Major C. P. Ayyappa Menon Commanding a Company of the 1st Madras Regiment enabled a section of his men to cross and clear up an Indonesian strong point which was holding up his advance.

"Operating along the northern bank his Company came under heavy fire from a village on the opposite side. The only boat in sight was drawn up to the other bank. Major Menon called for covering fire and dived in. A former swimming champion of Cochin, he returned in a few minutes towing the boat though mortar shells were exploding on the bank, and bullets were hissing into the water around him".

(Major Menon belongs to an aristocratic family in Cochin State in Chittur Taluk—and is the son of Mr. V. Kumara Menon, retired District Munsiff. He was educated in the Maharaja's College, Ernakulam).

Major Venugopal

A telegram from Batavia dated 24th November published in the Madras dailies dated 26th November gives a graphic description of the adventures of a search party under the leadership of Major K. Venugopal. Major Venugopal (more popularly known here as Venu) is the grandson of His late Highness Ravi Varma, Elaya Raja of Cochin and the son of Mr. K. Rama Varma of Cranganur and grand nephew of the late Narayana Marar, an Ex-Diwan of Cochin. He belongs to the Kotliyil House in Trichur. He was educated in Vivekodayam High School and St. Thomas College. He was in the Law



Major C. P. Ayyapan



Major Venugopalan

College, Madras, for some time. He joined the Army as Second Lieutenant in 1941. He has served in the Burma Campaign and his name has been mentioned in despatches. The description in the papers runs thus:—

“A flying column which set out today to search the areas where a Dakota aircraft crashed yesterday with an air crew of five and 20 Indian other ranks, found dismembered bodies and arms flung into trees and headless trunks lying in the river. The Brigade Commander immediately ordered the nearest Kampongs (villages) to be burned. The flying column

consisted of 3 Companies..... Two Companies Commanded by Major V. L. Sathi of Poona and Major K. Venugopal of Malabar, reached the burnt-out aircraft, and advanced towards the nearest village Slight rifle-fire from the village was disposed of, but as they approached an open space they were rushed by a mob of 100 Indonesians armed with rifles and swords. At least 50 Indonesians were killed or wounded. One Maharatta was slightly wounded..... The column brought back 15 prisoners among them, some of whom were found using British rifles and Kit.....”

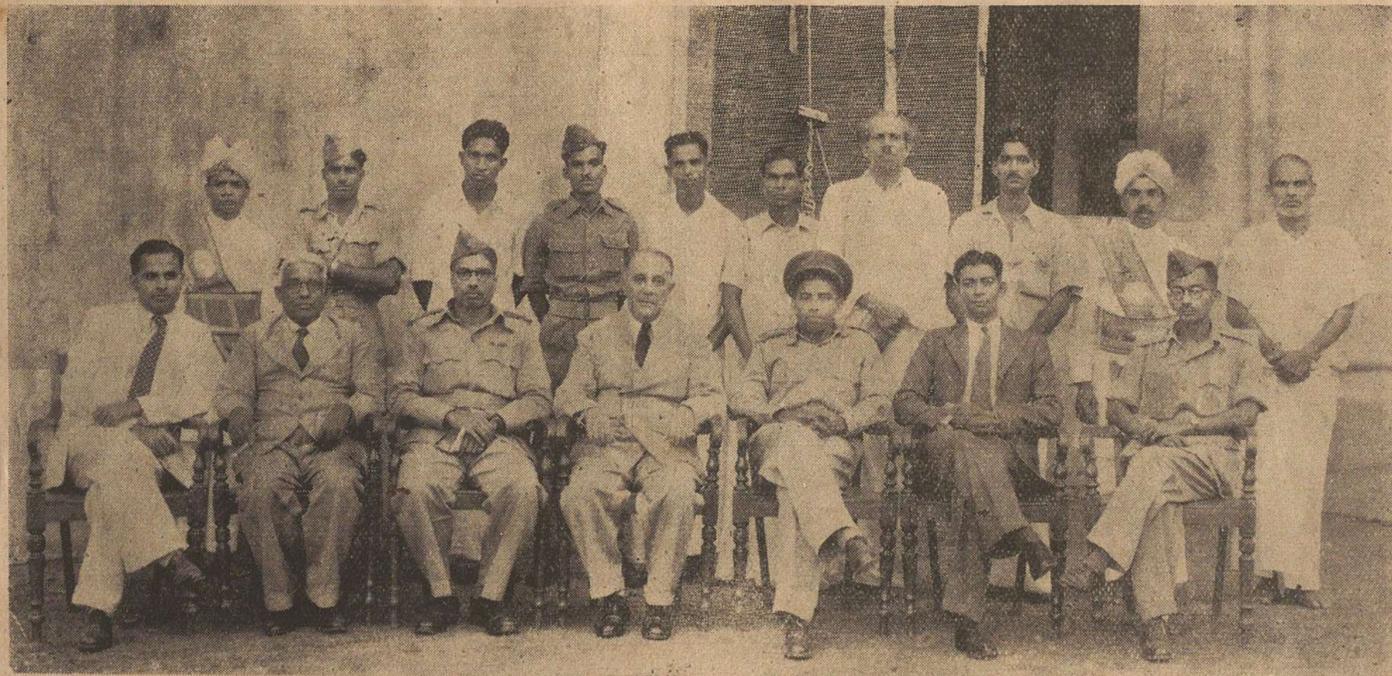
COCHINITE PRISONERS OF WAR

THE sufferings of the Cochinite Prisoners of War in Malaya were described by Capt. N. Sundaram Pillai of Chittur (Son of the late Divisional Inspector of Police, Narayanaswami Pillai), Capt. P. A. Paul of Trichur (Son of retired Civil Surgeon Dr. P. P. Antony), Capt. M. S. Menon of Trichur, Capt. M. A. Paul of Narakkal and Sepoy K. P. Thomas of Peramangalam, at a public meeting held in the Trichur Town Hall

under the presidency of Sir George Boag, Diwan of Cochin. All the Captains (Doctors) became prisoners of War after the fall of Burma and Singapore. The President congratulated them on their achievements and referred to their sufferings and sacrifices. There were also five other soldiers, who were prisoners, present at the meeting. They were given presents of cloth and shirtings.

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Prisoners of War—with the Diwan Sir George Boag in the centre

Sitting right to left: Capt. M. S. Menon (Pow.), Capt. P. A. Paul (Pow.), Capt. M. A. Paul (Pow.), Sir George Boag, Capt. N. Sundaram Pillai (Pow.), Mr. Parambi Lonappen and Rama Varma (Appan) Thampuran.

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M. BALAKRISHNA MENON, B.A., B.L.,
INFORMATION OFFICER

THE COCHIN STATE MILITARY BENEVOLENT FUND

The Government of India have instituted a fund called the "Indian Army Benevolent Fund" with a view

- (1) to help the families of combatants and non-combatants killed or disabled on active service,
- (2) to relieve distress not attributable to field or foreign service, and
- (3) to help ex-soldiers who have lost a limb on active service or on duty in peace.

2. The grants made from the Indian Army Benevolent Fund are generally small. The Government of Cochin therefore considered it highly necessary to supplement these grants. With this object, Government instituted a fund in this State called the "Cochin State Military Benevolent Fund". The Cochin State Forces also will get the benefits of this fund.

3. The fund is being built up by public subscription and is being administered by Trustees.

4. Cochin can be proud of her magnificent contribution in men to the victories of the Allies and to the triumph of the glorious causes for which the United Nations waged war. It is only proper that the subjects of this State who have undergone hardships, difficulties and perils are assured of a secure future. This fund has been started to give them the necessary assurance and it deserves the largest public support. Government expect that every individual and organisation will render all possible help to augment this fund for the relief of those who have fought for us. His Highness the Maharaja has graciously donated a sum of Rs. 1 lakh to the fund.

5. All donations may be sent to.—

M. R. Ry. P. V. Raphael Avl., M. A., Comptroller of Finance and
Accounts, Chairman and Treasurer, The Cochin State
Military Benevolent Fund, Trichur.

6. The donations will be acknowledged in the Cochin Government Gazette from time to time.

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