

TAMIL ARASU 1974

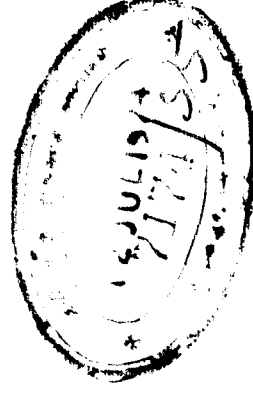
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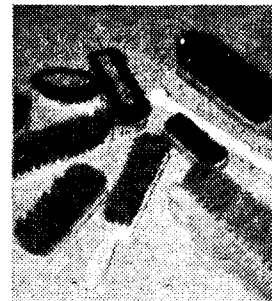


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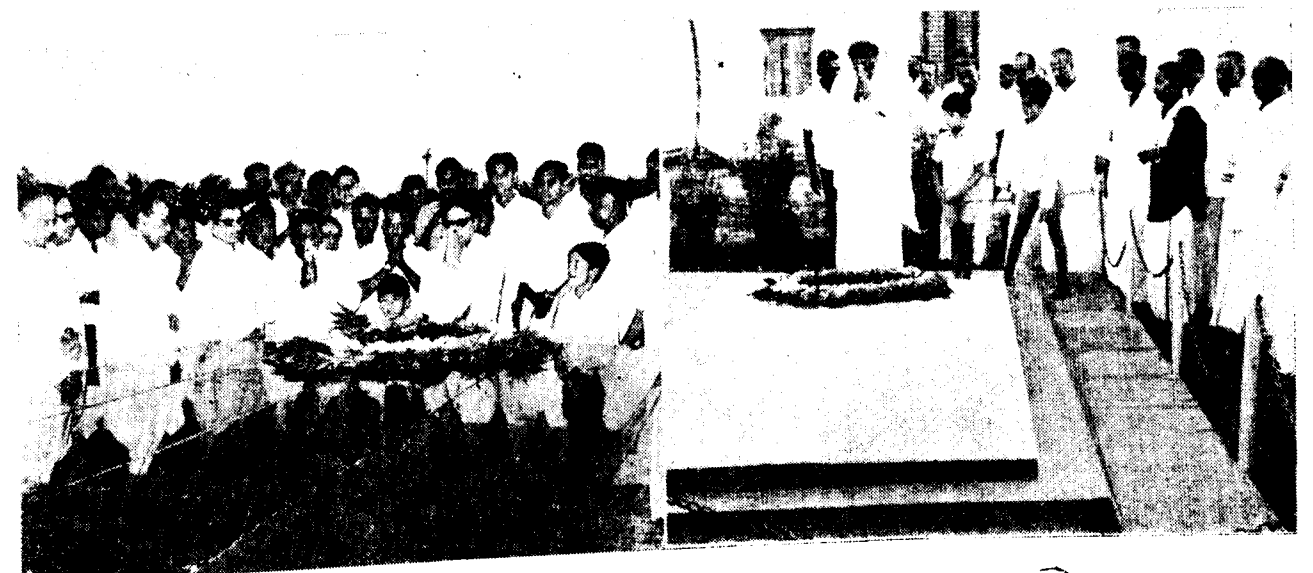
Issue 1

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Mr. Chimanbhai Patel of Gujarat called on Chief Minister during Birthday Celebration.



The 51st Birthday of Chief Minister on 3-6-74 began with the Chief Minister laying wreaths at the graves of his Mentors, Anna and Periyar.



It is State Autonomy That'll Ensure Political Justice

Dr. M. Karunanidhi,
Chief Minister of Tamil Nadu.



AUTONOMY IS MEANT TO BRING THE ADMINISTRA- TION NEARER TO THE PEOPLE

It has been my unique privilege to move the resolutions on 'State Autonomy' in both the Houses of our Legislature and the two Houses have adopted the resolutions. Our demand for State Autonomy is only a logical step towards the long-felt need of the State. We believe strongly that the present economic crisis is the result of over-centralisation. We also believe that the democratic freedom will be meaningful only when we attain 'State Autonomy'. Many politicians, particularly in our State, out of frustration and ill-will towards D.M.K., describe this move for 'State Autonomy' as unpatriotic. I would make it very clear to them that patriotism is not the monopoly of any single political party in this country.

Recently, an All-India Seminar was held at Bangalore on 'Federalism in India' where it has been resolved that :—

"In order to make the States more effective, greater autonomy should be given to the States and administration should be brought close to the people and should be made accountable to them. To achieve this, decentralisation was considered to be an important step and greater participation should be ensured."

This was the resolution. Here, I would like to emphasise that 'State Autonomy' is something more than

the decentralisation. Autonomy will enable the State administration to formulate and execute the policies effectively and purposefully to the people to whom the State Governments are nearer.

Though the slogan of State Autonomy has got a long political history in his country, we the D.M.K., in charge of the State administration, experience everyday, how we are not able to function more effectively and our election programmes are hampered because of this concentration of powers at the Centre. It is only in this background, our party—the D.M.K.—had raised the "Clarion call" of State Autonomy.

The problems of handloom weavers ; the problems of sick mills and its nationalisation ; distribution of sugar, fertilisers and foodgrains ; starting of new industries ; issue of licenses and letter of intents ; participation of labour-management in public sector companies and making provisions for dividends ; changing the name of a village and cutting across National highways for laying the pipes for waterway—all these and several other urgent and minor problems, we in the State, are not able to solve them effectively and timely, because the Centre comes in at all levels.

The inordinate delay in executing and implementing various essential schemes hamper the national progress and economic well-being. The only remedy is 'State Autonomy'.

The Administrative Reforms Commission in its report on Centre-State Relations has rightly observed that

"Concentration of administrative powers at a distant Centre tends to breed inefficiency and resentment, which in turn sets the minds of the people against the Centre."

Perhaps, just to see the people's minds are not permanently turned against the Centre, we see at regular intervals, the Central Ministers visit various States and speak to the people as if their sufferings are due to the State Governments and the Central Government is not respon-

sible in the least. This inefficiency due to the concentration of power at the distant Centre has almost paralysed our administration to such an extent that those in charge of the State Administration feel more often frustrated owing to the helplessness. Of course, when the same political party was ruling both in the State as well as in the Centre, they were able to adjust and accommodate and even then there were instances when the State Chief Ministers raised their voice for more powers for the States.

The D.M.K. has taken this message of 'State Autonomy' to every nook and corner of the State and the people have been educated. The people of the State have now come to know that there are two Governments and the interests of these two are often at variance and ultimately the affected party is the people. Therefore, it is wrong to say that the people have not accepted this demand. On the contrary not only in our State, but even in other States, indications have been there that the seeds of Autonomy have just begun to sprout.

One of the peculiar arguments advanced against the demand for 'State Autonomy' is that if more powers are given to the States, the Centre would become weak. As a reply to this argument, I would like to say that a demand to build a strong Centre on the foundation of weak States is like an attempt to build a strong building on the foundation of sands. Strong means in this context, ability to perform adequately and properly the duties assigned to the States. The argument that if State Autonomy is granted the Centre would become weak is just meaningless and runs counter to the true spirit of Federalism.

As a matter of fact, constant frictions between the Centre and the States which are very likely when different political parties are in power, will endanger the country's solidarity. The actual evolution of political parties in India, especially one-party dominance, has been the single and most important factor for the over-centralisation. This has facilitated the frequent misuse of Constitutional provisions by the ruling party of the Centre, which

IT IS MEANINGLESS TO SAY STATE AUTONOMY WILL WEAKEN CENTRE



WE REALLY WANT TO STRENGTHEN THE POLITICAL STRUCTURE OF OUR COUNTRY

has resulted in a strained Centre-State relations on certain issues. Thiru K.V. Rao, in his 'Parliamentary Democracy in India' has made a significant observation in this context as—

"It is obvious, it is the particular weakness of the Constitution that will create constant friction between the Centre and the States, not on the legal plane but on the political plane and that this constant friction will weaken the solidarity of the country much more a real federation with greater provincial autonomy could have done."

What the D.M.K. now wants is just to remove the weakness in our Constitution and to really strengthen the political structure of our country.

The Preamble of the Constitution of India begins with the following memorable words—

"We, the people of India having solemnly resolved to constitute INDIA INTO A SOVEREIGN DEMOCRATIC REPUBLIC and to secure to all its CITIZENS JUSTICE, SOCIAL ECONOMIC AND POLITICAL"

Can any one of us here say, even though we have celebrated the Silver Jubilee of our Independence, that we have secured Social Justice or Economic Justice to our people ? This has not been feasible because our Constitution itself has not enshrined Political Justice that is necessary to secure Social and Economic Justice. The Demand for State Autonomy is a demand for Political Justice. For, after all, the State is a political instrument to secure Social and Economic Justice and this instrument is not effectively functioning owing to the inbuilt defect in our Constitution and to remove the inbuilt defect we demand 'State Autonomy'. This demand is a Demand for Political Justice.

Excerpts from Speech while inaugurating Forum for State Autonomy on 20-6-1974 at Kalaivanar Arangam, Madras.

THE MANY FACETS OF Dr. M. Karunanidhi

BIRTHDAY TRIBUTES BY LEADERS FROM ALL PARTS OF INDIA

The 51st Birthday of Chief Minister of Tamil Nadu Dr. M. Karunanidhi on 3rd June, 1974 sparked off a State-wide effort to collect the Rs. 1 crore fund for the rehabilitation of the physically handicapped, which he declared earlier as the cause dear to his heart. The voluntary collections for the Fund has gathered such momentum throughout the State that by the end of June it has totalled several lakhs.

Innumerable public meetings were organised by well-wishers to felicitate the Chief Minister on the happy occasion. The first such felicitation function was held in the spacious parade grounds of Fort St. George by the State Civil Services, when the Governor Thiru K.K. Shah eulogised the Chief Minister for his uncanny gift of keeping the Civil Services personnel always in good humour by redressing grievances before they became bitter issues. At other programmes in the City, leaders from other States gave eloquent expression to their support to the State Autonomy crusade of the Chief Minister.

Excerpts from their speeches are given below.

SERVANT OF THE PEOPLE

Thiru K.K. Shah, Governor.

"If the party system is basic to functioning of democracy, leadership of political parties is a *sine qua non* of the existence of democracy. And if leadership does not create the ability to appreciate others, I would ask 'do you go to public life to continue to fight all the 24 hours of all the days of your life and finding fault and not appreciating anybody in your life'? Is that the essence of party politics? And as Governor of Tamil Nadu, I am proud to say that Tamil Nadu plays the real game of democracy. In fact if anybody wants to see how democracy functions, he must come here.

"I want every political party to remember that the administration is the asset of every party. And anybody who contributes to the efficiency of the administration deserves the gratitude of all political parties. What will you do in a hurry if the administration has gone down, if the efficiency has sunk, if the moral stature, if the catholicity, if the feeling for the common man is not reflected in the administration?

"And this great demonstration of the love and affection the services staff associations have showered on Dr. Kalaingar Karunanidhi stands as

a proof of his capacity to ensure devoted cooperation of the Services. This is a great achievement, of which as I have already said, he can be legitimately proud, of which other parties also can be legitimately proud.

"Some times, people ask : what is common between K.K. Shah and Kalaingar Karunanidhi. I said the only thing that is common between us, is that he believes that he is the servant of the people and that I believe that I am the servant of the people. What greater affinity do you want, than the fact that both of us look upon ourselves as servants of the people?"

Karunanidhi Must Lead India

GORAY

"I do not look upon Dr Karunanidhi only as a person but I look upon him as an institution. I look upon him as a man with vision, and I try to understand what that vision is. Two things are very clear to me, one is that he is undoubtedly the Champion of the under-dog.

"The other field in which he has distinguished himself is his championship of the cause of the States' Autonomy. This is a very important aspect and I think that, for this Dr. Karunanidhi's name will be remembered by posterity. It will be for this single thing, posterity will say that he was the man, he was the leader, his was the party, who dared to say that the States will have to be given more and more autonomy.

"Tamil Nadu has been the first to ask for more autonomy ; it means that Tamilnadu has developed to that extent. It has matured and now it is said that Delhi is not. Delhi wants to exercise remote control over Tamil Nadu but says let us manage our affairs ourselves.

"Under the leadership of Dr. Karunanidhi, Tamil Nadu will develop to a stage where it will be able to give a lead not only to the people of Tamil Nadu but to the people everywhere in India.

"There will be a time when Dr. Karunanidhi becomes an All-India leader not only the leader of Tamil Nadu but for India. Therefore, before concluding let me wish him, let him live long and let him give a lead not only to Tamil Nadu but to the entire India."



KARUNANIDHI HAS GIVEN NEW DIMENSION TO THE NATION

PATNAIK

"You in Tamil Nadu have raised a torch of reason.. Delhi at the moment has neither eyes nor ears. It does not see anything ; does not hear anything. It is absorbed and immersed in its own sense of great power and authority over the poorest nation on earth. Once I told Mrs. Gandhi when we were all still on friendly terms not many years ago. Once we proposed that she be the Prime Minister after Lal Bahadur's death and she became party-elect and a Prime Minister. I told her: Madam Prime Minister, 'You are a Prime Minister for 4 million tonnes of steel. Try to become a Prime Minister for 40 million tonnes of steel before you retire. You see, a nation's strength does not lie in a mere nuclear explosion. A nation's strength lies in its economic viability and a scientific development like the nuclear explosion or the delivery system or whatever it is, is only an outcome of it. A militarily strong nation with starving millions cannot hold its head high. This has been the teaching of history. The great Roman Empire had disintegrated because people started starving. This is nothing new in human history. Therefore, the first concern along with every scientific development which must go apace is to create a sense of belonging in the whole nation, a sense of rapport right from the Panchayats and Taluks to Delhi and that will only happen when each one of them feel a sense of participation in the power and authority of Government. Without responsibility there is no meaning in power and by the same token, without power, there would not be any responsibility. If you have not given these people any authority, do not expect rapport, therefore I say, let us reconsider the whole thing. Let us review the whole thing. Out of our experience, without abusing each other, without accusing each other, as planners, as thinkers, as administrators, as legislators, let us examine it. And then, come to a conclusion by the combined intelligence of India and reach the right conclusion about the right manner of governing this great country of ours.



In Mr. Karunanidhi, you have a relentless fighter for reason, I hope his struggle would be successful. And he would have great many years left to him to continue this struggle and use his energies to give a new dimension to the Indian nation.

CHAMPION OF LINGUISTIC MINORITIES

VEERENDRA PATIL

I do not like to dwell on specific points as I am on a platform to eulogise his services on his 51st birthday. But I am tempted to refer to his recent crusade to get full autonomy to the States. There is so much to be said for and against this issue. But having regard to the position of States in the federal structure of India I, personally, feel that the States should have more financial powers and more autonomy in various sectors so as to feel secure and safe from an erratic Centre.

Towards this I fully agree with his arguments and I hope he will achieve success in his crusade. Thiru Karunanidhi is a trusted friend of the poor and downtrodden. In various capacities, he has done his best to ensure social justice to the backward and depressed classes. He is virtually a crusader against caste domination and is determined to prevent exploitation of the helpless masses.

The party to which he belongs is wedded to the principles and programmes of social justice. To carry forward these programmes following the footsteps of his leader Shri Annadurai, Shri Karunanidhi has spared no pains to ameliorate the conditions of the poorer sections of the community. A grateful Tamil Nadu will always cherish his achievements as Chief Minister.

It is a matter of satisfaction to me that our Chief Minister of Tamil Nadu has extended a helpful hand to the linguistic minorities to live in peace and tranquility. His recent forth-right statements on the subject has engendered hopes in the linguistic minorities that their interests are safe in his hands. In Tamil Nadu there are thousands of Kannadigas living in Salem, Dharmapuri, Coimbatore and the Nilgiris districts. There is no doubt that these linguistic minorities will get all the legitimate perquisites for their happy and contented life at the hands of the Government.



Heart-warming Birthday Scenes

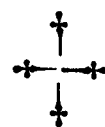


Top (Left, Right and Alongside):
The Physically handicapped
went on a pilgrimage to
the C.M.'s house on 3-6-74
marking it as their Day of
Redemption.



Bottom (Left and Right)
Transport Minister
Thiru Ramachandran
made a handsome contribution
to Rupees One Crore Fund
for Physically Handicapped.

A band of Narikoravas (the
Tamil Nadu Gypsies)
called on Chief Minister
on his Birthday.



Divisional Development Officers Come into Their Own

It may be recalled that the Administrative Reforms Commission, which was appointed by the Government of Tamil Nadu, had a number of suggestions in re-organising the administrative set-up at various levels, with a view to improve the quality of work at different levels.

According to a recent Government Order, the Panchayat Development work should be separated at the Divisional level and entrusted to a new class of officers of Panchayat Development designated as Divisional Development Officers who will function independently of the Revenue set-up.

All the Divisional Development Officers who will be in charge of development work at various Revenue divisions and the P.As. (Panchayat Development) to Collectors, met at Rajaji Hall on 28-6-1974, for an informal discussion, regarding their role. Thiru T.V. Vasuvedan, I.A.S., Director of Rural Development, initiated the discussion.

The Hon'ble Minister for Local Administration briefly summarised the practical difficulties in implementing development programmes in rural areas and pleaded for a concerted and co-ordinated action on the part of Development Officers, who are placed in charge of the work in the new set-up. He described the separation of development functions from the Revenue Divisional Officers, as setting up of a new family.

"From 1.7.74 the Divisional Development Officers will function independently in charge of all items of rural development programmes, in all the districts of Tamil Nadu. This has opened a new chapter in the history of rural development", said Thiru A.P. Dharmalingam, Minister for Local Administration, addressing the Divisional Development Officers at Rajaji Hall on 29-6-74.

There are 48 Revenue Divisions in the 14 rural districts of Tamil Nadu and each Revenue Division will be in the charge of one Divisional Development Officer, who will be working directly under the control of the District Collector concerned. In addition to these Divisional Officers, each Collector will be assisted by his Personal Assistants (Panchayat Development), to supervise the development items of work at the district level. Consequent on this new set up, the Revenue Divisional Officers, who were in additional charge of supervision over the work of Panchayat Union Commissioners in all blocks will be relieved of the development items of work and will be in charge of only revenue and other general administrative work at the divisional level.

He also recalled the basic views of Dr. Anna regarding the provision of amenities to rural people and wanted dedicated action in this regard. He also reminded them of Crash Programme for rural development initiated by the Chief Minister by providing about 10 crores of rupees towards rural development schemes with special reference to link roads and minor irrigation works.

This new development of re-organising the department at the divisional level is a most important achievement next to the implementation of Tamil Nadu Panchayats Act, 1958.

The statutory and non-statutory powers that are necessary for the Divisional Development Officers have been given to them, and the rest of the powers which require amendment of the Act will be taken up shortly.

Regarding the implementation of rural development programmes, care will be taken to see that the investment on all these programmes should bring maximum benefit for the people. The policy should be that with the minimum amount, there should be maximum return—a social return for the villagers.

Another important achievement is that powers to spend the surplus general funds have been delegated to the Collectors and at present 274 Panchayat Unions are availing the benefit.



THE 1971 BIRTHDAY GIFT

LEPROUS BEGGAR REHABILITATION PRESENT POSITION

Under the inspiration of the Chief Minister, Dr. M. Karunanidhi the revolutionary rehabilitation programmes of the leprosy beggars was pioneered on the occasion of his 48th birthday, i.e., on 3rd June 1971. Out of the funds donated by the public on the above occasion, 10 Leprosy Beggars' Rehabilitation Homes were established in the following places :—

1. Paranur (Chingleput dist.).
2. Ulundurpet (South Arcot dist.).
3. Bargur (Dharmapuri dist.).
4. Pudukottai (Pudukottai dist.).
5. Manayeripatti (Thanjavur dist.).
6. Pudupatti (Madurai dist.).
7. Mallavadi (North Arcot dist.).
8. Vinnapalli (Coimbatore dist.).
9. Deviakurichi (Salem dist.).
10. Sellampatti (Dharmapuri dist.).

The main philosophy underlining the establishment of these Homes is to cure the beggars suffering from leprosy and rehabilitate them so that when they are discharged from the Homes, they can lead a life of dignity and self-reliance without being an unwanted burden either on the society or on their families.

FACILITIES IN THE HOME

Each Home has accommodation for 400 adults and 25 children. If in a married couple one spouse is suffering from leprosy and took to begging, the other spouse also will be admitted in the Home. In such cases, arrangements have been made for admission of the children in the nearby hostels and schools. Each Home provides free boarding, lodging and clothing to inmates. Facilities for medical treatment and for vocational training and rehabilitation have also been provided. For recreation, each Home has been provided with a radio, indoor games like carrom, chess and outdoor games like volley ball, etc. Arrangements have also been made for screening of films twice a month in all the Homes. Newspapers and magazines are also being supplied to the inmates.

DIET AND CLOTHING

The daily budget for diet per adult is Rs. 1.80 and Rs. 0.90 per day per child below 12 years. Pro-

vision has been made in the diet schedule for the supply of mutton on four days in a month (i.e.) every Sunday and butter-milk twice a day on all days. The inmates are, in all, provided with one breakfast, two meals and evening tea every day. Special diet is provided to sick and T.B. patients. Each inmate is provided with free clothing—two-sets per year. Besides free clothing, the inmates are given free bedding. The inmates are also given coconut oil, soap for washing, tooth brush and tooth paste. They are also provided with special type of shoes.

MEDICAL FACILITIES

Each Home has been provided with excellent medical, surgical and physiotherapy treatments. Out of the 10 Homes, 8 Homes except the Homes at Ulundurpet and Bargur have surgical operation theatres and thus they provide facility for surgery. On the medical side, each Home has two Medical Officer, Staff Nurse, Pharmacists, Physiotherapists and para-medical staff. Besides, an Occupational Therapist will be in charge of 3 or 4 Homes.

REHABILITATION ACTIVITIES

The philosophy of the "Rehabilitation" is that after medical and surgical treatment, the beggars will first be cured and at the same time they will either be strengthened in the skill which they already possess (like agriculture, weaving, etc.) or will be taught a new skill. The rehabilitation activities mainly include farming, poultry keeping, mat weaving, tailoring, shoe making, carpentry, etc.

The powerlooms will also be installed in the Home at Paranur as an experimental measure. The intention is to weave, besides bandage and other coarse cloths, art silk and zari cloths. A modern factory-cum-workshop will also be set up in the above Home by the Swedish Red Cross Rehabilitation Industries, Katpadi, which will employ only the inmates in the workshop. There is also a proposal under consideration to establish a Binding Unit in the Pudukottai Home.

For the purpose of rehabilitating the cured leprosy beggars back in their families, each Home will have a social worker with academic qualification in social work so that contacts will be maintained with the families of the patients and eventually the families will accept the patients back.

The policy of the Government so far as is admit the leprosy beggars on a voluntary basis. The position under the Law, however, is that begging is an offence, and therefore, recently all these Homes have been notified as "Committal Homes" for those leprosy beggars who will be convicted for begging. In connection with this a proposal is under active consideration of the Government for bringing in a legislation to secure indefinite detention of the reluctant beggars suffering from leprosy in the Homes after conviction.

ADMINISTRATION

One Superintendent from the Probation Department/Deputy Collector with the following staff is in charge of the administration of each Home :—

1. Two Medical Officers,
2. Staff Nurse,
3. Auxiliary Nurse,
4. Physiotherapist,
5. Laboratory Technician,
6. Pharmacist,
7. Male Nursing Orderly,
8. Female Nursing Orderly,
9. Sanitary Workers,
10. Cook,
11. Cook Matties,
12. Office Superintendent,
13. Store-keeper-cum-Accountant,
14. Junior Assistant,
15. Police Guards,
16. Social Workers and
17. Last Grade Government Servant.

At the State level, the Director of Health Services and Family Planning is the head of department and is assisted by a Special Officer, two Assistant Special Officers, one on the medical side and the other on the rehabilitation side. An Occupational Therapist has also been appointed at the headquarters in Madras to assist the Special Officer in working out the detailed rehabilitation methods in all the Homes.

CONSTRUCTION AND MAINTENANCE

The average cost of construction of each of these Homes works out to about Rs. 10.00 lakhs. The recurring expenditure for running each of these Homes will be Rs. 5.00 lakhs per annum.

Leprosy Work Outside

Government Fold

There are also many Voluntary Institutions engaged in Leprosy Control Work in Tamil Nadu and Sacred Heart Leprosy Hospital, Kumbakonam, is one among them.

The Sacred Heart Leprosy Hospital is situated at Kumbakonam—Karaikal Road, about 2 kilo meters from the Kumbakonam Railway Station. In 1916 the Bishop of Kumbakonam initiated a Leprosy Home. From the very beginning the Salesian Sisters of Mary Immaculate have been in charge of the management of the Institution. In those days no specific treatment was known for leprosy and the Home was giving shelter to leprosy patients expelled from their houses. With the discovery of Sulfone drugs a new era for both the Institution and the patients started. Since then the activities of the Home were fastly changing and today the Institution has reached the status of a modern hospital. The hospital is equipped with almost all the facilities which are necessary for the treatment of leprosy patients.

The sanctioned bed-strength of the hospital is 750. Most of the in-patients are from Thanjavur district and surrounding places. The hospital is run on charitable lines. Very little amount of money is earned by the hospital as income from the patients. The hospital is managed by private donations from India and abroad. The Tamil Nadu Government gives a Capitation Grant of Rs. 25/- per month for positive, reconstructive surgery and ulcer cases. Grants are also received from the Government of India, Ministry of Health for Leprosy Control Work and State Social Welfare Department for the maintenance of children affected by leprosy.

There are six doctors working in the hospital. During the year 1973 a total number of 2,262 patients were admitted in the hospital. The strength of the hospital as on 31st

December, 1973 was 740. The Out-Patient Department of the hospital is attended by about 100 patients per day. Two thousand seven hundred and four cases were referred to the Government SET Centres and Leprosy Control Units. The hospital is maintaining good co-operation with the Government SET Units and Leprosy Control Units and other Govt. General Hospitals in this district.

One hundred and fourteen cases were referred to Leprosy Beggar Rehabilitation Homes during the year 1973. Importance is given for domiciliary treatment and admission into the hospital is restricted to those who have acute complaints.

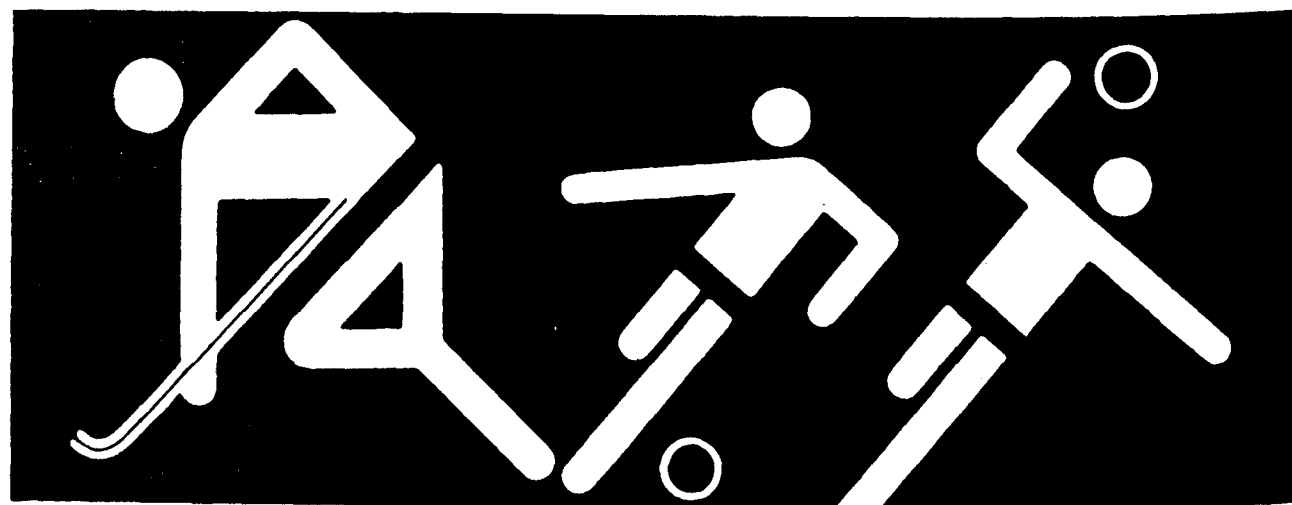
The hospital has treatment facilities for reconstructive surgery. The whole procedure of surgical treatment is evolved in such a way that the patient goes back to the society to lead a normal life. A team of medical personnel including Physiotherapist, Occupational Therapist, Social Welfare Officer and Surgeon assess each surgical case and determine the procedure and necessity of treatment, which would be suitable for a particular patient.

The hospital has various rehabilitation activities. Almost all the patients in General Wards are engaged in some kind of work inside the hospital. These General Wards are like Half-Way-Homes. The various works inside the hospital include shoe-making, cloth and mat weaving, tailoring, building construction, carpentry, painting, spinning, baskets making, agricultural work, etc. Special care is shown to instruct the patients on how to prevent injuries to anaesthetic limbs while doing these work. With these training many of the patients, after their discharge from the hospital, were able to continue to earn their livelihood in the society. The hospital is self-sufficient in producing clothes, bandages, mats and special-shoes required for the patients.

In 1973 a total number of 1,391 patients were helped through the Social Welfare Department of the hospital. Social and emotional factors are studied and evaluated for the patients in order to expedite the restoration of their health. There is a library for the patients. A 'Night School' is conducted for the patients. There are about 45 patients attending the School. Patients have found it very useful for them.

In addition to the in-patient and out-patient treatment provided at the hospital, Leprosy Control Work is also carried out in three taluks (Kumbakonam, Nannilam and Papanasam) of Thanjavur district with an estimated population of about 8,05,120. There are about 16,000 patients taking treatment in our Leprosy Control Unit Clinics. Every day one vehicle goes to the villages with Medical personnel, drugs, etc., to conduct 'roadside clinics.' There are 40 Para-Medical Workers stationed in each zone in these taluks to detect the cases of leprosy, to bring them for treatment to the Mobile Medical Unit Clinics and to do necessary follow-up work.

On 24—3—1974 the Honourable Minister for Health, Thiru K. Anbazhagan, M.A., visited the hospital and declared open the newly constructed Special Wards (Emmaus Block). After that, there was a public meeting inside the hospital which was presided by Prof. T. N. Jagadeesan, Hon. Secretary, Hind Kusht Nivaran Sangh, Tamil Nadu Branch. The Honourable Minister distributed prizes to the students who won in the oratorical competition held in connection with the World Leprosy Day. The Superintendent of the Hospital Rev. Mother Anne, while delivering the welcome address, thanked the Government of Tamil Nadu for its various assistance to the hospital as well as for its keen interest in solving the problems of leprosy in Tamil Nadu.

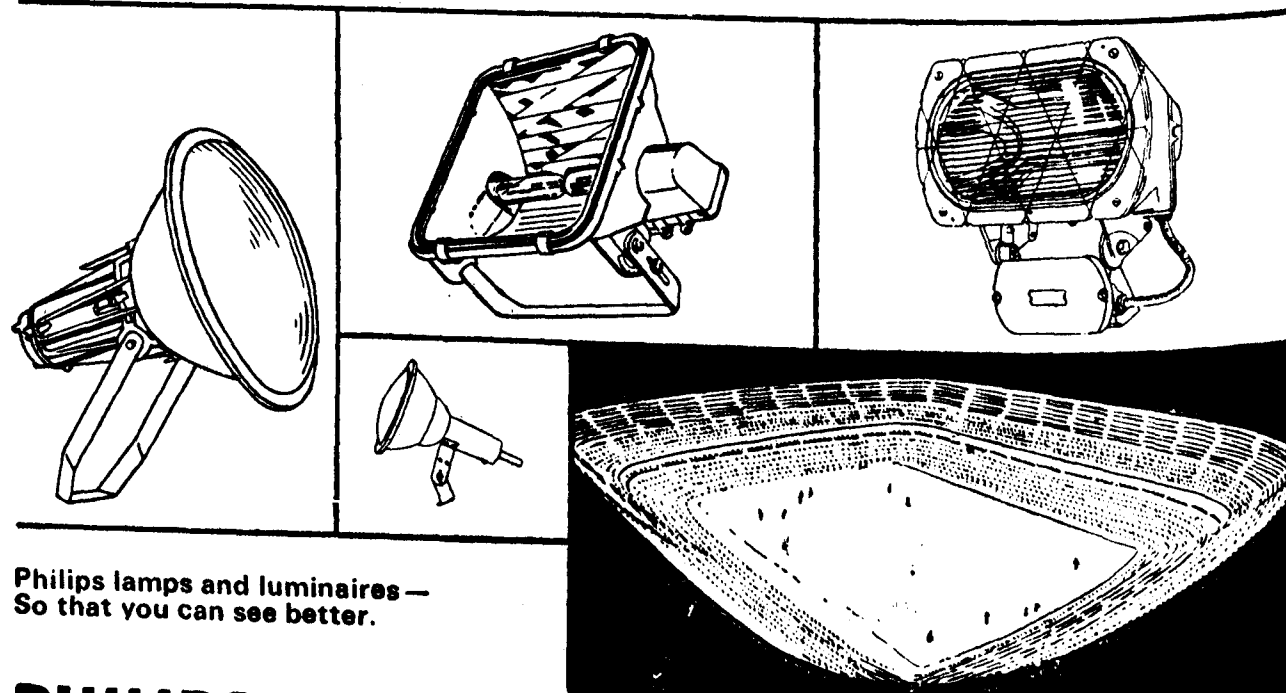


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What is Glaucoma?

It is a disease marked by increased pressure in the eyeball. This pressure is caused by the accumulation of the aqueous matter in the eye. This fluid, which nourishes the lens and cornea, has to be in constant circulation. When the circulation is blocked, the fluid accumulates in the front of the eyeball and puts pressure on the fluid in the rear. The fluid in the rear of the eyeball pushes in turn against the retina.

At first the increased fluid pressure damages only those retinal nerve cells and fibres which facilitate side vision. As a result the person's side vision is gradually lost. But in the final stages of the disease, the pressure destroys the nerves which permit central vision as well and all sight is gone!

If glaucoma is diagnosed early, treatment can halt its progress. However, the sight once destroyed by glaucoma cannot be restored. For each month that a glaucoma victim postpones treatment, he may lose a small but priceless percentage of his sight, which he can never reclaim.

The Eye Department at the Government Erskine Hospital in Madurai, Tamil Nadu, is presently involved in educating people, especially those in the rural areas, to the seriousness of glaucoma and the importance of periodic eye examinations when there is a sign of ailment. The Erskine ophthalmologists have set up a comprehensive glaucoma demonstration centre at this hospital.

The United States government is financially supporting the effort of the Madurai ophthalmologists.

"Our aim", says Dr. G. Venkataswamy, Director of the centre, "is to make the people aware that a serious disease like glaucoma can affect their eyesight and that they should be alert enough to have their eyes examined rather than wait to become blind. This message is spread by the Erskine eye doctors through lectures and radio talks and articles in the newspapers. The centre also distributes pamphlets on the dangers of glaucoma in English and Tamil to the public."

Dr. Venkataswamy feels that the Tamil Nadu government-sponsored eye camps have played an important role in the Madurai doctor's efforts to educate and treat sufferers from glaucoma. "Because of these eye camps", he notes, "we have been able to reach people in the remotest villages and examine more patients at one time than is possible in one single hospital."

BHASKARAN THOMAS

According to Dr. Venkataswamy, most villagers are not having their eyes examined because there are no adequate medical facilities in rural areas. Further most of the rural folk attach superstitious stigmas to disease.

Dr. Venkataswamy says that even in urban areas, people often fail to distinguish between glaucoma and cataract, which affects the vision of persons above the age of 50. In the case of cataract, the patient is advised to undergo an operation only after the cataract matures. "Hence glaucoma patients are some-

times under the impression that they have cataracts in their eyes and delay medical treatment, with the result they lose whatever vision they still have when they finally come for treatment," he adds.

The reason for this confusion, Dr. Venkataswamy feels is, that both glaucoma and cataract generally affect the vision of middle-aged people. A survey conducted by the Madurai Glaucoma Centre showed that the incidence of glaucoma was high among persons above the age of 40.

The ophthalmologist believes that the best defence against glaucoma is eye examination at least once every two years after the age of 35. In treating glaucoma, Dr. Venkataswamy notes, the physician's primary aim is to reduce the pressure within the eyeball. The treatment may take the form of surgery or drug application, depending upon the condition of the patient's eyes.

A highlight of the Madurai Glaucoma Centre's efforts is the special course it conducts for medical personnel to make them more conscious of the glaucoma problem. The centre also trains technicians, hospital compounders and nurses to examine patients and conduct certain preliminary tests like measuring the patient's eye tension.



Dr. G. Venkataswamy, Director of the Glaucoma Centre at the Government Erskine Hospital in Madurai, examines a patient's eye with a Slit Lamp.

News AT A GLANCE

PRE-MATRIC SCHOLARSHIPS TO GIRLS BELONGING TO SCHEDULED CASTES/ SCHEDULED TRIBES INCREASED.

The Government have increased the rate of Pre-matric Scholarships for girls belonging to Scheduled Castes/Scheduled Tribes, by 50 per cent during the year 1974-75 with a view to avoid dropout of these girls at pre-matric stage.

The rate of dropout in the case of girls in the pre-matric stage is more than that of the boys for obvious reasons. The social and economic reasons prove a damper on their enthusiasm to continue post-matric courses. Government have considered that emphasis should be laid on girls' education by preventing the increased tendency on the part of girls to drop out from schools.

Government have, therefore, sanctioned Rs. 10 lakhs (Rupees Ten lakhs only) for grant of Pre-matric Scholarships to girls belonging to Scheduled Caste/Scheduled Tribe Community by increasing the rate of pre-matric scholarship by 50 per cent in their case during the year 1974-75.

TAMIL NADU PUBLIC SERVICE COMMISSION COACHING CENTRE IN TIRUCHI

The Coaching Centre for Group IV Services will be started in Tiruchirappalli from June 15, 1974. The Coaching Centre, of Tamil Nadu Public Service Commission, first of its kind in the State, will be situated in the Stadium Grounds, Tiruchi. Students, who are eligible for the Public Service Commission examination, will be admitted. To start with, 100 students will be admitted. The classes will be conducted by eminent teachers and retired head masters. According to Thiru M. Vaithiyalingam, District Collector, funds will be allotted from the District Welfare Fund. The classes will be conducted from 6-30-8-30 p.m.

REMODELLING OF KALINGA- RAYAN CHANNEL IN COIM- BATORE DISTRICT.

Tamil Nadu Government have sanctioned the scheme for the remodelling of Kalingarayan channel in Coimbatore District, at an estimated cost of Rs. 60 lakhs, as a Medium Irrigation Scheme.

The scheme contemplates the following:—

- (i) By carrying out the remodelling proposals, equitable supply of water would be ensured for the entire ayacut by re-grouping the ayacut under the sluices, reducing the number of sluices and providing regulating arrangements with shutters for all the sluices.
- (ii) The channel's duty will be increased from 25.8 acres/cusec to 40 acres/cusec.
- (iii) A savings of 130 cusecs of water to irrigate an additional extent of 5,200 acres can be effected.
- (iv) The canal banks will be brought to standards and made motorable.
- (v) The drainage will be improved by carrying out modifications to the existing structures and constructing additional structures wherever necessary.
- (iv) The existing average cultivation of 13151.21 acres will be stabilised and the total ayacut under the channel will be increased to 17,766 acres ultimately including the unauthorised baling.

- (vii) The anticipated additional food production is 10,224 tonnes, the cost per tonne being worked out at Rs. 585/-

PENSION FOR 1937 ANTI-HINDI MARTYRS ALSO

The Government have now decided to entertain applications received from those who took part in the Anti-Hindi Agitations from 1937 onwards and courted imprisonment to that cause for 3 months and more instead of restricting the eligibility only to those who took part in the Anti-Hindi Agitations in "1965" for the grant of the above pension.

MUNICIPALITIES IN TAMIL NADU—TERM OF OFFICE EX- TENDED

The Government of Tamil Nadu has promulgated on the 4th June 1974 an Ordinance called "the Madras City Municipal Corporation and Tamil Nadu District Municipalities (Amendment and Extension of term of office) Third Amendment Ordinance 1974, extending the term of office of the councillors of Municipalities upto the first day of November 1974.

The Ordinance has been promulgated to achieve the following object viz. Section 40 of the Madras City Municipal Corporation and Tamil Nadu District Municipalities (Amendment and Extension of term of office) Act, 1971 (Tamil Nadu Act XXII of 1971) provided for the extension of term of office of councillors of Municipalities upto the 1st day of August 1974. It is proposed to print the ballot papers with counterfoils in the case of ordinary elections to municipalities also, as this procedure was adopted in the recent by elections to Coimbatore West Assembly Constituency and Coimbatore Parliamentary Constituency. The proposed adoption of the new system would entail extensive amendments to the conduct of Election of Municipal Councillors' Rules and also the setting up of additional polling stations, drafting of additional polling personnel, procurement of additional polling materials, posting of additional police bandobust, etc. It will also be necessary to allow sufficient time to the Government Press for printing of ballot papers with counterfoils. It will not be possible to complete the arrangements specified above, if the elections are to be conducted in July 1974.

It has therefore been decided to extend the present term of office of the Municipal Councillors of all the Municipalities in Tamil Nadu upto the first day of November 1974.

The Government have recently introduced, on the analogy of Freedom Fighter Pension Scheme, a Scheme for the grant of pension of Rs. 75 per month to those who were imprisoned in connection with the Anti-Hindi Agitation in 1965 and in the Agitations held for the merger of Tamil speaking areas in Kanyakumari and Tiruttani with the then Madras State.



The Anna Pannai, the proud creation of Dr. Anna of our beloved memory, is living up to its name. It is recognised by the National Seed Corporation for raising foundation seed stock of bajra and sorghum. It is an inexhaustible supplier of all primary seeds to the State's Breeder Seed Multiplication Programme. It is an outstanding Agricultural research station now entrusted with research on Tropical Fruit Horticultural Dry Crops. Lastly it is blossoming into a first rate in-service training ground for all agricultural personnels of the State. The I.C.A.R. has entrusted it with several vital projects. With barely six years behind it, it has made history and has earned all-India renown in a vital field—a field vital to the survival of the nation.

Now it produces as many as 65 hybrid seed varieties comprising pulses, cereals, vegetables, etc which are in high demand from all over India because of the high quality ensured in the production of hybrid seeds at the Anna Pannai. The National Seed Corporation has entrusted the Farm with the all-responsibility of producing the Foundation seeds for a large variety of crops. This is a signal honour to the Farm. In addition to this, since its inception, except in the first year, this Farm has never been in the red as far as its profit and loss accounts of

each financial year is considered. As such it has set a fine example for such institutions both in Tamil Nadu and India. If genetic evolution of seed varieties has been responsible for the very large increase in the foodgrain production in India, the importance of seeds becomes crucial to the Food Front.

The phenomenal break-through in food production in Tamil Nadu is not a little due to these high-yielding varieties. Tamil Nadu now produces enough and more food than its actual needs, thereby wiping out once and for all the deep rooted chronic scar of deficit from its map of food production. For this creditable and shining success in this field by the State, the contribution of the Anna Pannai at Kudumiamalai and other Seed Farms in the State which number about 55 is not of little measure or magnitude. Some of the hybrid seeds that come out of this Farm for cultivation are Anjugam PS7, Greengram T9, Blackgram, Prebath Dhoordall, K1 Chillies etc.

The Anna Pannai at Kudumiamalai located in Kudumiamalai-Vaylogam Reserve Forest area on the trunk road from Pudukkottai to Kodaikanal and started on 6th September, 1967 with the blessings of the late Chief Minister Dr. Anna who evinced keen interest in the

development of the farm and visited it twice during his tennure as Chief Minister, comprises an area of about 3,000 acres of Reserve Forest, of which as many as 1017.45 acres have already been cleared, reclaimed and brought under cultivation. The cost of reclamation works out to Rs. 258 per acre including soil conservation. A net area of 806 acres are available for cultivation and the balance of 211.45 acres comprise lands devoted to buildings, roads, wells and tanks and also gravelly lands unsuitable for cultivation purposes.

At present the farm has been divided into dry, garden and wetlands as follows and intensive cultivation has been taken up by introducing three crop sequences in most areas.

	in Acres
1. Wetlands ..	20.00
2. Drylands ..	486.45
3. Garden lands ..	160.00
4. Mango orchard ..	140.00
5. Un-cultivable waste, (Buildings, roads, well,s tanks etc.) ..	211.00
Total ..	1,017.45



The soils of the farm have been studied and classified into four ranging from categories medium to low fertility level requiring adequate manuring, proper crop rotation and careful management. The pH of the soil varies from 5.6 to 7.5 with some patches showing 8.0 and above.

Irrigation.

The average rainfall in the area is about 36". One disused tank called "Pullupoorankulam" was found during the course of jungle clearance and this tank has been renovated with the help of "Prosperity Brigade" volunteers. A giant of a well in this tankbed is now being dug to increase its irrigation capacity. In addition, 33 open wells have so far been dug and energised. Three more wells are in various stages of progress. Besides, there is a proposal under the consideration of the State Government to get water from the nearby Vellaru.

There is a special 'Public Works Department Sub Division attending to all the civil works in the farm. The permanent assets of the farm consists of 33 Wells fitted with Electric Motor and pumpsets with other necessary accessories, 9 Tractors, 1 Lorry, 1 Jeep, 3 Godowns, 2 Implement sheds, 4 Threshing floors, 26 Power sprayers, threshers etc, 1 Seed Processing Unit with complete set of machineries with necessary attachments and 1 Maize cob sheller.

THE YEARWISE PROFIT AND LOSS ACCOUNT FROM THE INCEPTION OF THE FARM

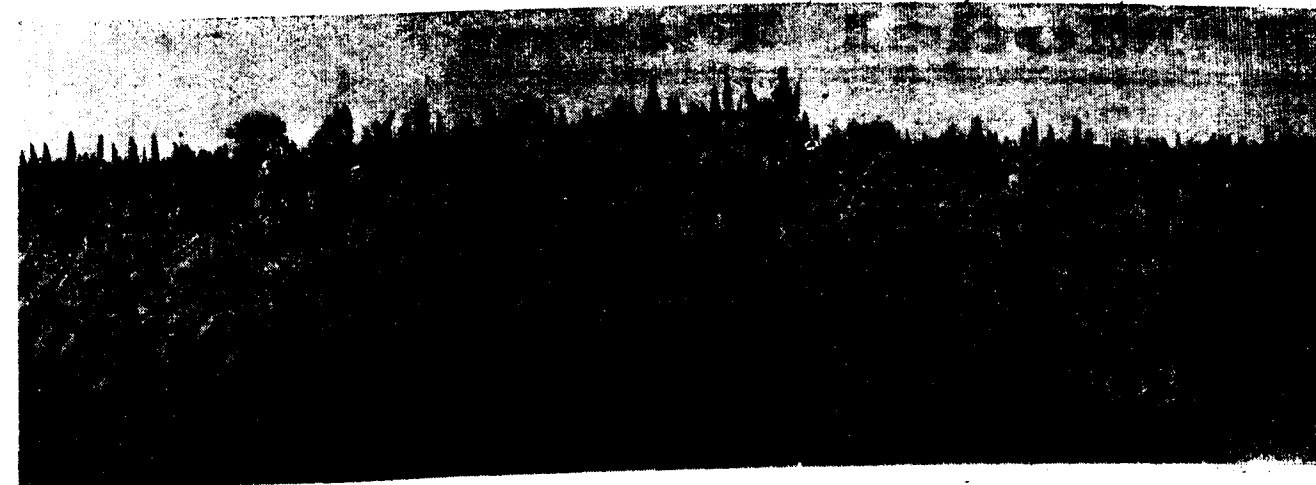
Year	Expenditure	Receipts
67-68	20,444	23,702
68-69	1,89,381	1,99,474
69-70	2,79,190	2,90,278
70-71	3,87,684	4,43,284
71-72	3,97,338	4,75,957
72-73	4,34,659	5,74,267

(Un-audited)

During the year 1974-75 the profit is expected to exceed Rs. 2 lakhs.

Photo Shows

Top : High yielding paddy varieties.
Middle : Vegetable variety.
Bottom: Short duration Hybrid Maize



Short duration hybrid C.S.H. 1 variety cultivated extensively for seed production at Anna Pannai.

Staff

The farm is managed by a District Agricultural Officer (Farm Management) with an Administrative Officer, a Farm Manager and other requisite staff. And on average the Farm is providing employment opportunities to as many as 225 persons. In the ensuing years, the employment opportunity is expected to double.

Current Activities of the farm

The main activity of the farm is to produce hybrid millet seeds, high yielding varieties of Paddy and Millets and the seeds produced in the farm is being distributed to various Panchayat Unions and other local bodies. Introduction and multiplication of new high yielding varieties like Tiruveni, Kannagi, IR. 20, Bhavani, Palman and culture 1251 have also been taken up. New cultures are also being tried to find out their adaptability to this locality.

Foundation seed production and search for new lines

The production of foundation seeds of Bajra and Sorghum which involves high technical skill, has been taken up in this farm. This is an unique activity of this farm and nowhere in Tamil Nadu is the production of foundation seeds undertaken by the Department. The foundation seeds for the production of certified Hybrid Bajra and Sorghum seeds are being distributed to the State Seed Farms and Private Seed producers in Tamil Nadu. Besides taking up the production of foundation seeds, various new varieties of parental lines to replace the existing ones in Bajra are also being tried at present to fix up suitable

parent lines. 253 varieties of Bajra from Indian Agricultural Research Institute, New Delhi, has also been brought and are under observation trials. The foundation seeds produced in the farm have also been sent to Indian Agricultural Research Institute, New Delhi for further observation and multiplication. Several co-ordinate trials with Sorghum, Bajra etc. have been taken up to fix up a suitable variety for high yields with desirable characters.

Pulse Production

Another important item of work undertaken in this farm is the introduction and multiplication of newer varieties of pulses to boost the production of pulses in Tamil Nadu. Short duration varieties like Anjugam, PS. 7, IARI greengram, Prabhat Redgram, T9 Blackgram and Pusa Dofasli and Pusa Barsathi cowpea are being multiplied on a large scale to cope up with the demand from all over Tamil Nadu. Introduction of these short duration varieties on a large scale will definitely go a long way in increasing the production of pulses and vegetables in our State.

Vegetables

Production of good quality seeds of vegetables like Bhendi, Brinjal, Tomato, Cluster beans, french beans, etc. have also been taken up on a large scale, besides cultivating all hilly vegetables like Cabbage, Beet root, Carrot, Capsicum, Peas, Cauliflower etc., for marketing at competitive price to the public in and around Pudukkottai.

Zonal Nucleus Farm

Breeder's seed multiplication in an extent of about 200 acres has also been taken up in this farm for the

production of high quality seeds of Groundnut, Castor, Gingelly and Sunflower. Two Deputy Agricultural Officers guided by a Assistant Crop Specialist (Oil seeds) are in charge of this work. The main object of running this (B.S.M.) farm is to produce nucleus seeds for further multiplication of primary and secondary seeds in private holdings throughout the State by the extension wing of the Department. New varieties like TMV, 9, TMV, 10 Groundnut etc. are being multiplied at present in the Zonal Farm.

Agricultural School

An Agricultural School to train young farmers on the new technique of crop production is attached to the farm. Twenty students are provided training for one year in this School. One Deputy Agricultural Officer (Instructor) is incharge of the training school. The students are given practical training on the new techniques adopted in the farm. The training is merely skill-oriented.

In the near future, two different types of research institutions-the Tropical Fruit Research Station and the Horticulture Dry Farm Research Station—are to be set up in the Farm in addition to the Dr. Kalaig-nar Karunanidhi Agricultural Research Institute which has already come into being just opposite the Anna Farm. Further the Indian Agricultural Research Institute has selected this Farm for its testing purpose. The Farm, on its own initiative, is seriously engaged in the development of a new culture of cumbu from out of as many as 4,500 varieties of hybrid cumbu seeds obtained from all over the world.

—R. N.

A Model Farm

At Chengam

The Farm is located in an area of 10,500 acres of forest land including Anandavadi and Melchen-gam forests. The site is about 2.4 to 3 miles from Chengam on either side of the Chengam to Krishnagiri road. The land is leased by the State Government to the State Farms Corporation of India for a period of 30 years at one rupee per acre per year.

The Farm was inaugurated on 2-10-1971. Three Honourable Ministers of the State Government, Thiru P. U. Shanmugam, Thiru Anbil Dharmalingam and Thiru K. Rajaram participated in the function. Thiru M. R. Krishna, Chairman and the Managing Director of the Corporation, was also present on the occasion. The Director took over charge in November, 1971 and the work of clearance started in January/February 1972 after the receipt of required machinery and implements.

During 1972-73 about 1,500 acres were cleared and sown with crops like Hybrid CSH-3 Chulam, Sunflower, Ragi, Horsegram, Groundnut, etc. The year 1972-73 can be said to be a bad year for the Farm. From June to September there was severe drought and no sowing could be done though normally June/July is the sowing season. Rains started on September 7th 1972 when sowing of crops like CSH-3 Chulam, Sunflower, Ragi and Horsegram were taken up which were not usually grown in this year. General Agronomical studies indicated that the above crops can be sown late in the Kharif season. The crops came up well but unfortunately damaged heavily in the first week of December 1972 due to unprecedented rains. The farm has incurred a marginal loss of Rs. 1,700/- during 1972-73 which itself is creditable when the project report envisaged loss for the first 3 years.

During this year 1972-73 four temporary sheds were being constructed to store the inputs and the produce. 15 oil engines were pur-

chased to serve for irrigation and digging of wells and necessary implements such as tractors etc., were also procured for operation.

There are 2 Bulldozers of 100 H.P. each in the Farm for cleaning of jungle. From State Government 3 Bulldozers were taken on hire to speed up the clearing operation. Over and above we are having a fleet of 18 tractors with different H.P. with matching implements to carry out reclamation work and cultivation operation such as ploughing, harrowing inter-cultivation, spraying and seed drilling by machineries. Workshop machineries are under process of procurement and it will be established so as to make the Farm self-contained unit in regard to repair and maintenance of machineries.

During the year 1972-73 building construction at an estimated cost of Rs. 10 lakhs was sanctioned and iron materials valued over one lakh of rupees were also purchased for the buildings. Due to shortage of cement the building work has not been taken up and it will be taken up early. The soil conservation works like contour bunds is also under execution. The soil survey of about 2,000 acres has been completed.

During 1973-74 it was programmed to cover 3,500 acres under Kharif and 1100 acres under Rabi 1974. But due to insufficient rain only 3,350 acres were brought under Kharif and another 450 acres were brought under Rabi 1974. Further due to power cut the area under irrigation was restricted.

Besides producing quality seeds, this Farm is giving employment to nearly about 1,000 labourers daily in different categories of work with the result the standard of living in the surrounding villages has been improved.

A large number of farmers from different Panchayat Unions have visited Farm.

Well Work : It is programmed to sink about 150 wells of standard dimension 68'x38' and depth ranging from 30 feet to 45 feet depending upon the topography of the land for irrigation purposes. So far 33 wells have been completed. Work in another 21 wells is in progress. One bore well of size 6" dia. to a depth of 146 feet has been drilled and tested to ascertain the possibility to have more bore wells. But the discharge from the bore is very poor and hence no bore well will be sunk.

Cement Concrete Pipe Line : Most of the wells are at low levels but the areas to be irrigated are on high level. Therefore, water is carried through cement concrete pipes. So far about 14,000 feet length of pipe lines have been laid.

Soil Conservation Work : Contour Bunds have been formed after taking levels and about 500 acres have been completed to conserve the soil. Further work is in progress in about 1,000 acres.

Diesel Supply : Diesel tank with a capacity of 15,000 litres has been installed and commissioned recently to have our own supply. During 1974-75 it is proposed to clear the complete Anandavadi forest of over 8,000 acres and about 6,000 to 7,000 acres are likely to be available for cultivation which will be sown.

During 1974-75 another 40 wells are also programmed to be sunk and every year at least 1,000 to 2,000 acres will be brought under soil conservation measures.

We are thankful to the various Departments like Agriculture, Electricity Board, Town Planning, Ground Water Board, Forest Department etc., of Tamil Nadu Government for having helped in the development of the Farm in their own sphere of work.



The Employees State Insurance Scheme WORKING IN TAMIL NADU

The Employees' State Insurance Scheme has made rapid progress covering 39 Major Industrial Centres in this State, having concentration of 1,000 or more employees. There are at present three Employees' State Insurance Hospitals, 94 State dispensaries, 8 Mobile dispensaries, 3 part time clinics and 3 Employers' Utilisation dispensaries covering 15,65,600 beneficiaries consisting of 4,03,500 family units in this State. The insured persons and their family members in Madras City and suburbs, Coimbatore Town and suburbs, Madurai City and suburbs, and Koilpatti are provided with full medical care, including hospitalisation. In all the rest of the implemented areas, the insured persons are provided with full medical care while their family members are provided with expanded medical care short of hospitalisation.

The Employees' State Insurance Corporation originally fixed a ceiling on expenditure on medical care under the Scheme from 1st April, 1970 at Rs. 50 per employee per annum. Any expenditure over the ceiling will have to be met entirely by the State Government. After repeated representations made by this Government to the Government of India, the Corporation raised the rates of ceiling thrice. With effect from 1st April, 1973 the rates of the ceiling on medical expenditure are as follows :—

Restricted Medical Care :—Rs. 63 per employee per annum.

Expanded Medical Care :—Rs. 67 per employee per annum.

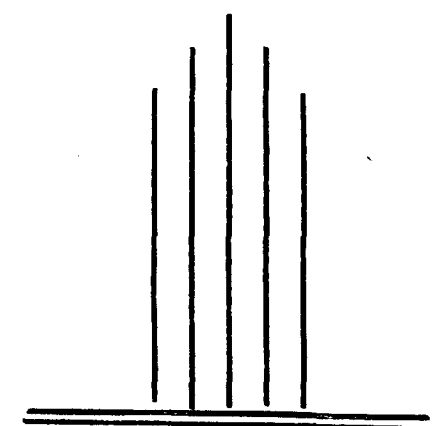
Full Medical Care :—Rs. 80 per employee per annum.

Any expenditure on medicine, drugs and dressings incurred by the State Government over Rs. 30 per employee per annum but below Rs. 45 will be shared in the usual ratio by the Corporation outside the ceiling. The extra expenditure of Rs. 111.00 lakhs over and above the ceiling borne by this Government in the year 1972-73 is consequently anticipated to be reduced to Rs. 80 lakhs in 1973-74. While commenting on the Report of the Committee on Perspective Planning of Employees' State Insurance Corporation, this Government have expressed the view that the ceiling should be removed and that if at all the ceiling is to remain, it should be fixed at Rs. 103 per family unit at the current price level and that this limit should be reviewed every year with the rising price level.

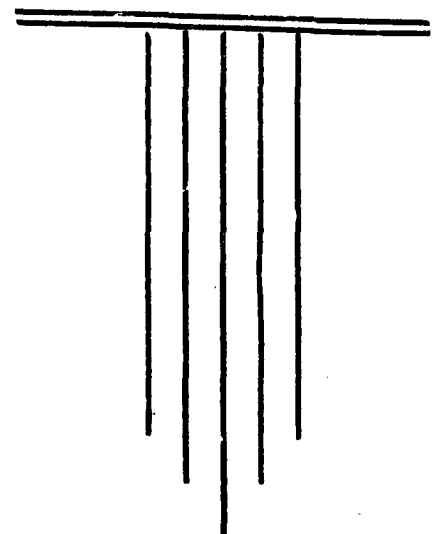
The Employees' State Insurance Scheme will be extended to the following six new areas during 1974-75.

- (i) Madras Subrubs (Adyar and Nandambakkam),
- (ii) Melur in Madurai District.
- (iii) Karur in Tiruchirappalli District,
- (iv) Athur in Salem District,
- (v) Ambur in North Arcot District and
- (iv) Karamadai in Coimbatore District.

The General Purposes Sub-Committee on the working of the Employee's State Insurance Scheme in Tamil Nadu constituted by the Employees' State Insurance Corporation has submitted its report on the working of the Employees' State Insurance Scheme in Tamil Nadu. The Committee among other things has remarked that there is an urgent need to improve the facilities provided in Employees, State Insurance dispensaries in rented buildings and look for alternative arrangements and that in few cases where alternative accommodation cannot be found construction of buildings may have to be allowed even though the State has exceeded the per capital expenditure permissible for capital construction. The position in regard to Employees' State Insurance dispensaries located in rented buildings all over the State has been reviewed and the Employees State Insurance Corporation has been addressed for its concurrence in principle, for the acquisition of two acres of land for each of the 46 Employees' State Insurance dispensaries now accommodated in private rented buildings. For the revision of the estimates in respect of the buildings for the Employees' State Insurance dispensaries at Tambaram, Thallakulam, Usilampatti and Perambur III for which lands have already been acquired and the construction of buildings had to be deferred due to stringent financial position of the Employees' State Insurance Scheme.



Unique SYSTEM OF INDIAN MEDICINE



Special interest in reviving the Indian Systems of Medicine is evinced by the Government of Tamil Nadu. At present, 370 Siddha, 102 Ayurveda and 15 Unani Dispensaries are functioning in the State. Homoeopathy will get an impetus when the two private Homoeopathy Medical Colleges at Kumbakonam and at Madurai get started. The Government is also earnest about starting a Government Homoeopathic Medical College with an attached hospital at Madras for which the 1974-75 Budget provides a sum of Rs. 3 lakhs.

Siddha wings with 10 beds are now functioning in all the District Headquarters Hospitals. During the year 1973-74 Siddha wings were started in ten Taluk Hospitals, and over the next five years 100 such Taluk level Siddha dispensaries will come up.

In addition to the two existing Annexe Siddha dispensaries of Arignar Anna Government Hospital of Indian Medicine, a third one was started on 1st February, 1974 at Saidapet.

M.D. IN SIDDHA

The demand for admission to the College of Indian System of Medicine is on the increase year after year and so far 151 B.I.M. Degree holders have come out of our Colleges of Indian Medicine. With a view to provide employment opportunities to the B.I.M. Degree holders, the 100 Siddha wings in the Taluk and Non-Taluk Headquarters Hospitals spread over the next five years will come in handy. There is so much of specialisation in this system that the State offers a 3 year course of study for M.D. (Siddha).

The second batch of M. D. (Siddha) course commenced from April 1974; 10 students for Siddha Maruthuvam and 10 students for Siddha Gunapadam being admitted. During the course the students will be given a stipend of Rs. 200 per mensem each.

The existing 100-bedded hospital attached to the Government College of Indian System of Medicine, Palayamcottai (Tirunelveli District) is inadequate to meet the ratio stipulated for giving clinical training to the students. Moreover, beds

are to be allotted for Post Graduate students for research study. So, the Government have decided to increase the bed strength from 100 to 200. To cater to the increasing need arising out of the increase in bed strength and research work, the Government have also decided to mechanise the Pharmacy attached to the Government College of Indian System of Medicine, Palayamcottai.

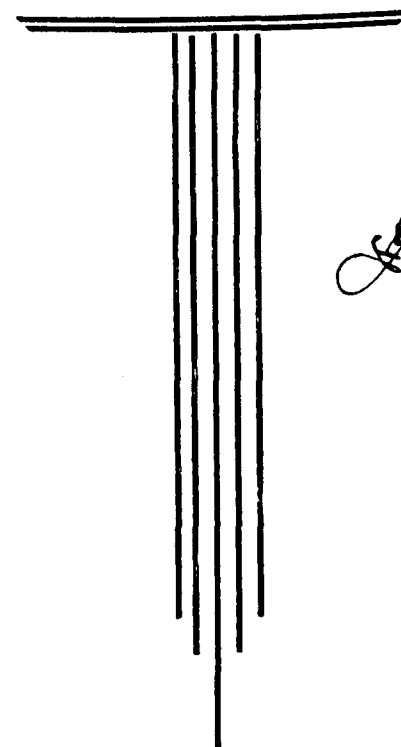
SIDDHA PHARMACISTS

The Government have recently converted the existing one year Siddha Pharmacist course into 2 years diploma course, which will be started in April 1974. The salient feature is that we are going to give this training for Unani and Ayurveda also at Madras. This apart, the Pharmacist course of training for Siddha, which was hitherto imparted at Palayamcottai only, will henceforth be conducted at Madras also. This would facilitate students in and around the city to take up this course. The stipend amount has been enhanced from Rs. 20 to Rs. 30 per month.

To augment the source of supply of rare medical herbs, and to have them at short notice, the Government have decided to bring under cultivation, the medicinal farm opposite to Arignar Anna Government Hospital of Indian Medicine, Madras at a cost of Rs. 2.33 lakhs. The Government have also taken about 5 hectares of land from the Forest Department for the establishment of a Medicinal Farm in Veerapaul Reserved Forest in Alagiapandiya-puram in Kanyakumari District.

The Siddha Science Development Committee has collected so far nearly 400 rare books and 23 written manuscripts from various Siddha Physicians. Some of the philanthropic physicians of Indian Systems of Medicine had come forward to print certain books and give 500 copies free of charge to the Government. Similarly, the late Thiru G.D. Naidu has also promised to print some missing pages of Thiru T.V. Sambasivam Pillai's Tamil Encyclopaedia free of cost. The work is under progress. The later part of this big encyclopaedia was obtained in handwritten pages. The Government have arranged to re-write and correct the passages by an expert Siddha Scholar in order to complete the work and bring it in printed form.

DEVELOPMENT OF VETERINARY EDUCATION AND RESEARCH IN TAMIL NADU



Madras Veterinary College :-
The College offers courses leading to B.V.Sc., and M.V.Sc., Every year 136 students are being admitted for B.V.Sc., and 48 students for M.V.Sc., courses. During the year 1972-73, as many as 598 students were benefited by the liberal grant of scholarship from the Government of India and the Government of Tamil Nadu and of loans under the Tamil Nadu Educational Loan Rules.

There are 25 specialists in Madras Veterinary College. The College has got a fully equipped Veterinary hospital and over 1,00,000 animals are being treated every year in the Hospital. (There is a Board of Honorary visitors for the Madras Veterinary College which make valuable suggestions for the improvements of the College. The College has got a good library with 12,000 books and 6,500 book volumes and journals. The College has got its hostel which can accommodate 500 students. Separate Post Graduate hostel is being constructed at a cost of Rs. 8.65 lakhs to accommodate 100 students.)

RESEARCH ACTIVITIES

Various Research Schemes are in progress in this Department. Six are cent-per-cent financed by Indian Council of Agricultural Research and five are 50 per cent financed by Indian Council of Agricultural Research, 16 financed by the State and 14 implemented by the Department. It is proposed to implement 5 more Indian Council of Agricultural Research Schemes shortly. There is a State Research Council for Veterinary Science functioning at the College to process various research schemes and scrutinise the progress reports. The Council also publishes a Research Journal called 'Cheiron.'

POULTRY RESEARCH STATION- TEYNAMPET

With the 'Meyer' strain of poultry evolved by the Madras Veterinary College, the strain development work is proposed to be concentrated to enhance the efficiency of this new strain. This work will be shifted to the Livestock Research Station, Kattupakkam this year. During the year 1972-73 this Station has produced about 2.98 lakhs of eggs and about 2.48 lakhs of eggs upto 31st December 1973. The All India Co-ordinated

Research Project of Poultry for meat is functioning in this Station.

LIVESTOCK RESEARCH STATION- KATTUPAKKAM

Research on the breeding of Madras Red and Mandia breeds are being undertaken in this Farm to evolve improved strains of mutton breed of sheep. Research work on Swine breeding is also undertaken in this Farm with the ultimate object of development of this Farm into an 100 Sows Farm for the production of superior boar stock for distribution to the pig breeders.

SHEEP BREEDING RESEARCH STATION- SANDYNALLAH

Being the only Research Station for fine wool production in the southern part of India, research work is being undertaken for evolving a good cross of native sheep with Russian sheep. New blood is made available by the import of Merino for this purpose. Wool analysis laboratory and Clinical Laboratory are proposed to be established with adequate equipment at a cost of Rs. 2.50 lakhs. The All India Co-ordinated Research Project on Sheep for fine wool is proposed to be implemented during this year.

The Indian Council of Agricultural Research Scheme for studies on carcass characteristics on Mecheri and Mandia lambs is functioning at Kolathur. This scheme is proposed to be extended for a further period of one year and 9 months.

ASSISTANCE FROM I.C.A.R.

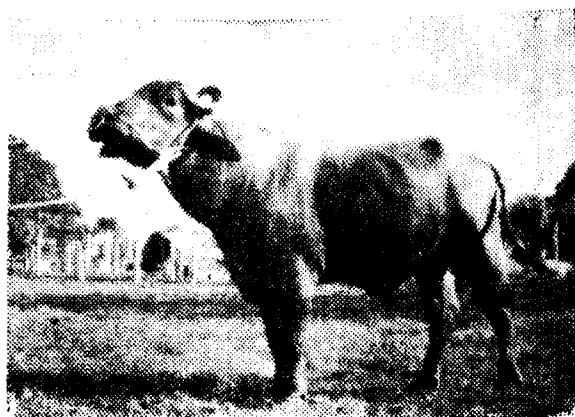
The Indian Council of Agricultural Research is extending financial assistance to this Department for various research activities by way of *ad hoc* grants and scheme grants from the year 1969-70, an amount of Rs. 40.21 lakhs has been sanctioned by the Indian Council of Agricultural Research. During the fifth Plan period, the assistance which is likely to be provided by the Indian Council of Agricultural Research will be about Rs. 46.89 lakhs.

A sum of Rs. 535.24 lakhs has been provided for the Fifth Plan period to the Department of Veterinary Education and Research out of which a provision has been made for Rs. 41.21 lakhs in the Annual Plan for the 1974-75.

The Department of Veterinary Education and Research was created on 6th August, 1969. It comprises the following units :-

1. Madras Veterinary College, Madras,
2. Poultry Research Station, Teynampet,
3. Livestock Research Station, Kattupakkam and
4. Sheep Breeding Research Station, Sandynallah.

Care and Management of Buffaloes



Buffaloes play a prominent role in contributing milk flow to the dairy industry. For this reason, the buffalo is considered as the backbone of the dairy industry. The country possesses a large population of buffaloes (53.5 million) i.e., half of the total world's population, responsible for nearly 60% of the total milk supply. The average annual milk production of a buffalo is 491 Kg.

Even so, the gap between the requirement and availability of milk and milk products in India is very wide. Against a minimum of 285 gms. of milk per head per day recommended by the Nutrition Experts for a balanced diet, the average daily per capita availability is only 135 gms. It has been estimated that in India 94.3% of present day milchy cows yield less than 1 Kg. of milk daily and only 0.4% yield over 2 Kg. per day. In contrast to this, only 19.2% of buffaloes yield less than 1 Kg. and 18.8% yield over 2 Kg. of milk per day. The improvement in buffaloes offer therefore a remarkable scope for appreciable increase in milk availability in India.

Low productivity of our cattle and buffaloes is due to poor genetic factors, coupled with unscientific breeding as well as lack of awareness of optimum utility management techniques. Inadequacy of feed, fodder and health cover are the additional liabilities of the industry. Several attempts have been made to improve milk production of indigenous cattle by crossing with high yielding animals. In Tamil Nadu, the local non-descript buffaloes and poor milking stocks are being upgraded with the pedigreed Murrah Bulls, the well known breed

possessing high milk potential in order to increase the milk yield. Murrah breed is also acclimatised to various conditions of seasons and places.

The Tamil Nadu Government maintain buffalo breeding bulls of Murrah Breed in the District Livestock Farms and Veterinary institutions for the benefit of the public in various places to upgrade their buffaloes. Young bulls and heifers are sold to ryots in the districts. High quality Murrah buffalo bulls are kept at Artificial Insemination Centres and their semen is transported to sub-centres for insemination of local buffaloes. There are also Murrah Bulls available for Natural Service in some of the centres.

The popularity of buffaloes is reflected in the census statistics. It is seen that the number of buffalo has risen by 19.2% within a period of 15 years (1951-1966) in Tamil Nadu.

With the setting up of Dairy Development Corporation in the State, the dairy industry would receive expert guidance and full scope for development leading to substantial increase in milk production.

Breeding Defects being set Right

In the Intensive Cattle Development Projects areas the sterility and infertility problems of buffaloes are studied and various breeding defects of buffaloes are being set right.

The Intensive Cattle Development Project envisages controlled breeding, improved feeding, disease control and sexual health control,

better management and production incentives through rural dairy extension services for breedable cows and buffaloes.

The Government of India is also setting up a buffalo breeding farm to improve the ability of proven bulls in Tamil Nadu for the Murrah breed. It is also proposed to purchase more Murrah Bulls for the various centres of Government units.

The original home of buffaloes is the valley of the Ganges and Brahmaputra (according to Blanford) and it is distributed in a wide range in India, Pakistan, Burma, China, Thailand, Phillipines, Malaya, and Egypt. In natural history, Macgregor described two ecological types of domestic buffaloes (viz) the swamp and river buffalo.

As this nomenclature conveys, the buffalo is a semi-aquatic animal, contrary to general opinion, it is not heat resistant. Buffaloes are more susceptible to climatic extremes and need special attention. In fact if exposed to strong sun light it shows red distress. In order to maintain milk production or work output the buffalows need to have liberal access to water.

India is a country where the milking buffalo is seen to greatest advantage. Milk yields vary enormously under village conditions as little as 2,000 Kg. of milk but sometimes upto 4,000 Kg. in a lactation period. According to a recent survey of Indian Council of Agricultural Research, buffaloes gave on an average 7.82 pounds of milk per day, which was higher than the 3.74 pounds produced by the cows under the same conditions.

Buffalo milk contains twice as much butter fat as the best cows milk under average conditions of management. It also contains more of protein and lactose than cow's milk. The richness of buffalo milk with its high fat content ranging from 7 to 10 percent comes in handy for milk producers to dilute it

and obtain by-products like ghee, butter etc. The average of different characters have not been worked out in respect of all breeds except Murrah. However, observations indicate that Murrah is the popular choice and widely distributed all over the country.

Care and Management

Health factors should be considered in the selection of dairy animals besides their pedigree history. It is best to bring into the herd only animals free from *Mastitis*, *Brucellosis*, *tuberculosis*, under difficulties and sterility etc. Exposure of animals to either side cold or extreme heat causes great economic losses in lowered milk yield, disease and death etc. Direct exposure to sun rays and extreme cold should be avoided since the body heat regulating mechanism of a buffalo is not well developed and has only few sweat glands, wallowing tanks arrangement or arrangement for spraying water in summer is necessary since there is a natural inclination for buffaloes to find out a suitable wallow during summer where they can totally be submerged.

The calf should receive colostrum soon after its birth which is not only nutritious, but it contains antibodies that help the calf resist certain infectious diseases encountered during the first few days of life. During second week of calf's life, it should receive whole milk fed at a rate of 7.8% of its body weight. Later upto 6 months of age, a limited amount of milk is supplemented with a partial milk replacer. This period carries the calf past the period of greatest mortality largely from infectious diseases, insanitary conditions and improper nutrition are important factors in reducing the young calf's resistance to disease. From 6 months to one year, calves usually receive pasture, concentrates and hay. At one year of age, the animal require sufficient feed for normal growth. The Heifer is bred when it attains 2 to 2.5 years of age or more.

Calf scours, respiratory diseases of calves, Naval ill, joint ill and digestive disorders are a few diseases and disorders to be guarded against in calves.

Optimum age for reproduction

The level of feeding has a great influence upon sexual maturity of calves. Age and body weight are the most important factors. *Heifers which have been underfed should not be bred until they have reached proper size 450-500 lbs. live body weight.* Buffaloes reach maturity at later age than the cow, usually the breeding age of buffalo is 3 years.

Figures in respect of Murrah Buffaloes

1. Average age at first calving	49.03 months
2. Average amount of milk production	1400 to 1800 Kg. in 300 days.
3. Average first calving interval	.. 490 days
4. Breeding efficiency	.. 72.71 %
5. Length of lactation	.. 231 days
6. Dry period	.. 199 days
7. Calving interval	.. 430 days
8. Individual yield	.. 22 Kg/day

Diseases that affect Buffalo / their prevention.

1. Anthrax	.. Preseasonal immunization
2. Black quarter	.. Preseasonal immunization
3. Brucellosis	.. Calf Hood Vaccination Proper sanitation & Management
4. Haemorrhagic septicaemia	.. Preseasonal Vaccination
5. Johnes' Disease	.. Annual Test with Johnin
6. Mastitis	.. Clean milk production
7. Tuberculosis	.. Immunization of animals at young age. Annual Test—(Tuberculin)
8. Foot / Mouth Disease	.. Caccination O Isolation
9. Rinderpest	.. Vaccination
10. Tympanitis	.. Change of feed
11. Bronchitis	.. Good Ventilation, Avoid faulty drenching Grooming & Cleaning
12. Mange / Nits infestation.	.. Avoid over and indiscriminate feeding
13. Diarrhoea	.. Avoid exposure to cold and moisture
14. Pneumonia	.. Consult Veterinarian
15. Milk fever	.. -do-
16. Retention of placenta	.. -do-
17. Prolapse of Vagina, uterus.	.. -do-
18. Choking	.. -do-
19. Impaction	.. Avoid overfeeding
20. Worm infestation	.. Deworming

Detection of Heat

The She-Buffalo is a *polyoestrous* animal and she comes to heat throughout the whole season regularly at 21 days interval.

Duration of oestrous cycle is longer in buffaloes than the cows. The *swamp buffaloes* desire seems to cease with day light and mating usually occur only at night time. Most of the buffaloes are having silent heat so that many heats may be missed unless greatest care is taken in detection.

The length of oestrous cycle is about 3 weeks. The heat detection programme should be conducted both the times with the hold of teaser and the heifer is inseminated only when in mid heat after confirmation with rectal examination by a Veterinarian.

Pregnancy Diagnosis

Animals which have been bred and have not returned to heat for 40-60 days should be checked for pregnancy.

A regular programme of preventive medicine for reproductive disorders in conjunction with pregnancy diagnosis should be worked out with a Veterinarian. They respond best to treatment when it is started early.



Care of Pregnant animals

The Pregnant animals should be fed with 0.75 Kg. of concentrate in addition to their normal maintenance ration. Care should be taken to prevent injuries from fighting narrow doors, falls or other situations which may result in abortion. At the stage of 7-8 months pregnancy the animal should be kept separate from the non-pregnant stock.

Care at calving time

This is important in assuring continued fertility of a cow. Clean sanitary conditions are ideal for the parturition. Birth usually takes place in one or two hours. In case of delay and in abnormal posture Veterinary aid should be resorted to. Normally the placental membrane will be expelled a few hours after birth. If they are not expelled in 12 to 15 hours it should be removed manually by a Veterinarian. Normally, animal that have calved should be bred again at the first heat occurring 60 days after parturition.

Milking Management

Two milkings, one in the morning and the other in the evening is enough. The milking should be done in

hygienic way. Regular milking hours, washing the milk animals, hind quarters and udder before milking should be done. The milk must be done quickly, gently and completely by using full hand method followed by strippings.

The sheds should be clean, well ventilated and well lighted. Dusty food stuffs should never be given to the animals for atleast one hour before milking take place. The milk should be removed from the cattle shed immediately after milking.

"Prevention is better than cure". Strict hygienic management is a good preventive measure. The livestock owners are advised to get help from the Veterinary Officers for the improvement of their live-stocks, or in the case of an emergency or in the event of an outbreak of an epidemic.

LIVESTOCK TRAINING FOR FARMERS

The Government have started a Farmers' Training Scheme at the District Livestock Farm, Hosur. The farmers are given training in scientific management and breeding of poultry and livestock for a period of 3 months. So far, 184 persons have been trained in 4 batches. The trainees are given a monthly stipend of Rs. 65 each.

CENTRE'S LIVESTOCK FARMS

The Indian Council of Agricultural Research is running a Sheep and Wool Research Station at Mannavanur in Kodaikanal taluk in Madurai district in this State.

A Sheep Research Station at Pachapalamalai in Salem district is coming up for which proposals have already been sent to Government of India.

A Central Cattle Breeding Farm at Alamadhi (Chingleput district) is run for the purpose of breeding and distribution of good Murrah buffaloes.

A large sized Central Jersey Farm will come up at Eachenkottai in Thanjavur district for which necessary proposals have already been sent to the Government of India.

A Herd of Buffaloes in Nilgiris



The buffalo is sacred to Todas



churning for butter



Photos by
Thangavelu,
Pub. (I. & P.R.)
Dept.,
Coimbatore.

EXPANSION OF KAPPALUR POULTRY FARMING

The Tamil Nadu Poultry Development Corporation which has taken over the Poultry activities from the Animal Husbandry Department has taken up the following expansion programmes at the Poultry Extension Centre, Kappalur.

The original capacity of the Hatchery was to produce 60,000 chicks per year (5,000 chicks per month). This is now being expanded to produce about 2.4 lakhs chicks annually (20,000 chicks per month). The work has already been taken up and from the original production of 5,000 chicks per month, about 12,000 chicks per month is now achieved and the target of 20,000 per month will be reached in the course of this year.

ERECTION OF FEED MIXING UNIT.

In order to meet the requirements of the Poultry feed, not only to the units of the Corporation, but also to meet the requirements of feed for Poultry farmers in the area particularly the small farmers, a scheme for establishment of Feed Mixing Unit to produce about 500 tonnes feed per month has been sanctioned under aid from the Small Farmers Development agency at an estimated cost of Rs. 2 lakhs by way of Capital expenditure. A new feed mixing unit at Madras with a capacity to produce about 1,000 tonnes per month is just being completed and as certain new type of machineries are used at this unit, The Feed Mixing Unit at Kappalur is awaiting Technical Clearance to watch the working of the new unit at Madras for some time so that such new machineries can be used at Kappalur also.

In order to meet the increased demand for hatching eggs and also to introduce new strains of birds, it is proposed to increase the present strength of layers of about 2,000 layers to 5,000 layers and this is also under progress. This will also be achieved this year by putting up necessary additional accommodation, etc.

MARKETING ACTIVITIES

It is proposed to increase marketing activities at Madurai by expand-

ing the facilities for storage of eggs at Kappalur. It is also proposed to prepare "dressed chicken" so that "frozen chicken" may be sold at Madurai. These marketing facilities will help the small farmers by providing ready outlet for the eggs produced by them and also for their culled birds and at the same time ensure steady supply of eggs and Poultry meat to the citizens of Madurai at reasonable cost throughout the year.

To facilitate the above activities the supply of water is being improved. The electricity position is also being improved by providing a stand-by generator in order to avoid interruption in the continuous process of "Chick hatching", as lack of electricity even for two hours continuously will affect the production of chicks as thousands of eggs will be "under-hatch" at a time.

7. Repairs to the tank .. 2,500
8. Construction of 7 houses for Harijans under Harijan Welfare Scheme .. 13,160
9. Construction of 23 houses for harijans under Centrally Sponsored Scheme in the Vellivizha Seerur (Jayanthi village)
10. Construction of an overhead tank

BETTER CLOTH WITH SUJATHA

With a view to reducing cotton imports, the Ahmedabad Textile Industry's Research Association, Ahmedabad, has evaluated the spinning performance of some of the new varieties of long-staple cottons, such as ISC. 67, Shanker-4 and Sujata, both individually and in blends with polyester fibres. It has been found that some of the newer varieties of long-staple Indian cottons could replace imported cottons in fine and superfine counts. These and some other Indian cottons were also found suitable for blending with polyester fibres. If the results obtained are implemented by industry, it would effect savings in foreign exchange estimated at Rs 30 crore per annum.

The South India Textile Research Association, Coimbatore also made concerted efforts to reduce the country's dependence on import of long-staple cottons. Different methods such as combing, blending with short-staple cotton, blending with cheaper fibres as well as adoption of core spinning technique were investigated. The results were made available to the industry.

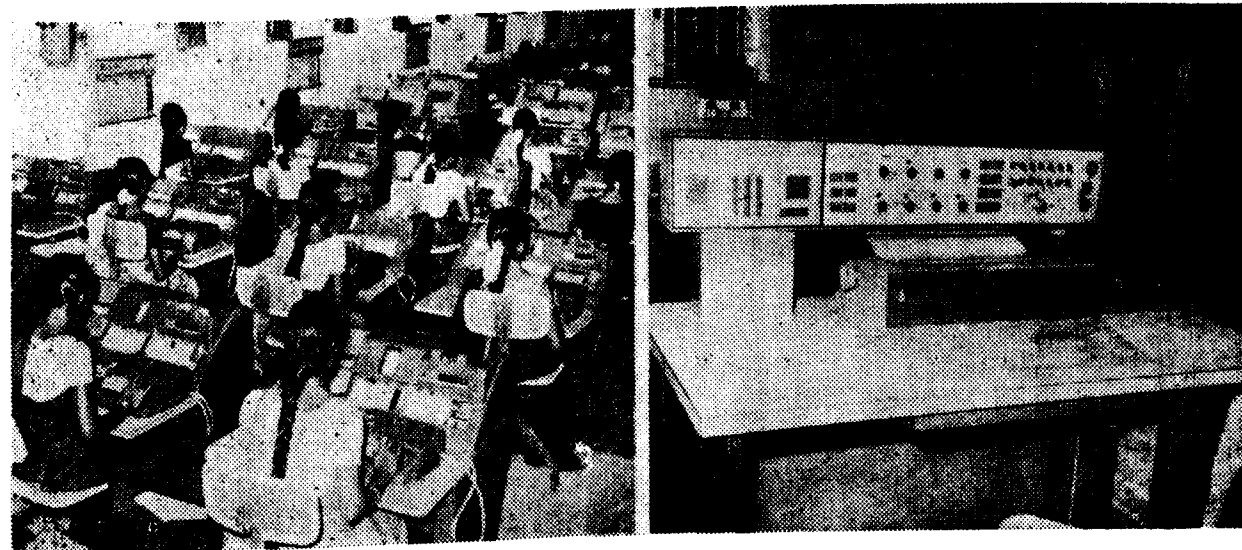
DEVELOPMENTAL PROJECTS TAKEN FOR SILVER JUBILEE VILLAGE

The details of works taken up for execution in the Theethampettai village, selected as Vellivizha Seerur in the Manamadurai Panchayat Union of Ramanathapuram districts are as follows :—

Name of the work 1	Expenditure 2 Rs.
1. Construction of a school building	.. 10,000
2. Deepening of a drinking water Oorani	.. 1,500
3. Construction of a community well	.. 8,500
4. Formation of a link road from Theethampettai to Kom-bukaranendal	.. 3,000
5. Construction of a drinking water well	.. 3,000
6. Deepening of the supply channel to Theethampettai tank	.. 3,000

TAMIL NADU GOES IN FOR

Electronic Processing of Budget Data



Punching of Cards

The Government of Tamil Nadu decided to go in for electronic processing of budget data on a large scale in order to ensure (i) the use of technical competence and material resources in an effective way ; (ii) to have necessary and sufficient co-ordination among the various departments in building up a sound data-base for the Government ; (iii) that a dynamic training programme and a consultancy service are made readily available and (iv) that there is above all necessary direction and guidance in planning and development, data processing serving to contribute its due share towards optimizing the managerial efficiency.

The implementation of this policy has been taken up in three phases.

Phase I : The Central Budget Data Processing Centre was established in September 1971 to computerize treasury accounting, State budgeting and expenditure control.

The Police Computer Wing was established in November, 1971 to take up the work of computerizing Crime Investigation. During this phase, computer time was hired from the I.B.M. Service Centre.

Phase II : The Government Data Centre was established in October, 1972. The Processing Unit consists of an I.B.M. 1,440 System having an 8-K Memory, 2 tape units and 3 disc drives. A total of 34 punching machines and 34 verifying machines in two locations provide the facility for the punching and verification of cards. All these machines are rented from I.B.M.

In establishing this unit, various alternatives were examined, and it was considered preferable, time-wise and progresswise, to obtain the above system which was readily available rather than wait for 15 to 24 months for a bigger and faster system.

The Data Centre has been operating since October, 1972 and a list of current applications is given in the following table :—

A common experience of computer installations elsewhere has been that, after an initial stage of inertia and hesitancy, the tempo of development picks up rapidly and the system becomes utilized to capacity. In order to assess and meet such a growing demand for computer time, the Data Centre has

Key board

planned to undertake a systematic survey of possible areas of computer applications.

In the meantime, an extrapolation of existing trends indicates the following areas of applications as immediately feasible.

1. Transport Department:—Route Planning, Maintenance Scheduling and Inventory Control.

2. Education Department:—Processing of examination results and Collection of statistics to aid education planning.

3. Commercial Taxes:—Analysis of commodity-wise assessment and turn-over correlation of check-post details, and sample checking of assessment records.

4. Industries Department:—Collection and analysis of data relating to licensed capacity and production of various commodities both in the medium and small-scale sectors for purposes of industrial planning.

5. Public Works Department:—Computerized system of project control ; works accounting and information system for the Chief Engineer's Office and computer use in design and estimate for bigger projects.

6. Directorate of Town Planning:—Traffic Survey and Land use and other data for metropolitan planning and study.

7. Finance Department:—Development of an integrated economic model for the State to aid development planning.

8. Electricity Board:—Transmission tower design ; distribution systems ; load-flow studies of power-systems and data logging for the Southern Grid and inventory control.

9. Statistics Department:—Compilation of major statistics at present being done using tabulation machines and Development of models for forecasting agricultural and industrial production.

10. Labour and Employment:—Analysis of employment data to aid man-power planning.

11. Small Scale Industries:—Operational Information Service.

In technologically advanced countries, the present trend is to use large-scale Integrated Management Information Systems (I.M.I.S.).

In our next phase of computer applications, it is essential that we skip the evolutionary stages gone through by other countries and directly adopt the I.M.I.S. so that all the State Departments may function as parts of an integrated system and avoid redundancy of data collection, eliminate the transmission of useless data from one department to another, avail themselves of the expanded data-base to the maximum extent and ensure optimal performance for overall efficiency.

In order to meet the computer needs over the next five years including the implementation of the I.M.I.S. project, the third phase of our

development should plan for acquiring and operating a large-scale data-processing facility. The matter is under the active consideration of the Government.

Reform of Treasury System

(1) The working of the treasuries and sub-treasuries and the procedures followed by them in Tamil Nadu has been studied by a team of the Administrative Staff College of India, Hyderabad, and they have submitted a report to Government containing important recommendations which are under consideration. The recommendations of this team have a very important bearing on the three other reforms :

(1) Reform of the Account System;

(2) Performance Budgeting;

(3) Functioning of the Government Data Processing Centre at Madras with a computer and

(4) Simplified procedure for persons who are remitting money on Government account and payment by Government to all parties by means of cheques.

It has also recommended that many of the departments of the Government should be made self-accounting departments and should accordingly be vested with authority to issue cheques as is now being done by the Public Works and Forest Departments. Under the proposals, the Departments of Agriculture, Industries, Commercial Taxes and Education will be put on a par with the Forest Department which now issues cheques not only for works, but also in respect of salaries of staff, thereby obviating the need for sending any bill to the treasury.

In the Public Works Department, such procedures are now permitted in the case of works, but not for the salaries of staff. It is proposed to extend the same procedure to the salaries of staff also.

Taking now an overall view of the four important changes, one could see how, at the State headquarters, current actuals will become promptly and automatically available thereby providing a reliable basis for the preparation of the budget, and provide adequate controls for preventing overruns and also bring to the notice of the concerned authorities shortfalls in implementation. In the new classified heads of account and the details that will be furnished under the heads of performance budgeting, the shortfalls in physical output will also be immediately noticed thereby giving the Heads of Departments and the Government an efficiency tool for continuously monitoring the progress of schemes.

These and other proposals recommended by a Team of the Administrative Staff College, Hyderabad, which, if implemented, would continuously feed into the Data Processing Centre at Madras, data regarding the progress of projects and would therefore store and furnish at call to the Government the up-to-date position, seek to instil a greater degree of precision in the estimation of costs and generally induce a greater consciousness of time as an element in cost. Since a considerable part of the plan expenditure is incurred through the Public Works Department, the importance of such a monitoring arrangement is easily seen.

THE ELECTRONIC INDUSTRY IS LABOUR INTENSIVE AND LOW CAPITAL RATIO

As in most other countries the electronics industry in Tamil Nadu has developed into a field where women workers predominate. To accelerate this trend the Women's Polytechnic have included a liberal quota of electronics subjects in their curriculum. Entrepreneurs in the field of electronics industries in the State are helped with Functional Industrial Estates by the State Government. One such Estate, called Vikram Sarabhai Instronics Estate is working to full capacity. An Electronics Development Committee has chalked out the areas of work for new entrepreneurs. Product range from T.V. sets and tape recorders to T.V. Deflectors and instruments.

The other electronics Industrial Estates are coming up at Madurai, Coimbatore, Tiruchirappalli and Salem. A data bank for the collection of full information regarding electrical, electronic and instruments industries in the State in all sectors is being built up so as to serve as a clearing house of information for planning raw materials, infra-structure, etc. for these vital industries.

The electronics industry has demonstrated a clear potential for considerable exports. This industry

will be provided all the support needed for it to grow as rapidly as it can in the years to come, for it is a highly profitable industry with self-generative characteristics. It does require for its growth an approach free of needlessly inelastic regulations.

Electronics is an area of sophisticated science, technology and industrial development. It plays a vital role in communication, defence, industrial development, entertainment, etc. It involves capital investments that is small compared to almost all other facets of industry and it has one of the lowest capital investment per capita employment (of a direct and indirect nature). Further it has the inbuilt capability of an equitable widespread national distribution of the industry. It has continued to register in recent years a significant growth rate in spite of adverse environmental condition ; and prices of electronics items have on the whole come down in spite of inflationary conditions.

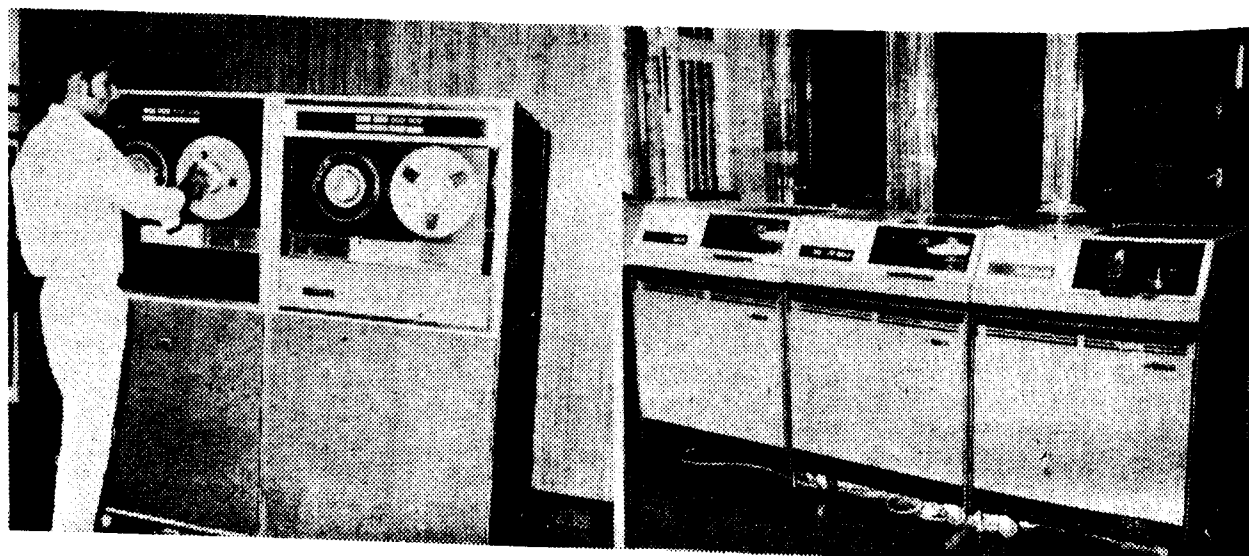
During the last 3 years, the electronics industry has been steadily growing at a rate of more than 10% per year which is significantly higher than the rate of growth of many other sectors of the economy.

The National Advisory Committee on Electronics (NACE) was set by Government of India in

September, 1973 to act as a broad-based forum for discussion on all aspects relating to the growth and development of Electronics Industry. It is another data bank at the national level. It consists of 80 members drawn from Government Departments, Associations of Industry and Trade and Academic Institutions as well as representatives of the public sector and small industry. Prof. M.G.K. Menon, Chairman, Electronics Commission and Secretary Department of Electronics is the Chairman and Dr. Ram K. Vepa, Member-Secretary of NACE.

FOREIGN KNOW-HOW

The Committee, while taking note of the fact that the Electronics Industry was skill-intensive rather than capital intensive and also provides a high output per unit investment (which is much larger than almost any other sector of the Industry), recommended that the allocations during the Fifth Plan for this industry should be increased particularly in the field of R. & D. A suggestion was made that in the field of Consumer Electronics, Co-operative Research Associations may be set up to enable greater coordination between the National Laboratories and Industry. The possibility of a greater export drive which would yield substantially higher levels of export performance was also suggested by some members. It was recommended that unless a



Storing data in magnetic tapes

Storing data in discs

specific thrust area is identified in the field of Electronics, it might be difficult to arrive at the rates of growth that are possible in the Industry and which have been achieved in the United States and Japan.

Following the recommendation of the Electronics and Computer Delegations to USSR and East European countries, the Electronics Commission approved in principle a proposal submitted by the Department of Electronics for the formation of an Electronic Trade and Technology Development Corporation to exploit fully the immense possibilities of mutual trade and co-operation between these countries and India. The Working Group constituted for the purpose by the Ministry of Commerce confirmed the finding of the Electronics Delegation that there were distinct possibilities of obtaining a significant part of our import and know-how requirements from USSR and East European countries, if appropriate institutional arrangements and proper measures are undertaken to provide the necessary thrust to this endeavour. The report of the Working Group was discussed between Secretary, Commerce, and Secretary, Electronics. It was agreed that there was a need to set up an autonomous Corporation, under the administrative control of the Department of Electronics, to reap the full benefit of the possibilities of mutual trade and co-operation as identified by the two delegations. It is proposed to set up this Co-operation during 1974-75. The project has been approved by the Planning Commission and included in the Department's Annual Plan for 1974-75.

The Corporation will not be merely a trading concern, but would have developmental, technological and commercial functions. Canalisation of imports is not the aim in the legal commercial sense, nor would other agencies in our country

be precluded from entering into business deals directly with appropriate agencies abroad. Though initially the Corporation would have a substantial portion of its activities directed to USSR and other East European countries, it will have a growing interest in other areas.

On a long-term basis, however, the Committee felt that in a number of items, there is need to build up technological strength so as to be competitive in the international market. These include a wide variety of equipment such as radios, T.V. sets, Electronics Desk Calculators, Measuring Instruments and Components for which there is a great demand in the world market. However, it would be necessary to undertake export promotion work on a systematic basis through co-ordination of different agencies such as the TDA, the Export Promotion Council and the Department of Electronics. It was also recommended that suitable tax incentives should be provided for off-shore operators as has been done in many countries abroad.

WHO, WHERE AND WHAT ?

The Department of Electronics, which functions in New Delhi, is located in Vigyan Bhavan Annexe. The headquarters of the Informa-

tion, Planning and Analysis Group (IPAG), on the other hand, is located at Bombay, and it functions as an independent unit directly under the Chairman, Electronics Commission.

IPAG Cells have been set up at Delhi, Calcutta and Madras which, in addition to IPAG, Bombay, provide the infrastructure necessary for collection and dissemination of information, especially relating to import/export. With the help of a computerised information system, the data collected is analysed at Bombay and the resulting statistics are published periodically.

In Tamil Nadu, a number of units both in small scale sector and organized sector have been approved for the manufacture of various electronic items like Television, Tape Recorders, T.V. Deflection Components. An Electronic Development Committee has been functioning in the State. The State has set up a functional estate for electronics and instruments of Adyar (near Madras) under the name of Vikram Sarabhai Instronics Estate. The proposal of the State Government for setting up a T & D Centre at Madras has already been approved by the Department. Financial sanction for Rs. 6.33 lakhs for the first phase has already been issued by the Department.



CO-OPERATIVE MOVEMENT'S ROLE In Agriculture

The long term credit needs of the agriculturists are being met by 223 primary land development banks affiliated to the Tamil Nadu Co-operative State Land Development Bank. Nearly 90 per cent of the loans given by the land development banks are for agricultural development purposes such as sinking of new wells, deepening of wells, purchase of motors, oil engines and pumpsets, construction of pumpsets, laying of pipe lines for irrigation purposes, reclamation of lands, purchase of agricultural machinery like tractors, etc. To facilitate quick sanction of loans, the State Land Development Bank has opened branches in each district except in Kanyakumari, the Nilgiris and Madras.

To enable the land development banks to step up their lending programme, Government have been contributing to their share capital, besides giving subsidy for meeting the cost of managerial staff and revitalisation of potentially viable banks. The total investment made in the share capital of Tamil Nadu Co-operative State Land Development Bank is Rs. 1,70.00 lakhs and primary land development banks Rs. 71.45 lakhs.

Government have also approved a scheme for opening of branches by the taluk level primary land development banks in the unbanked blocks. So far, 109 branches have been opened.

The Tamil Nadu Co-operative State Land Development Bank has been permitted to accept fixed deposit for periods ranging from 1 to 2 years from individuals and these deposits are reckoned towards rural debentures. The amount of fixed deposits held by the bank on 31st December, 1973 was Rs. 80.31 lakhs. The Bank has also been permitted to issue rural debenture certificates in lieu of rural debenture bonds.

AGRICULTURAL CREDIT STABILISATION FUND.

With a view to enabling agriculturists to make postponement of repayment of loan instalments on account of famine and other unforeseen causes, the Tamil Nadu Co-operative State Land Development

Bank and primary land development banks are required to set apart 15 per cent of their net profits towards the Agricultural Credit Stabilization Fund. The State Land Development Bank has also constituted a Failed Wells Fund to be utilised for recouping the losses sustained by the borrowers on account of infructuous wells or failure of wells due to unforeseen reasons. The State Land Development Bank allocates 10 per cent of its net profits to this fund every year. Government are contributing to the Agricultural Credit Stabilization Fund of the State and primary land development banks, 50 per cent of the excess over 3 per cent of the dividend on their share capital in the bank and the other 50 per cent of the excess over 3 per cent of the dividend to the Failed Wells Fund. The Tamil Nadu Co-operative State Land Development Bank has also established a Project Services account. The accretions to this account are intended to be utilised for purposes of project evaluation, inspection and other purposes incidental thereto.

DEVELOPMENT DEBENTURES

Besides the normal programme of sinking of wells, installation of pumpsets, etc., area development schemes for Minor Irrigation and plantations have been undertaken with financial assistance from the Agricultural Refinance Corporation. The State Government also provide assistance by way of contribution to the special development debentures floated by the Tamil Nadu Co-operative State Land Development Bank for this purpose. Out of a sum of Rs. 19.14 crores for which special development debentures have been floated by the Tamil Nadu Co-operative State Land Development Bank upto 30th November 1973, the contributions of Tamil Nadu Government and the Agricultural Refinance Corporation are Rs. 2.88 crores and Rs. 16.26 crores respectively. The value of special development debenture in circulation as on 31st December, 1973 was Rs. 28.71 crores.

Thirty-five minor irrigation schemes and seven non-minor irrigation schemes are under implementation in Tamil Nadu under Agricultural Refinance Corporation assisted schemes.

The total financial outlays involved in respect of minor-irrigation schemes and non-minor irrigation schemes are Rs. 25.55 crores and Rs. 7.07 crores respectively.

WORLD BANK FINANCE

The World Bank (IDA) has come forward to finance agricultural projects costing Rs. 46.76 crores in Tamil Nadu under IDA programme. The assistance of the IDA will be Rs. 26.25 crores. This programme in operation in Tamil Nadu from 2nd November 1971, was for dug-well development in Chingleput, North Arcot, Dharma puri and Salem Districts, for filter points and tube-well developments in Thanjavur district, tube-well development in South Arcot and Tiruchirappalli districts, land drainage in Thanjavur district, land reclamation in Coimbatore district and farm mechanisation (purchase of tractors) throughout Tamil Nadu. The IDA's finance is routed through the Agricultural Refinance Corporation which in turn routes it through the Tamil Nadu Co-operative State Land Development Bank and primary land development banks.

AGRICULTURAL REFINANCE CORPORATION

For effective formulation and implementation of the Agricultural Refinance Corporation schemes, a technical cell in the State Land Development Bank has been formed, with an agricultural economist and an agricultural engineer to enable the bank to make proper appraisal of the special schemes relating to minor irrigation, land reclamation, development of Plantation etc. Further, Project Officers in the grade of Deputy Registrar work under the control of the District Collectors in 13 districts in the State to implement the schemes effectively. A technical cell in each of the 12 districts in the State (except Madras, Pudukkottai and the Nilgiris) is functioning with an Assistant Geologist, an Assistant Agricultural Engineer (except in Kanyakumari district where one Agricultural Engineering Supervisor attends in lieu of the Assistant Agricultural Engineer) to help the Collectors in the formulation of schemes and to give proper technical guidance in the implementation of the schemes. Besides, a Special Officer in the cadre of Superintending Engineer with necessary complement of staff of Geological

Assistant, attends to the work of preparing new schemes on the basis of the data gathered for the sanction of Minor Irrigation Schemes on a priority basis and also for giving recommendation on water potentiality in Chingleput, North Arcot, Dharmapuri and Salem districts, where dug-well development has been contemplated under the IDA Project.

LIFE IRRIGATION SOCIETIES

In order to enable the farmers who are having one or two hectares of land to reap the benefit of the minor irrigation schemes fully and borrow enough capital to sink wells and instal pumpsets, the organisation of lift irrigation societies has been taken up. Through lift irrigation co-operative societies, the agriculturists avail themselves of the credit facilities provided by the Government, land development banks and other financing agencies, and undertake the construction of common wells and installation of pumpsets. There are as many as 502 societies executing schemes involving a total outlay of Rs. 17.23 crores. There is also a federation of lift irrigation societies to co-ordinate and assist the activities of lift irrigation societies.

DISTRIBUTION OF SCARCE COMMODITIES

RELIANCE ON CO-OPERATIVE STORES

The Government of Tamil Nadu is bent upon making co-operative net work the main distributive outlets for essential commodities and household requirements, and the Government is taking quick and fast steps towards this end. Reliance is to be placed on branches of large sized societies rather than on many small societies.

The performance of the co-operative movement in the State was on the whole satisfactory, though there were one or two black spots.

The consumer co-operatives in the State sold Rs. 60 crores worth of consumer articles every year which forms 14% of the total retail sales, and 31% of the people in the State patronised these co-operatives.

It has been the experience of the State that small sized stores and societies organised mainly for handling controlled commodities do not survive and many of them faced a natural death as soon as controls are lifted and when normal trade

conditions prevailed. Only large sized societies or wholesale stores which were having adequate business both in controlled and non-controlled commodities, were able to survive and render useful service to the members as well as to the consuming public in the decontrolled period and that, only branch pattern of wholesale stores is more suited for doing consumers' business on business lines in the face of keen competition from private trade.

As a matter of policy, it has been decided that no new primary stores need be organised for the general public except in special circumstances and in respect of Industrial and Plantation workers in units having 250 and above employees. The Co-operative wholesale stores and district co-operative supply and marketing societies have been advised to open branches to undertake retail business on modern lines. The local public will be admitted as members of these branches so as to augment the share capital structure of wholesale stores. For instance the Chintamani, a successful co-operative stores of Coimbatore, has opened a branch in Anna Nagar a suburb of Madras. This type of branch movement is spreading fast.

LABOUR LEGAL ADVISORY CELL

STARTED ITS FUNCTIONS

These Cells will hear the representations of the workmen with understanding and sympathy and suggest to them the procedure to be followed for redressal of their grievances. Each Cell will be manned by a retired Judicial Officer with experience of industrial adjudication and a retired Labour Officer with experience of conciliation besides the necessary ministerial staff.

LEGAL EXPENSES

The Government have also sanctioned a scheme for the grant of financial assistance to meet legal expenses of trade unions in respect of proceedings in High Court at Rs. 150 per Writ Petition or Writ Appeal subject to certain conditions. The Commissioner of Labour has been empowered to sanction the legal assistance. So far an amount of Rs. 1,650 has been sanctioned under this Scheme by the Commissioner of Labour in 11 cases.

The Government of Tamil Nadu have taken steps to make free legal advice available to workers and trade unions on their problems involving industrial law with a view to guide them not only on the course of action to be taken and the relief obtainable, but also regarding the proper forum to be approached and the procedure to be followed for redressal of their grievances.

Accordingly, a Labour Legal Advisory Cell has now been set up by the Government at Madras and it has started functioning from 4-3-1974 at No. 2, Dr. Muniappa Road, Kilpauk, Madras-10.

Thiru N. P. Singaravadivelu, retired District and Sessions Judge and Thiru P. Ramachandran, retired Assistant Commissioner of Labour, have been appointed as Judicial Officer and Labour Officer respectively. They would hear the representations of workmen with care, understanding and sympathy and give them free advice on the procedure to be followed for the redressal of their grievances.

A similar Labour Legal Advisory Cell has also been constituted at Coimbatore with Thiru V. P. Arunagiri, retired District and Sessions

Judge as Judicial Officer. The Cell will start functioning shortly.

It is also proposed to set up a similar Labour Legal Advisory Cell at Madurai.

It is hoped that such of the workers and trade unions who are in need of advice on their problems will make full use of these Cells.

LABOUR LEGAL ADVISORY CELLS

The Government had set up an 'One-Man Committee' with a Retired High Court Judge to examine the general question of framing a scheme for legal aid to people of insufficient means. In accordance with the recommendations of the One-Man Committee, Government have sanctioned the creation of three Labour Legal Advisory Cells in the industrial Centres of Madras, Coimbatore and Madurai to render necessary assistance to workmen and smaller trade unions by giving them advice on the procedure to be followed by them for redressing their grievances, the forum to be approached for securing relief and connected matters.

These Cells will hear the representations of the workmen with understanding and sympathy and suggest to them the procedure to be followed for redressal of their grievances. Each Cell will be manned by a retired Judicial Officer with experience of industrial adjudication and a retired Labour Officer with experience of conciliation, besides the necessary ministerial staff.

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INDUSTRIAL OIL FROM RICE BRAN—DETAILS OF THE PROJECT

The Food Corporation of India plans to market soon industrial oil extracted from rice bran, the main by-product of modern rice milling. The industrial oil, which is mostly used by soap manufacturers will be produced at the solvent extraction plant being put up by FCI at Sembanarkoil in Thanjavur district.

Explaining the salient features of the working of the plant, a spokesman of FCI said that this solvent extraction plant, on the setting up of which an outlay of Rs. 15 lakhs is envisaged by FCI, would be the first of its kind being put up by FCI in the country. The entire equipment is fabricated indigenously. The plant is expected to go into operation in August.

The proposal, to make use of the rice bran collected at the four modern rice mills run by FCI in Tamil Nadu to produce industrial oil, in the first phase aims to manufacture about three tonnes of industrial oil every day out of the 15 tonnes of rice bran that would be made available daily from the four contiguous modern rice mills of FCI situated at Sembanarkoil, Chidambaram, Mannargudi and Thanjavur.

In the second phase, the FCI may explore the possibility of producing refined edible oil from the industrial oil after the trial production commenced.

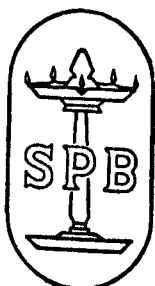
A significant feature of this proposal to convert the rice bran into industrial oil and de-oiled bran is prompted by the peculiar nature and particular suitability of rice bran extracted from modern rice mills, unlike the bran yield from the conventional huller and sheller type of rice mills, which do not separate the by-product into husk and the bran. The silica content in the bran produced by the huller and sheller type of mills is relatively high as also the acid insoluble ash content in the bran.

In the modern rice mills of FCI, husk and bran are removed separately by two independent processes with the result that the rice bran is uncontaminated by husk and is therefore rich in oil content.

The economic viability of rice milling will also improve by making use of the by-product rice bran for extracting industrial oil.

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Long term Loans for Construction of new houses, additions and improvements etc., repayable in twenty years are granted to individuals through the Primary House Mortgage Societies and the various types of Building Societies in Tamil Nadu for the following purposes.

1. Construction of new houses	—	MAXIMUM INDIVIDUAL LOAN Rs. 25,000
2. Improvements, additions and alterations to the existing houses	}	Rs. 10,000
3. For minor repairs	—	Rs. 1,000

P. K. PATHMANATHAN, B.A., H.D.C.,
Joint Registrar and Secretary.

POWER PROJECTS IN TAMIL NADU AN INSIGHT INTO FORMULATION

The Tamil Nadu Electricity Board has two agencies viz., Investigation circle and Thermal Cell which are in charge of formulation of new Hydro Electric Projects and Thermal Projects respectively, and obtaining sanction from the Government of India. In order to co-ordinate the work in respect of new projects and projects under construction, a project implementation cell and Planning Cell has also been formed.

The investigation circle was formed in 1958. This circle is in charge of collecting hydrological data from the various river basins in the entire State, compiling the data, formulating proposals for Hydro-Electric Power Development to suit the pace of developmental activities, investigating remunerative Hydro-Electric Projects in detail, preparing detailed reports on such of the projects found technically feasible and economically viable and obtaining technical clearance or sanction as the case may be from the Central Water and Power Commission and Planning Commission for implementing new Hydro Electric Projects within the frame work of the National Plans. Thus the main function of the circle is to plan the development of Hydro Power resources available in the State. In respect of existing hydro electric projects under construction, any problem that may arise particularly in the Hydrological aspect, assessment of power potential, re-examination of certain components etc., are also being attended to by this circle. Further this circle has also been assigned the task of selecting a suitable site for locating the second Atomic Power Plant in Tamil Nadu. Field investigation for locating the Thermal Station at Mettur in Salem District is also being carried out by this circle.

FOUR DIVISIONS OF INVESTIGATION CIRCLE

This circle comprises 4 divisions for attending to the above works viz., (1) Hydro Metric Surveys Division with Headquarters at Madras for attending to the collection and compilation of Hydrological data including erection of new Hydro Electric Project observation points (viz) weirs, rain fall stations, etc., (2) Hydro Electric Surveys Division

with Headquarters at Emerald in Nilgiris for attending to the field investigations required for the various new Hydro Electric Projects, (3) Hydro Electric Surveys Division with Headquarters at Madurai for attending to the field investigations connected with the second Atomic Power Plant and (4) Hydro Electric Surveys Division at Madras for formulation of proposals, the preparation of project reports, studying economical aspects of the project based on field data, preparation of detailed project reports and getting clearance from the Central Water and Power Commission and Planning Commission for the Project, for implementation.

The Hydro Metric Surveys Division, Madras comprises 3 field sub-divisions at Ootacamund, Dindigul and Papanasam to attend to the maintenance of existing Hydrological stations, installing new stations as and when necessary, collection and submission of hydrological data and one sub-division at Madras for checking the data received from the field and compiling them as permanent records. The sub-divisions are assisted by the required technical and non-technical personnel both in the field and in the office, and one more sub-division is attached to this division for preparation of the project reports on the new schemes, for which investigation were completed.

Hydro Electric Surveys, division, Emerald comprises 6 field sub-divisions, two at Ootacamund, one at Emerald, one at Pollachi, one at Palani and one at Mettur to attend to the detailed investigations of new Hydro Electric Project.

Hydro Electric Surveys, Surveys Division, Madurai comprises one Executive Engineer at Madurai, one Assistant Engineer/Hydro Electric Surveys at Tuticorin and one Supervisor (Civil) to attend to the field investigations, connected with selection of suitable site for locating II Atomic Power Plant in Tamil Nadu. This Division was formed on 29th October, 1972 with Headquarters at Madurai.

Hydro Electric Surveys Division, Madras comprises 3 sub-divisions and they attend to the scrutiny of field survey plans, issue of instructions to the field, preparation of

detailed project reports, preparing replies to the comments received from the Central Water and Power Commission and Planning future projects. One more sub-division is functioning at Madras under the control of Executive Engineer/Hydro Electric Surveys, Madras for attending to the works connected with the site selection for II Atomic Power Plant. The administrative work is attended to by the requisite ministerial staff headed by two Junior Superintendents one being incharge of establishment and the other in charge of Accounts.

THERMAL CELL

The Thermal Cell was formed in October, 1971 to take up the detailed Engineering of the Ennore II stage Extensions, it is also in charge of preparation of new thermal projects. It has prepared and submitted to Government and Planning Commission the detailed project report on.

1. Tuticorin Thermal Project—400 MW raising to 600 MW.
2. Mettur Thermal Scheme—3 X 100 MW

It is also in charge of procurement of coal for the existing thermal stations. The operation and maintenance problems of existing stations are reviewed and procurements of spares undertaken.

It has also been associated with special committee on (1) conversion of 2 Nos. 50 MW boilers at Neyveli to oil firing and (2) Neyveli second mine cut.

PROJECT IMPLEMENTATION CELL

The functions of the Project Implementation Cell are :

1. to review the progress of power projects under construction;
2. to co-ordinate the work with respect to delivery of equipments;
3. to ensure that adequate supply of essential materials like steel, cement etc., are provided in time;
4. To take up remedial measures to overcome the bottlenecks for quickening the commissioning of the projects and
5. and to decide upon the new power schemes to meet the increasing demand and other forward planning.

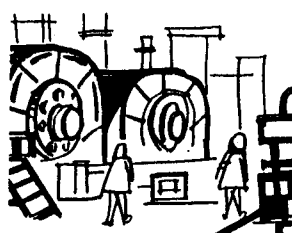
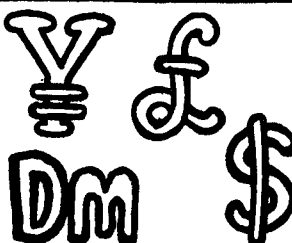
The Planning Cell is responsible for sorting out all problems relating to both the Planning of the Board and the five year plan, besides taking over works statistics relating to them.

MAJOR STEPS TO MEET POWER SHORTAGE

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TIIC Celebrates its silver jubilee (1949-74)

The news that Bharat Heavy Electricals, a public sector undertaking, has made a gross profit of Rs. 27 crores and that it hoped to step up its profit to Rs. 41.4 crores this year, is certainly a re-assuring one in these days of power shortages. It shows that the power equipment industry has turned the corner and is in sound health. This fact not only speaks highly of the workers and engineers of Bharat Heavy Electricals Ltd., but also of the significant contribution the Soviet Union and its specialists have made to India's power equipment industry.

The Hardwar Heavy Electrical Equipment Plant, the largest of the four units under BHEL, which is assisted by the Soviet Union, has put India high up among the countries producing power equipments, which is a "high technology". By being able to produce 200 MW sets and at the same time working on a prototype of 500 MW set, India has joined the few nations of the world with high technological abilities in power equipment industry.

Significant Activities

Apart from meeting the varied equipments of the power industry today, BHEL, is also branching out into other significant activities in order to meet the challenge of fuel and power shortage. And one of the fields in which urgent action is called for is in expediting erection and commissioning of power plants.

The proposals to set up a Power Projects Division under BHEL is therefore of great significance. This new Division is expected to supervise the expeditious erection and commissioning of power projects. This step has become necessary because the erection and commissioning of projects take 6 to 7 years at present. The new Division, which will mobilise specialists from various units of BHEL, hopes to cut down this long period to half. The significance of this can be gauged from the fact that power projects to the capacity of over 4 million kw

have spilled over from the 4th Plan to the 5th Plan because of non-completion. States like UP, where the spill-over is heaviest, stand to gain greatly under this new scheme.

Another major effort of BHEL is being directed to develop the MHD generator (Magneto-Hydro Dynamics), which produces power using hot coal gas. The MHD generator has no moving parts, no steam cycles and no turbines. The Soviet Union has pioneered this process and has already introduced MHD generators in some regions of the USSR. This new process is considered to be highly economical compared to the traditional methods of power generation.

BHEL has also plans to ease the fuel situation. It has undertaken at its Trichy plant to step up production of boilers to help industry change over from fuel oil to coal, which is part of the wider strategy to meet the oil crisis. The reduction in the use of fuel oil will make an appreciable difference to the oil situation in the country.

BHEL will also cooperate with other agencies to intensify research and development in the gasification of coal. This will have far-reaching effect on the fuel and power situation.

Power Equipments

It is also planned to step up the production of power generation equipments. In 1973 BHEL produced power generation equipments to the capacity of 2100 MW. This year it hopes to step up production to 3000 MW. At this rate of production the country will be able to meet the demand for power equipments during the 5th Plan, i.e. for 16.55 million kw. In fact, equipments for 2.5 million kw, already requisitioned during the 4th Plan, are being carried over to the 5th Plan. Thus, actual demand for new projects is only for 14.00 million kw power equipments. It can be claimed in these circumstances that the country is already well ahead in its march towards self-reliance in

power equipment industry. That this was achieved in such a short time is indeed commendable.

In this the Hardwar Heavy Electrical Equipment Plant plays no small role. With the capacity to produce 2.7 million kw of power equipments yearly, it is the base unit of the power equipment industry with the responsibility to carry out long-term planning in the development of power equipments and manpower.

It uses Soviet know-how and has continuing cooperation with the Soviet Union in the research and development of power equipments. It produces 200 MW steam turbines and turbogenerators, the largest in the country, as also large motors. The Soviet Union continues to provide technical assistance to this plant by way of specialists and also special equipments and materials at present not manufactured in the plant. The plant has already achieved a high degree of indigenous content.

Expeditious Completion

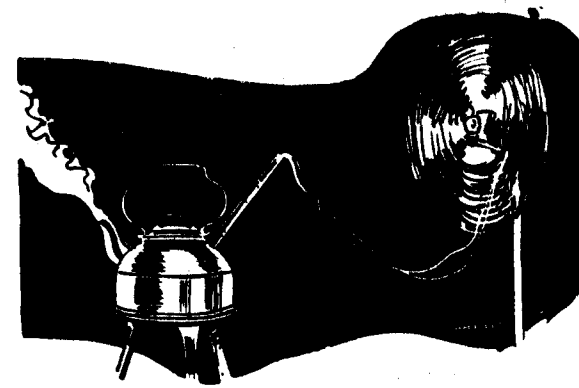
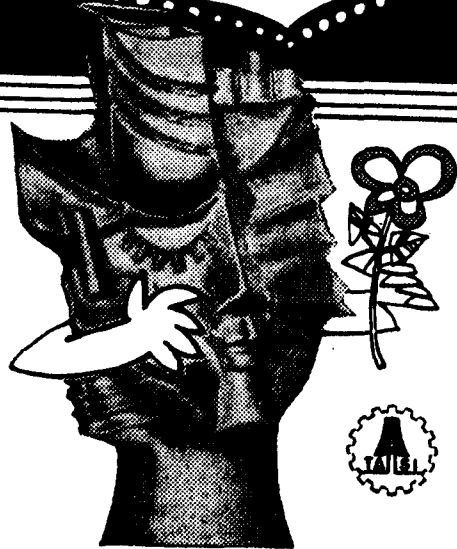
To sum up, it can be said that the expeditious completion of the projects under construction as also of the new projects will go a long way to ease the power situation in areas of acute power shortage. The development of transmission lines will enable easy transfer of power from surplus to deficit areas. The development of a consultancy agency, as in the case of steel, under BHEL, will help the pooling of talent and know-how.

Of course the development of 500 MW generating sets, expected during the 6th Plan, which is being pioneered by the Hardwar Plant, will make a radical difference to the power situation as also to the economy of power generation. Along with this the country is also pioneering the development of nuclear power. Two stations are coming up of 235 MW in Rajasthan and Tamilnadu. Efforts are also being made to develop nuclear power stations of 500 MW capacity.



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Energy Sources of The Future A Prognosis

Population is increasing day by day. It is but natural that the world's energy consumption and requirements should also increase side by side. In this state of affairs energy sources should also increase on par with World's energy consumption. The present energy sources are not perennial sources of energy. The conventional sources of energy are drying up. By the end of this century, electricity, petrol engine, jumbojet, etc., may be as dead as the gas lamps of the old age. The problem is pinching us now. We are feeling the pinch of the above problem. The shortage of petrol and coal gives us the impression that the future would be gloomy. So we may take it as a timely warning. People in the length and breadth of the World are feeling the energy crisis. There is no difference between advanced and the under-developed country as far as this problem is concerned. New sources of energy must be developed at an earliest time possible. "Necessity is the mother of invention" is an aptly suited and timely quotable proverb at this juncture.

get electricity. Hence electricity is generated from sea waters. In New Zealand and Canada they are looking deep into the bowels of earth to tap the energy. Here internal heat energy of the earth is used for power generation. Experiments are going on in research laboratories of the World to extract electrical energy direct from the hot and ionised gases, boiling electrons, hot and cold metals, and gas-fed batteries (Hydrox fuel cell).

Now we shall see some of the energy sources of the future which would herald a happy and prosperous future.

By
Prof. A. R. RAMARAJU
M.Sc., D.S.S.,
Vidyalaya Arts College,
Coimbatore-20.

Fuel Cells : In a dry torch battery or a car battery electricity is derived direct from the energy of the chemicals. The new fuel cell is working like a petrol engine. The fuel for the car is petrol. The fuel of this cell is Hydrogen and Oxygen gas and we can get continuous supply of electricity. This is a cheap way of getting electricity, and the life of the cell is very long. The automobiles may be powered by this type of cells in the future. Instead of petrol you need to fuel the car with cylinders of compressed gas. Vehicles are moving with this cylinders on the road of Los Alamos City the so called secret city of scientists. These vehicles are pollution free and safe. At present Nuclear reactors are working for generation of power. During the peak hours they are not able to fulfil the power requirements. During night there is no greater demand

for power. Reactors may be used to split water into hydrogen and oxygen during the night time. These gases may be fed to the fuel cells during peak hours to boost the reactor's out put and satisfy the demand for the power.

Solar Power : The primary and paramount energy source is the sun. Sun sends energy through its beams to the earth. It is indeed a tremendous amount of energy untapped properly by the humanity. Sun Power is an immense, inexhaustible, free and pollution free.

Sun pours nearly 100 million kilowatts of energy every day. This is a million times greater than the man-made electricity produced today. Exactly at noon on an average each square metre of earth receives one thousand watt of sun energy. This energy gears the entire weather system of our planet. It is further more fantastic to know that a minute fraction of this energy, less than 1% is responsible for all life through the magic of photosynthesis of plants. When all is said and done, how to tap this vast energy is the problem of the day.

There are two ways to tap this source of energy. Direct and indirect are the two ways. Sun's heat is used to heat water by focusing it with a parabolic surface. In the second method sun's heat of light energy is converted into electrical energy.

This is also not new to us. Long back in the year 1878 printing press was powered by sun energy through a curved mirror. Then thermoelectric cells were introduced to catch the sun's energy. For producing 1 kilowatt it is required 1,000 square metres of such cells.

In 1954 the Bell Telephone Laboratories in the United States made a breakthrough by introducing Sili-

In Israel, men are tapping power from the heat of the sun. In India researches are going on in Arid Zone Research Station to tap the sun's energy. If you look overhead you will see that there are many satellites which are purely powered by fantastic solar cells. In France the rise and fall of the tides are utilised to squeeze energy and

can Solar Cell. Now in Japan transistorized radio sets powered by solar cells are available. A car called Solar King was driven in the streets of London with the solar power. The cost of production is high for these devices. But in the nearfuture they are expected to suit the poor man's purse by technical breakthrough and mass production.

It is also proposed to trap the sun's heat energy in extensive arrays of steel pipes spread out in panels above the desert floor. An absorbing fluid such as nitrogen will collect the heat. This heat may be used to run a generator to generate electricity.

A combination of silicon and silver will yield a material in the form of thin film which is an excellent absorber of heat. It will be a suitable technique to harness the sun's energy. The connected researches are going on in the University of Arizona. Dr. Aden B. Meinel, the Director of Optical Sciences, Centre says "Eight square miles of cloud-free land, using this technique, could produce a million kilowatts of power which is the out put of a typical new nuclear plant."

Israel is a hot country : it has no coal, fuel sources and enough electrical power. At the Beersheba Arid Zone Research Institute, Israeli scientists have developed a way of stepping up the efficiency of water-heaters.

In India too the Central Arid Zone Research Centre at Jodhpur have developed few efficient devices in this regard.

Solar cookers can boil a large kettle of water in a few minutes under the Indian sun.

In Russia in the Ararat Valley, in Armenia, solar boiler on a tower of 130 foot height was constructed to trap sun's energy to run trains.

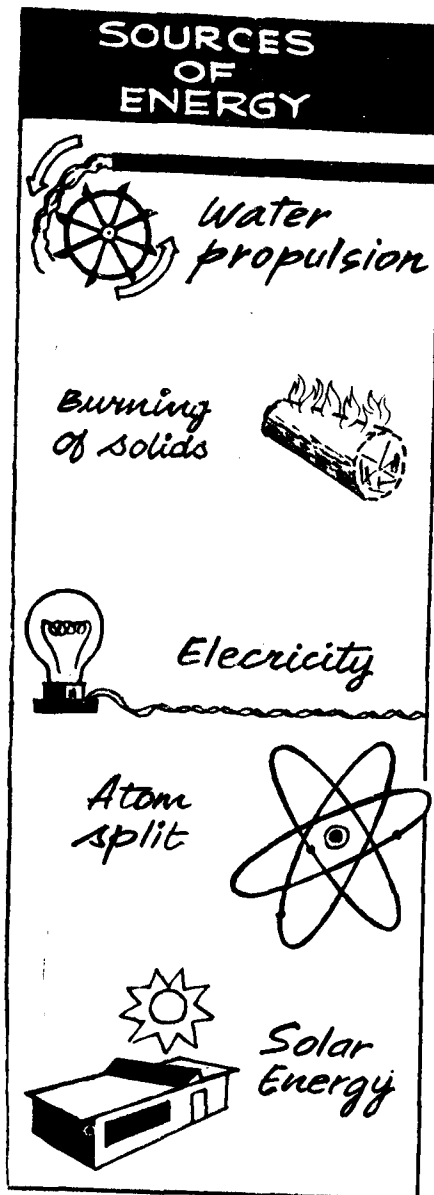
So more and more attention have to be paid to this solar energy utilisation for the betterment of humanity. In India the sun is so liberally pouring its energy and hence there is a conducive climate for us to develop and use this natural source of energy.

Power from Space :

Communication satellites are widely used throughout the World as communication networks. There

is also another possible use to which these satellites can be used. It is possible to capture the solar energy in abundance when a space satellite is launched to tap the energy of the sun in space. Cambridge and Massachusetts researches predict the above possibility.

The space satellite would be fitted with collecting panels covered



with solar cells with an area about 25 square miles. The collected energy may be beamed to earth by microwave. For efficient energy transmission the new born deathly laser beam will come in handy.

Geothermal Power :

Extracting heat from the earth is nothing but an age old cock and bull story in places like New Zealand

and Italy. But even now some countries are exploiting this source of energy. The natural steam field of Larderello of Italy has been generating electricity ever since 1913. In the United States near San Francisco the Pacific Gas and Electric Company proposed to have a generating capacity of half a million kilowatts by 1975. According to a geothermal expert Dr. Robert W. Rex "the largest practical new energy source available to society today is heat from the interior of the earth." Geothermal power is very cheap, clean and pollution free which is the need of the day for the future energy requirements of tomorrow's World.

Wind Power :

Power generation by windmills is again an age old practice which has not been amply utilised in the near past. The present shortage of power and pollution free operation of windmills makes us to have a second look at the simple technique of exploiting energy from natural setting.

It is astonishing to know that during World War II a giant windmill at Grandpa Knob near Rutland, Vermont generated 1,250 kilowatts. During 1915, about 3,000 windmills were producing electricity at Denmark.

It is also proposed that huge windmill generator with rotors of glass-reinforced plastic be floated on the open Atlantic to catch a fairly good speed wind.

In our country an expert group of the National Committee on Science and Technology (NCST) envisages that windmills can be used in India for generating electricity and pump water for drinking and irrigation purposes.

Windmills can also be used to charge the batteries which are used in communication networks.

It is also interesting to know that a windmill generating 1 kilowatt in 25 kilometers per hour wind, weighing only 70 kg. and costing Rs. 400 has been manufactured in Canada.

Today engineers have devised ways and means to squeeze a high amount of energy in an efficient manner out of strong wind. The

power output of a windmill depends directly on the wind velocity and area of blade exposed to the wind. In order to get continuous and copious momentum, the maximum amount of energy which can be had from the system is 16/27 of the energy flow in the wind.

So by all means it is reasonable that the windmill makes a comeback as a power source to satisfy our present and future energy consumption.

M H D Generators :

Those three letters stand for magneto hydro dynamics. It is a novel way of making electricity. It is essentially a rocket engine which blasts its exhaust between the poles of an ultra powerful magnet. The gas is normally a insulator and when it is so hot that it turns into an electrical conductor. Any simple conductor moving in a magnetic field produces an electric current. This is the good old discovery of Michael Faraday. This forms a basic principle of working of an electric generator. The conventional rotating copper coils in an electrical generator are simply replaced by the moving hot gas in the novel MHD generator. Here there is no moving parts except the gas flow in the generator. Further the efficiency is as great as 1.5 times of that of the conventional generators. Hot gases are used to generate electricity in MHD generator and then the remains are used further to fire a regular boiler — and —turbine generator.

The only problem with this type of generators is the temperature of the gas which is of the order of 3,000 degrees C. At this temperature no material can survive, and conductors turn into resistors. Insulators too begin conducting. The problem is tackled in an ingenious manner and hence there is a bright future for this type of generators.

Burning Garbage :

Many countries are turning their attentions on garbage and rubbish can be used for producing electricity. When it burnt the energy is used for production of electricity and at the same time the city will be clean and tidy. European countries are using this method of power generation. In some countries shredded rubbish combined with pulverized coal is burnt to generate electricity.

India is purely an agricultural country. Agricultural wastes are abundant. These may be used effectively to produce electricity for our villages and cities. Cowdung can be more efficiently handled through cowdung gas plant to generate fuel for our consumption. This is a more scientific way of using cowdung. After extracting fuel from the cowdung the remains will be a good fertilizer for the plants. Hence they must be properly utilised both in the farms and homes. The cowdung gas can also be effectively used to light our houses and abodes by a special design of lighting device.

Thermo-Electric Power :

When the junctions of two different metal elements kept at two different temperatures they will constitute an electric current. This is an age old effect known as seeback effect. The above arrangement is nothing but a thermo-couple. A bundle of such thermo-couples are collectively known as a thermopile. During World War II the Red Army transmitters were powered while making tea. Hence they were able to power their radio transmitters by simply making tea. However it is not a military joke but a true and simple practical example of a scientific curiosity.

Here we have elucidated the production of electric current from heat. The converse is also true and which was proved by Jean Peltier. The effect is known as peltier effect. There were certain drawbacks in these method of generation of electricity. The new semiconductor revolutionized this method of power generation. This new substance is found to yield better seeback or peltier effects.

A thermo-electric power is a small-scale power. The simplicity is the special feature of these types of generators. It does not need the furnace, boilers, turbines, dynamos, condensers or any other paraphernalia of the petrol engine or diesel generator or hydroelectric turbines. Simply the generator consists of a bunch of semiconductor strips, two output terminals and a source of heat.

Millions of homes in Russia are lighted by oil lamps or heated by oil stoves. The heat of the lamps are also used to power the radio by means of a thermo-electric cell

surrounding the lamp. This method of power generation will be of great use to our villages where there is no regular power supply lines. This power may be used to operate radios and also communication systems. Wherever there is spare heat these power generators may be placed in that spot to give power. In our homes waste heat from cooking, and in our cars the hot exhaust are some examples of waste heat. These may be used to power our homes and car appliances such as radio, fan etc.

The peltier effect paves the way for easy and efficient way of heating and cooling the rooms, offices and houses. Refrigeration and air conditioning can be done effectively and efficiently using these cheap thermo-electric power. The principles underlying this is called the heat pump.

Electricity from air :

Atmospheric electricity is not utilised so far for running of low power motors which can be used for specific purposes. Electret is a new material which finds use in slot effect electret motor. Atmospheric electric charges should be attracted by special type antenna. The newer types of antenna are under experimental stage. Earth electric field should also be used here to run motors. For this type of power generation raw materials are freely obtained from nature. The maximum power output with the maiden slot effect electret motor is 70 watts at about 10,000 rotations per minute. This motor will operate with ease with a voltage of 4,000 volts at 10 ampere current. These types of motors will serve in specific purposes in different fields.

Electric power from Thunderbolts :

Lightning is one of the most dramatic and fascinating natural phenomena. Now after some long extensive researches the electrical nature of lightning is clearly established. Further the lightning is still a furious and destructive hazard to people, buildings, aircraft, power transmission lines, space crafts, and so on. As one of the Nobel Laureate in Physics Dr. R. A. Millikan has rightly pointed out that "The study of physics is of enormous importance for the daily life of every man and woman, but its importance goes far beyond this.

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HOW TO GET

More Yield In Kuruvai

Paddy

Every year Tamil Nadu produces 53 lakh tonnes of rice from 67 lakhs acres. Over 90% of the area under paddy is cultivated under irrigated condition. Tamil Nadu produces 0.8 tonne of rice per acre on an average. Even though Tamil Nadu leads other States in average yield per acre, the per acre production is low compared to a country like Japan which produces three times the yield of Tamil Nadu. Even though Tamil Nadu is at present self sufficient in rice, there is need to increase rice production in the State to meet the needs of the growing population of the State and also to cater to the requirements of needy States.

Generally paddy is cultivated in Sornavari, Kar, Kuruvai, Samba, Thaladi or Pishanam and Navarai seasons. Kar or Kuruvai season denotes the months from May to September. According to irrigation facilities, paddy strain of 105-130 days duration can be raised in Kuruvai season.

About five lakhs acres are under Kuruvai paddy cultivation in Thanjavur district. Water for the Kuruvai paddy is released from Mettur Dam during the latter half of June. Sometimes the release of water from the Dam may be preponed or postponed. It usually takes a month's time from the date of receipt of water to get the seedlings ready for transplanting. If planting is delayed the crop in harvest stage is likely to be caught in the North East Monsoon. That is why Thanjavur farmers do not go in for paddy strains of over 105 days duration for Kuruvai season. In Tirunelveli district, Tambaraparani water is available for irrigation during the first week of June and hence the farmers go in for paddy strains of 115 days duration for Kar season. In South Arcot, North Arcot and Chingleput districts where

paddy is cultivated under well irrigation, strain likes TKM. 6 and Co. 29 are suited. In Erode, Kalingarayan Channel area and parts of Chingleput, North Arcot and Trichy districts three crops of paddy are raised.

In Tamil Nadu TKM. 6, ADT. 27, Co. 29 and ASD. 1 are the usual strain cultivated in Kar or Kuruvai season. The new strains recommended for this season are Cauvery, Kannagi, Kanchi, Vaigai and Pennai.

Eventhough the varieties are high yielding by nature, the following seven points should be borne in mind for getting maximum yield in paddy cultivation. They are :

1. Selecting the best suitable strain for the seasons;
2. Providing good tilth to the soil;
3. Planting the required number of seedlings;
4. Timely application of the different nutrients in the form of fertilizers;
5. Optimum irrigation;
6. Timely and appropriate plant protection measures and
7. Harvesting at the appropriate time, threshing, drying and storage.

If careful attention is paid to the above points in paddy cultivation, there is scope for increasing the average acre yield from the present level of 0.8 tonne/acre.

The districtwise improved strains under cultivation and the new High Yielding Variety strains recommended are furnished in Table I.

The introduction of the short statured paddy strains have offered tremendous possibilities of increasing output per acre by adopting the recommended manurial dose, plant protection schedule and other agromomic practices. Certain additional points have to be borne in mind in cultivating the new short statured high yielding varieties like IR. 8, IR. 20, Kanchi, Karuna, etc.

1. The tillering buds in these varieties are concentrated at the bottom nodes. So, if the seedling are planted deep, the tillering buds will get embedded in the soil and affect tillering. So the new varieties should not be planted deeper than 1.5-2 cm. in the soil.

2. Atleast one cm. depth of water should be allowed to stand in the field. Otherwise, the tillering buds at the bottom nodes are likely to be dried up and become unproductive.

3. Within 10 days of planting, the seedling will establish and tillering will commence. Stirring the soil around the seedling at this stage will promote formation of more tillers.

4. If more number of tillers are formed at the time of harvest the earheads will be in various stages of growth like milk stage, panicle emergence stage, fully ripened stage, etc. This will ultimately affect the total yield per acre when adequate tillers are formed. The formation of excess tillers can be checked by earthing up the plant.

How to decide the optimum number of seedlings in a unit area ?

We have said that tillering should be controlled by stirring the soil or earthing up so as to ensure optimum number of seedlings per unit area. We will now see the optimum number of seedlings to be planted in a square meter area.

How many seedlings per unit area ?

For the short duration Kuruvai varieties, the spacing to be adopted for planting is 15 cm. between rows and 10 cm. in the row. So in one square meter (100 cm. × 100 cm.) 10,000 cm. at the above spacing the number of units that can be planted is (10,000 divided by 150) 67. At the rate of 3 seedlings per unit the

number of seedlings required per square metre is $67 \times 3 = 201$.

How much seeds to be sown ?

Assuming that the weight of 100 grains is 2.8 gm. for 201 seedlings, the quantity of seeds required will be 5.6 gm. If for one sq. metre, the quantity of seeds required will be 5.6 gms., one acre being 4,000 sq. metres, the quantity of seeds for sowing one acre will be $4,000 \times 5.6 = 22,400$ gm. or 22.4 kg.

But due to the following probabilities an allowance has to be made in the following lines:

(1) Preparation of nursery bed may not be perfect.

(2) The germination of some seeds may be substandard.

(3) All the seeds may not produce equally good seedlings.

(4) Some seedlings may be destroyed while being pulled out.

So, instead of 22.4 kilos, 25 kg. of seeds may be used for planting one acre.

Ensuring adequate number of seedlings

The next important thing to be borne in mind is to plant adequate number of seedlings in unit area. This can be ensured by line planting.

Ensuring adequate number of tillers

The number of tillers should also be optimum. This can be ensured by stirring the soil or earthing up, as the case may be.

No. of earheads and number of grains in each earhead

If there are 400 earheads in one square metre with an average of 100 grains in each earhead, we can expect an yield of over 4 tonnes per acre in IR.. 8. An yield of over 4 tonnes/acre can be taken as a high yield.

At a spacing of 15 cm. $\times$ 10 cm. for a short duration variety, we have already specified that there should be 67 units per square metre. So, for getting 400 earheads per square metre we have to ensure about 6 earhead per unit.

TABLE I

High Yielding Varieties Recommended For Districtwise Cultivation

Sl. No.	Name of District	Season	Strains recommended
1.	Chingleput	.. Sornavari (May—Sept.)	ADT.27, Karuna, Kanchi, Cauvery.
2.	Chingleput	.. Sornavari (May—June) Kuruvai (Sept.—Oct.)	I.R. 20, ADT. 27, Karuna, Cauvery.
3.	North Arcot	.. Kar (June—Sept.)	IR. 20, Kannagi, Karuna.
4.	Trichy	.. Kar or Kuruvai (June—Oct.)	Karikalan, Karuna, Kannagi.
5.	Thanjavur	.. Kuruvai (June—Oct.)	ADT. 27, Karuna, Karikalan, Kannagi.
6.	Salem—Dharmapuri	.. Kar (June—Sept.)	Kanchi, Kannagi, Triveni.
7.	Coimbatore	.. Kar (June—Sept.)	Kanchi, Bhaveni, Kannagi.
8.	Madurai	.. Kar (June—Sept.)	IR. 8, Kanchi, Kannagi, Bhavani.
9.	Tirunelveli	.. Kar (June—Sept.)	ASD. 14, Kannagi.
10.	Kanyakumari	.. Kar (June—Sept.)	IR. 8, IR. 20, Jaya.

Determinants of high yield

What are the factors that determine high yield ?

1. The number of seedlings planted.

2. The number of tillers from each plant.

3. The number of flowers that emergence from each panicle.

4. The number of panicles per plant and

5. The number of flowers that matured into grains.

The above can be maintained at desired level by following the management practices enumerated below :

(1) If there is poor tillering even after 20 days of planting, tillering can be promoted by application

of Nitrogenous fertilizers or by stirring the soil around the seedling.

(2) If there are more than 10 tillers per plant this can be arrested by slight earthing up.

(3) Growth of the plant can also be arrested by withholding irrigation.

(4) 70 days after sowing or 45 days after planting, if the stem is split and examined, the initiation of the panicle will be visible. This is the time to topdress the plant with nitrogenous fertilizers.

Eventhough several steps have been enumerated above for maximising production per acre it should not be construed that an average yield of about 4 tonnes/acre can be obtained under all conditions. There are certain situations under which such high yields can not be attained as follows :

(1) Very sandy soils, hard clayey soils, saline or alkaline or acid soils, soils with poor drainage.

(2) High yields cannot be obtained in areas where at any stage of crop growth the temperature does not go below 20 degree C. and does not exceed 38 degree C.

(3) In areas where there is acute summer, winter or drought, areas subject to cyclone, high yields cannot be attained.

(4) Paddy requires about 2 cms. of standing water. Stagnation of the fields or drying of the fields due to lack of water are to be avoided in successful paddy cultivation.

In lands where drainage facility is lacking or where the quantum of water cannot be controlled there is no scope for obtaining high yields.

(5) Application of lesser quantity of manure or pesticides will not ensure high yield.

(6) In soils where there is deficiency of micronutrients, unless the deficiency is made good other efforts to maximise production will not succeed.

So, we have to aim at increased production taking into account the suitability of the land and other environmental factors.

Manuring of Paddy—certain important findings :

In these days of fertiliser shortage it is worthwhile to bear in mind the salient findings of a seminar held recently in Philippines.

(1) In low fertility soils, organic manures improve the soil condition and soil fertility leading to increased yields.

(2) As far as nitrogen is concerned organic sources of manures like green manure, farmyard manure and compost increase paddy yields.

(3) In tropical countries the nitrogen obtained from leguminous crops is considered equal to nitrogen from artificial chemical fertilizers.

(4) Generally people do not prefer organic manures as sources of nitrogen supply, because artificial manures as sources of nitrogen are more readily available than organic manures.

(5) If organic manures do not undergo decomposition perfectly in the soil, paddy crop will not grow properly.

(6) The fact that high yields can be obtained even with the natural manures has been understood by farmers in several centres.

After conducting several agronomic trials on measures to reduce loss of nitrogen applied to High Yielding Variety paddy crop, the following recommendations are made.

(1) Depending on the fertility of the soil and irrigation facilities available the nitrogen can be split into two or three doses and applied as top dressing.

(2) For each top dressing not more than 10—12 kg of nitrogen per acre is to be applied.

(3) If the soil is low in nitrogen content the basal dose of manure should be increased.

(4) If the soil has more of nitrogen, the total N to be applied can be reduced and a small dose of fertilizer may be applied.

(5) For poor tillering varieties, more of nitrogen is to be applied basally.

(6) For short duration varieties more quantity of basal application of N followed by top dressing may be done.

(7) For long duration varieties Nitrogenous fertilizers can be applied in 3—4 split doses.

(8) If planting time coincides with cold season the dose of N is to be increased.

Kuruvai paddy cultivators can maximise their production by keeping in mind the various points enumerated above and increase yield.

(SOURCE : Director of Extension Education, Tamil Nadu Agricultural University, Coimbatore-3.)

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Prosperity Brigade Volunteers

DONATE THEIR EYES

To commemorate the 51st birthday of Dr. M. Karunanidhi, Chief Minister of Tamil Nadu, as many as 51 Prosperity Brigade Volunteers have donated their eyes. This was the first solemn function for the Chief Minister on his Birthday on 3rd June, 1974. The volunteers of the Prosperity Brigade presented a Guard of Honour and Thiru N.V. Natarajan, Minister for Information and Public Relations, Thiru Muthuramalingam, President of Prosperity Brigade of Madras City and Thiru M. Abdul Raheem, Special Officer of Prosperity Brigade, garlanded the Chief Minister. The agreements of 51 Prosperity Brigade Volunteers donating their eyes, were presented to the Chief Minister.

The names of the eye donors are as follows :—

1. P. Vairavan
2. K. Ekambaram

- | | |
|-------------------------|------------------------|
| 3. P. Lakshmipathy | 28. M.S. Nambi |
| 4. N. Kumarasamy | 29. T. Manavalan |
| 5. T. Ranjam | 30. M.S. Mani |
| 6. V. Pandiyan | 31. C. Balasubramanian |
| 7. R. Alagesan | 32. C.S. Thirupuram |
| 8. A. Rajabother | 33. C.S. Rajeswari |
| 9. K.M. Natarajan | 34. C.S. Lakshmi |
| 10. K. Srinivasan | 35. T.P. Kanniappan |
| 11. A. Sahadevan | 36. S. Thiruvengadam |
| 12. S. Ramamoorthy | 37. V.A. Karbagham |
| 13. S. Sundaramoorthy | 38. C.M. Sadhasivam |
| 14. V.T. Muthappa | 39. C.P. Kandayya |
| 15. A.P. Seelan | 40. P.H. Rajasekaran |
| 16. N. Veeravaghavan | 41. P. Damodharan |
| 17. M. Renganathan | 42. M.R. Lakshmipathy |
| 18. S.V.C. Lingam | 43. C. Shanmugam |
| 19. M. Manoharan | 44. S. Sandhakumari |
| 20. R.S. Bharadhi | 45. S. Leela |
| 21. A.T. Narasimhan | 46. S. Gesarajan |
| 22. Thanjai Kootharasan | 47. C. Adhikesavan |
| 23. K. Chittibabu | 48. V. Jaganathan |
| 24. K.P. Pandyan | 49. Vijayajeganathan |
| 25. K. Ragupathy | 50. M. Kaliamoorthy |
| 26. T.P. Sivam | 51. P.M. Somasundram. |
| 27. M. Kuppuswamy | |

ANNA SWIMMING POOL HELPS MORE SWIMMERS TO WIN GOLD MEDALS

"The Anna Swimming pool is an inestimable asset to our State and with our weather permitting year-round practice, Tamil Nadu would be able to win more and more laurels in national level aquatic competitions in the years to come," feels Mr. T.V. Gnanavelu, Secretary, Tamil Nadu State Aquatic Association. He was commenting on the fact that Tamil Nadu was able to annex two gold medals in the recent aquatic championship held in Delhi. The two gold medalists were avid in practising at the Anna Swimming Pool, he said. The fact that the Tamil Nadu Police personnel have also taken to serious swimming practice at Anna Swimming Pool to equip themselves for State level and national level aquatic championships is bound to bring credit to Tamil Nadu or at least will pose a serious threat to the unchallenged supremacy of the Armed Forces in aquatic championships in the years to come, he adds. All told, Mr Gnanavelu feels that Tamil Nadu swimmers have come up to

Asian championship levels. In order to enable more Indian athletes to avail the benefits of year-round sun, Mr. Gnanavelu says that another National Institute of sports to complement the one at Patiala will be located shortly in the South. The two swimmers who brought credit to Tamil Nadu are Sunitha Agarwal, age 15 and T.G. Senthil age 10. Bio-data of the two swimmers are given below.

Sunitha Agarwal—Age 15 years 6 months, has represented Tamil Nadu four Times in Nationals. She won first place in 100 M. Back Stroke and second place

in 100 M. Free Style and 200 M Back Stroke in the Age-wise National Aquatic Championship 1974 at New Delhi in Group I. She is studying final year in Church Park

T.G. Senthil—Age 10 years 8 months, has represented Tamil Nadu five times in Spring Board Diving for Juniors. In the Age-wise 1974 Nationals at New Delhi he came first in Spring Board Diving and 200 M. Free Style. He came second in 100 M., Free Style, 50 M. Butterfly and 200 M. He is a VI Standard Student in Padma Seshadhri Matriculation High School.

A BUMPER CROP!

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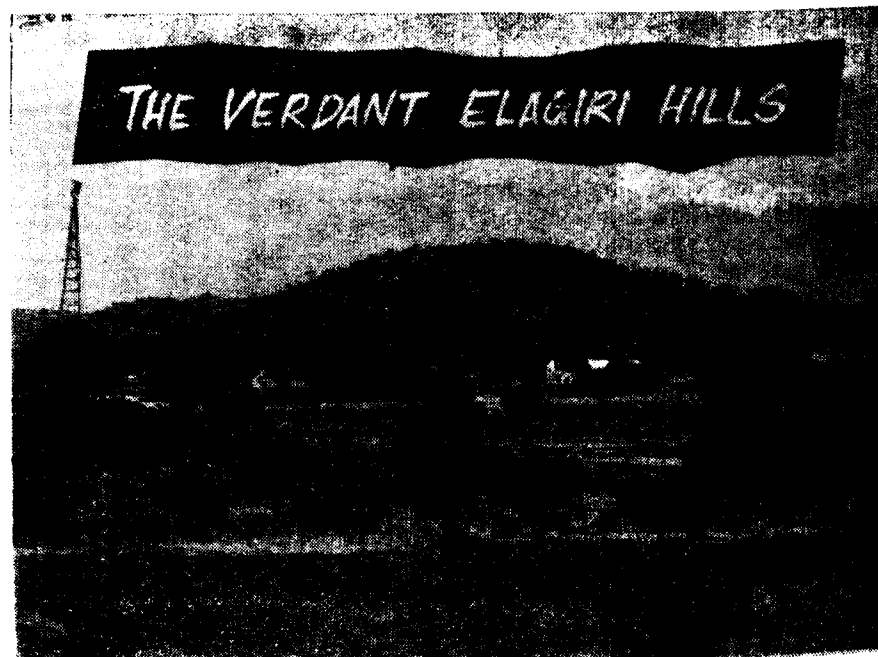
Thiru N. V. Natarajan, Minister in charge of Prosperity Brigade, handing over the agreements to the Chief Minister.



The Chief Minister receiving the Guard of Honour presented to him by the Volunteers of Prosperity Brigade on 3rd June 1974.

Elagiri

OUR FOURTH HILL STATION



To escape from the ravages of summer heat in the plains, people seek cool heights during holidays or while on vacation. Thus these cool heights are to be termed as resorts. Another Hill resort is in the making for Tamil Nadu, at Elagiri Hills of North Arcot. The other established Hill Stations are the Nilgiris, Kodai and Yercaud. Elagiri is fast developing.

The Elagiri Hills are situated in the Tirupattur Taluk of North Arcot District. The Hill is an isolated spur of the Eastern Ghats running through the District. The villages on the Hills are situated at an elevation of 3,300 to 3,500 feet above mean sea level and receive an annual

rain fall ranging from 35 to 45 inches, a larger part of which being received during the North East Monsoon. However, rainfall is fairly well received from April to November also. The Hills enjoy a salubrious climate and wide variety of agricultural crops are already being grown. Crops mostly paddy, cholam, and cumbu, groundnut and gingelly besides sugarcane, vegetables and fruits are grown. The crops are raised mostly under rainfed conditions, though in certain villages well irrigation is being resorted to. Considering the favourable situation of the hills, with possibilities of reaching established markets like Bangalore and Madras within a few hours, horticulture is being given due weight.

The Elagiri Hills lies in between Jolarpet and Vaniyambadi, about 4 furlongs to the South of Tirupattur—Vaniyambadi trunk road. There are 12 hamlets on the top of the Hills which form the revenue village of Elagiri Hills.

The population of the Village is 2,709 according to 1971 Census.

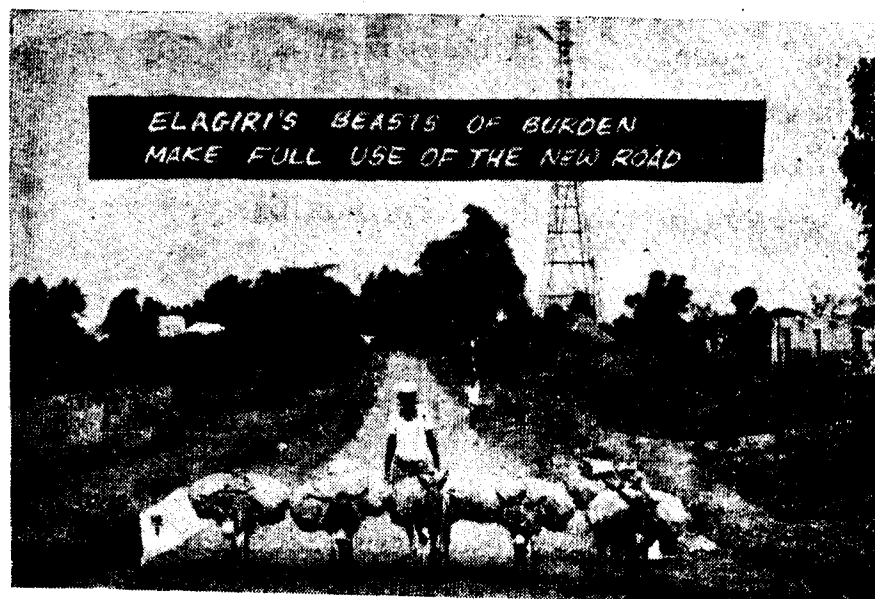
The total area of the Hill Village is 1,452.75 hectares excluding the reserve forest area.

COMMUNICATION

A pucca black topped motorable road has been formed by the Highways Department from the bottom of the Hills to the top. The road measures 8 miles and 2 furlongs. The cost of the formation of the road is about Rs. 18 lakhs.

There is a Post Office at Athanavoor Village and it serves all the other villages.

There are four Panchayat Union Elementary Schools, each upto V Standard, in Nilavur, Mangamal and Athanavoor hamlets. There is one Government Hospital at Athanavoor maintained by the Harijan Welfare Department. Mid-day meals are served to the pupils of all the four elementary schools by the Panchayat Union, Tirupattur, N.A.

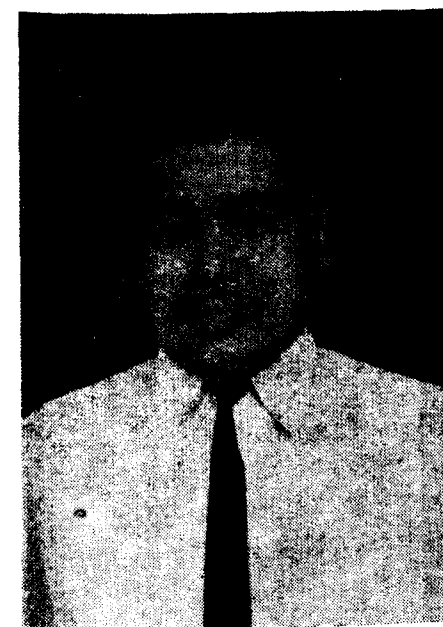


IRRIGATION

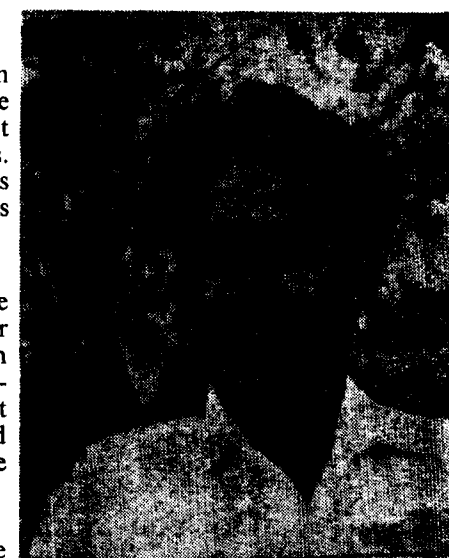
There are no recognised irrigation sources in the hills. The entire hill village is a dry village. But there are private irrigation wells. Electricity has been extended to this village. About 30 electric motors have been installed so far.

The Railway authorities have installed a microwaves repeater station in the Hills for which an extent of 1.54 acres have been acquired. The industries department is running Basic Blacksmithy and Carpentry training centre in the Hills.

The economic condition of the hills tribes is improving consequent on the formation of the road and the extension of electricity to the hills. Several well-to-do citizens in the plains from Madras and other big towns have resorted to purchase of sites for the construction of resi-



Thiru G. RAMASAMY, M.L.A.
Panchayat Union Chairman, Tirupattur,
N.A. Dist.



Thiru C. GOVINDARAJ,
Elagiri Panchayat President.

dential buildings in the hills. This hill village is fast developing into a fine summer resort. Some residential bungalows have already been constructed in the hills.

There is a branch of the Y.M.C.A. in Thayalur which provides both for lodging and boarding facilities to the travellers under previous intimation. There is a forest rest house in Kottur which is about 3 miles from the newly formed road. The rest house is not easily accessible and it is now under repairs.

A Highways Department Travelers Bungalow constructed at a cost of Rs. 50,000/- adjoining the bus stop, is now serving to the needs of travellers. But this is only a small beginning.

Elagiri Hills is otherwise called as "Poor Man's Ooty" and it has attracted the Film Producers also for outdoor shooting.

There is a temple of Lord Muruga which attracts many devotees and the surrounding villages.

A Kalyana Mandapam has been constructed to serve the needs of the villagers and it can also be used as community hall by the villagers when necessity arises.

ABOUT ELAGIRI HILLS

Name of the President	..	Thiru G. Govindaraj
Population	..	As per recent Census 1971 2,709 (Scheduled Tribes 2,501 Scheduled Caste 71 Other Caste 137)
Name of the Revenue Villages constituting the Panchayat	..	Entire Elagiri Hill Village and its Hamlets. (Survey No. 1 to 456).
Area of the Panchayat	..	7.05 Sq. Miles.
Number and names of hamlets	..	1. Athanavoor, 2. Nilavoor, 3. Punganur, 4. Mangalam, 5. Kottayoor, 6. Thayalur, 7. Putthur, 8. Paduvanur, 9. Rayaneri, 10. Mettukaniyoor, 11. Pallakaniyoor, 12. Kotoor.
No. of members of the Panchayat	..	11 including one elected woman member.
Office Building	..	One Office Building has been constructed at Nilavoor
Length of roads	..	About 7 miles.
Street lights	..	Not yet provided. Steps are being taken in this regard.
No. of drinking water wells	..	10 including one ground level reservoir at Athanavoor.

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Welfare of Backward Classes

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Despite these achievements
Rising Population Raises Problems

**SURELY YOU CAN
BY PLANNING YOUR FAMILY**

DEPARTMENT OF HEALTH SERVICES AND FAMILY PLANNING

VISIT Poompuhar

FOR A REAL
INSIGHT INTO

Tamil Culture

Kaveripoompattinam, known as Poompuhar in its more fortunate days was a well laid out port town which boasted of a separate settlement for the foreigners. Much of the archaeological remains still are there for us to see.

In addition, the recently constructed art gallery is the first attempt, after many centuries, at group-sculpture for which Tamil Nadu is justly famous. In the form of group-sculpture and also in individual figures a remarkable edifice to recreate the life and times of the Tamil classic "Silappathikaram" Story of the Anklet has come up at Kaveripoompattinam in its art gallery.

FOR FURTHER DETAILS
CONTACT:
RECEPTION OFFICER,

Poompuhar Art Gallery
[VIA] Sirkali, Thanjavur Dist.



Tamil Arasu

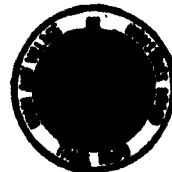
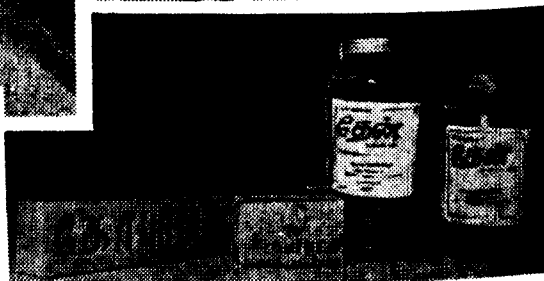
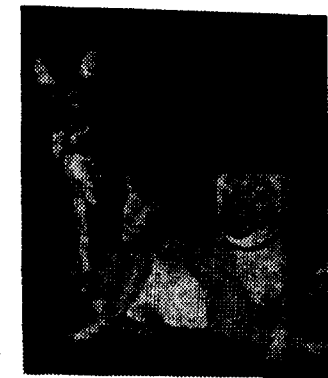
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Tamil Arasu

Vol. V

August, 1974

Issue 2

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The Cover illustrates enthusiastic women students entering the portals of the Qaid-Milath Arts College for women at Anna Salai.



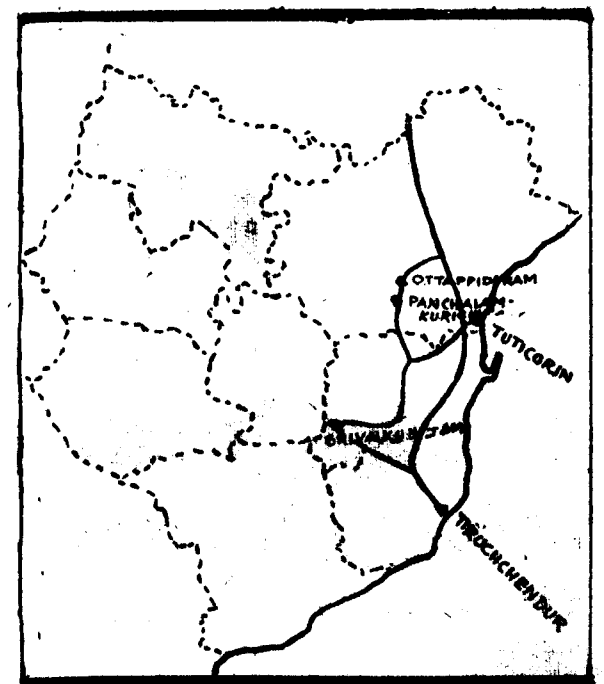
Chief Minister felicitating his Cabinet colleague Thiru. R. Nedunchezhiyan on the latter's Birthday on 11-7-74.

R.R.No. 578/74. ALL INDIA PROHIBITION COUNCIL CONGRATULATES THE CHIEF MINISTER

The All India Prohibition Council, New Delhi, has congratulated the Chief Minister Dr. Kalaignar M. Karunanidhi for his announcement to reintroduce total prohibition in Tamil Nadu from 1st September, 1974.

Thiru Roop Narain, General Secretary of the All India Prohibition Council, New Delhi, has sent a letter to the Chief Minister welcoming his decision and congratulating him and his Government for the wise action and the highly useful measure of social welfare. He says:

"This Council warmly welcomes your decision to reintroduce total Prohibition in your State with effect from September 1, and heartily congratulates you and your Government on this extremely wise action. I flashed a telegram to convey our felicitations immediately on reading this most heartening news and I am writing this to express our appreciation of the unswerving manner in which you have got over the difficulties to reinforce this highly useful measure of social welfare. We have no doubt the enforcement of the dry law will do a world of good to your people from all points of view—economic, social, moral and medical, besides reducing the incidence of crime and road and industrial accidents."



On August 18 this year, a memorial to our earliest Freedom Fighter, Kattabomman is to be declared open at Panchalamkurichi. The map above gives location of the place. Articles are published on pages 6 and from 46 to 50.

Memorial to A Brave Fighter for India's Freedom

A SPECTACLE VIBRANT WITH HISTORY COMES UP AT PANCHALAMKURICHI

Kattabomman was the first brave South Indian to resist the British Colonialism and hence he is regarded as the pioneer of Independence Movement in Tamil Nadu. It is fitting therefore that a memorial in his honour is being declared open on August 18th at Panchalamkurichi by the Chief Minister of Tamil Nadu. The memorial comprises the reconstructed fort, once considered so impregnable that the Britishers called it the "Gibraltar of Carnatic". In fact the British cunningly enticed Kattabomman away from the Fort to capture him. The other memorial is a Statue erected in the Durbar Hall of the Fort.

The Model Fort of Veerapandia Kattabomman represents the restoration of an important part of the old historic fort revealed during excavation in the vicinity. The Architectural style of the Fort is on the lines of buildings of the Naik period in Southern India. The Precincts of the Model Fort, the excavated remains of the old Fort and the surrounding area have been enclosed by a compound wall for protection and maintenance.

The structure is square in plan (15.7 M x 15.7 M) having walls with batter, reminding one of a fortress. The central audience hall rises to two storeyed height (11.25 M x 11.25 M). A Central tower rising to a height of 10.2 M and four smaller towers at the four corners dominate the building. On the west end of the audience hall is the podium (3.0 M x 3.0 M) for the statue of Kattabomman.

The Audience Hall is the most important feature of this model Fort where the statue of Kattabomman is installed signifying the Ceremonial Durbar Conducted by him. The audience Hall has a gallery and has clerestorey lighting in addition to the small windows set in the external walls which are battered to resemble a fort. On the inner surface of the external walls murals and relief sculptures are displayed depicting important events that stand testimony to the heroism of Veerapandiya Kattabomman.

Equal thought and attention have been given to the design of the landscape of the area outside the model Fort by carefully laid out garden, lawns and planting of beautiful trees.

Moreover, the entire approach road from Ottapidaram village is punctuated with five beautiful arches commemorating the brave associates of Veerapandiya Kattabomman.

The statue of Kattabomman that will adorn the Durbar Hall, housed in the Fort, is conceived in the form of a warrior-king, seated on the Lion-throne with his right hand held firmly on the sword and left on his left-thigh expressing Rajasabhava, the royal posture.

The royal crown and the long gown characteristic of the race that ruled over that part of the Country, is symbolically represented. The royal seat is supported by four lion-motif legs and the arms too, adorned with lion-motif, which signify the lion throne. The whole asana is raised on two pedestals, one of which is of lotuslike form. He is depicted in a smiling but pensive mood signifying the circumstances with which he was confronted during his regime.

The statue is made out of very fine granite stone of black variety procurable in a village called Paftu-

malai kuppam near Kancheepuram, Chingleput District. The statue measures in its seated form and the total height together pedestal and simhasana is 6 m. The statue weighs 3 tons.

The statue is erected on an ornamental platform supporting a circular dome, artistically created. The sides of the Platform are decorated with flower-cum-scroll work interspersed with Lion and Elephant friezes. The dome above the platform is supported on four granite pillars designed architecturally and finely polished like marble.

The entire work of statue has been done by the Shilpis of Mahabalipuram School under the expert guidance and supervision of Thiru V. Ganapati Sthapathi, Superintendent Government Sculptors' Training Centre, Mahabalipuram.

PERSONAL DIRECTIONS OF C. M.

The entire scheme has been executed as per the directions of the Chief Minister of Tamil Nadu. As he already said in his Budget speech: "We are fulfilling the ideals so dear to the heart of Anna of preserving and fostering the tradition and history, arts, culture and civilisation of the Tamils."

"We have excavated the ruins at Panchalamkurichi and restored the ramparts and forts of Kattabomman's time and recreated a spectacle vibrant with history as a tribute to the memory of that great hero of Panchalamkurichi, who fought gallantly for his motherland and braved death with a smile on his lips. In his honour, a suitable monument is also being raised at a cost of Rs. 5 lakhs."

The excavated site of Kattabomman's Audience Hall.



The following is a translation of the speech delivered by Tamil Nadu Chief Minister Dr. M. Karunanidhi, while presiding over the Annual Collectors' Conference at Rajaji Hall on 27-7-74.

"In this Conference, we exchange ideas and arrive at decisions about the steps for the continuous promotion of the economic welfare and prosperity of Tamil Nadu and the maintenance of law and order.

In a democratic set-up, political parties may come to power by turns. But the Government of the day have to realise the needs of the people and endeavour to establish a socialistic egalitarian society. The uplift of the down-trodden, the execution of the plans with all fervour for the attainment of social security, benefit to the workers and welfare of the students, safeguarding our language, culture, literature, art and history—all these are our tasks. When policies are laid down and plans are formulated for these purposes, it is you, who are in charge of the administration, who should execute these plans to the satisfaction of those in power. You have to extend your full co-operation and tackle these tasks with great devotion. On a complete identification with the ideals you should assist the Government in their various plans and programmes. When forces of evil raise their heads, you have to deal with them in such a way as to earn the confidence of the Government. The Officers assembled here have been entrusted with such great responsibilities.

I move with you with a fraternal spirit and not as a Chief Minister with all authority. This sense of fraternity between us has facilitated free discussion of ideas and arriving at impartial conclusions. It will be relevant to remember here, the following maxims of Thiruvalluvar on true friendship:

"Mere smiles is not friendship,
But to transcend,
And forestall mistakes by rebuke

"Friendship is not mere smile on the face
It is the smiling heart's embrace."

Innumerable instances can be quoted to show that this Government strive to guard against faults, and once faults are committed, the Government do not fail to take impartial and effective steps against those res-

This is a Government That Strives To Guard Against Faults-

And to take action against those responsible for faults, if committed.

C. M.
at Collectors' Conference

—o—

possible. On this occasion, I express my deep appreciation to you all who have lent support to the Government in this task.

The toils of the farmer in small villages who ceaselessly accommodate the waters of small streams and till the soil to raise more and more paddy remain ever in our minds and because of this, most of our plans are village-oriented. During the last seven years, the co-operative loans advanced for agricultural development, electricity provided to the innumerable tubewells on a scale unparalleled in India, electric street lights for all villages, eyesight for seventy thousand poor people during the last two years, all these are benefits that have accrued to the people in the villages.

As a result of a Crash Plan of the Water and Drainage Board, the scheme of supplying protected drinking water to Municipal areas town panchayats and even to areas under the Panchayat Unions is being implemented with all speed. By our concerted attempts we should see that this plan is implemented throughout Tamil Nadu within a period of a few years.

In the whole of India, it is only our State that has formulated "MANU NEEDHI THITTAM" which has conferred benefits of

on-the-spot redressal of grievances of villagers. I request you to give your valuable suggestions for the further extension of this scheme.

During the last two years, we are implementing a scheme of connecting all the villages with a population of thousand five hundred and more with adjacent Main roads. And this year, we have started a special programme of connecting even small hamlets with link roads. We have taken decisions regarding this at the Secretariat level. Officers should spare no efforts in seeing that these decisions are implemented in a prompt and precise manner.

Even after a lapse of twenty five years of independence, the Harijans and the down-trodden cry in anguish, as they do not have pathways even to take their dead to the burial grounds. All the political parties have not failed in echoing this cry. Now, we have formulated a special scheme linking this work with the plan of laying village roads. I have discussed this with the Ministers and concerned Officers. I request that all of us should share the responsibility of executing this plan speedily. The Officers should try to get the co-operation of the people in the villages in acquiring lands for this purpose.

This year we have allotted separate funds for the special scheme of improving the irrigational sources like lakes and tanks. Even small ayacutdars will be benefitted by this scheme. My appeal to the Officers connected with this work is that they should deem it their duty to devotedly implement the scheme without allowing any waste.

We have introduced "Government Servants' Special Family Benefit Scheme" and "Social Security Scheme" and the working of the first Scheme has commenced. These schemes are quite novel and the first of their kind in the whole of India. When Nature snatches away the supporting hands of the family, the house-wife finds herself completely helpless, and when the sum of Rs. 10,000 is paid under the Scheme, what a sense of consolation is felt by us in giving the amount as also by those receiving it! The Officers have a special responsibility to see that no delay or mistake occurs in this.

Apart from the public servants, even others may come under the benefit of 'Social Security Scheme', the details of which are to be announced shortly.

I welcome your constructive suggestions for the successful implementation of the social welfare scheme for the physically handicapped and of the separate Housing Corporation for Harijans.

As our State is surrounded by the liquor shops of the neighbouring States, as illicit distillation could not be effectively controlled and as the tragic stories of death of hundreds of men and women consuming poisonous illicit liquor in places like Madras and Kanchipuram were frequent, the policy of prohibition was not a success in Tamil Nadu. Apart from this, the financial position of the State also was greatly affected. Hence, in 1971 we suspended the enforcement of prohibition. As a result, the

financial position has improved and we are now, to some extent, out of the financial difficulties.

Still, we, running the Government adhering to the tenets of Mahatma Gandhi and following the lead of our beloved Anna, had always a prick in our conscience when we suspended the prohibition amidst all the justification for it. I had then referred to this in the Legislative Assembly even while suspending the enforcement of prohibition. So, this year, from September the month in which Anna was born, total prohibition is to be re-enforced.

We realise that, as a sequel, all the old evils will raise their heads. There will be a new set of anti-social elements in the form of illicit distillers and consumers. The District Officials should unhesitatingly take vigorous steps to see that those who abet and indirectly aid these activities are dealt with severely. I would like to have your suggestions on this problem.

Among the various measures adopted by us to meet the deficit caused by the re-introduction of total prohibition is the observance of strict economy in the administrative expenditure. This should be intensified with your whole-hearted co-operation.

Without effective Family Planning the targets of other plans could not be achieved.

So also our educational programme greatly aids the success of the Plans.

The sense of dedication to duty in the minds of the people is the real wealth of a Nation. With that sense of dedication our State should grow in prosperity. I am quite confident that towards this end, our Officers would contribute their valuable suggestions today and tomorrow and would whole-heartedly implement the decisions arrived at in this Conference.

Chief minister Addressing Collectors and Police Officers



Less Glamorous But More Useful

The only one of its kind in India, the Tamil Nadu Water Supply and Drainage Board, is a unified agency vested with the task of providing potable piped water supply linked to an efficient system of underground drainage throughout Tamil Nadu in all towns and villages. The importance of these two inevitable inter-dependant basic amenities which on the one hand, protect citizens from water-borne diseases and on the other prevent the spread of communicable diseases through uncared for night soil and other effluents, cannot be over-emphasised. These are un-glamorous tasks and therefore for a long time remained in the hands of a multiplicity of agencies with no coordination between them; as a corollary no single agency could also be blamed for lack of these basic amenities. On 14th April, 1971 came into existence the T.W.A.D. as an autonomous body with a statutory footing. More than anything else it was animated by the zeal for public welfare unknown in a governmental agency. After 3 years of work, the Board has on its own volition expanded the ambit of its functions to include the promotion of industries by means of providing water supply.

A NEW TASK

It is thus that the Tamil Nadu Water Supply and Drainage Board has sponsored a Seminar on "Water for Industry" on the occasion of its third anniversary. Conducted jointly by the Department of Public Health Engineering, and the College of Engineering, Guindy, Thiru S. Kandappan, Chairman, Tamil Nadu Water Supply and Drainage Board, provided his characteristic zest for long-range planning while Dr. V.C. Kulandaiswamy, Director of Technical Education, and a host of scientists, engineers and industrialists made a candid assessment of water resources of Tamil Nadu both of surface and sub-surface to link them with the needs of industries. The seminar apart from providing the basic statistics, helped the TWAD to plan its priorities.

Having pioneered in irrigation schemes with surface water sources, Tamil Nadu has already tapped over 90% of its river waters. This near-full utilization leaves the State

T.W.A.D.

Lives

Upto

Its

Own

Past

and groundwater in the State in general and in the Madras Metropolitan area in particular.

Tamil Nadu has witnessed in the recent past an industrial growth, both in traditional sectors such as textiles and agro-industries and also in modern high technology sectors such as petrochemicals and electronics. The industrial growth has correspondingly increased the demand for water from the already strained public water supply schemes. The water needs of the industrial belt around Metropolitan Madras is a case in point. Although at present, the Corporation of Madras delivers only 6 to 8% of its daily water supply for industrial use, there is a marked preference by industries for Corporation supplied water and the demand is expected to grow appreciably. In many public water supply systems in the State, the availability of protected water will continue to be limited in the near future. The authorities in charge of supply should, therefore, examine the feasibility of all other alternatives such as reuse of waste water, desalination and transfer from increasingly larger distances.

NEW THOUGHTS

Reuse of waste waters after subjecting them to a high degree of treatment has been practised in many other countries as well as in the metropolitan Bombay area in India. The Tamil Nadu Water Supply and Drainage Board has demonstrated that municipal sewage can be treated to a degree where it can be reused for some low-quality water needs of industry such as for cooling purposes. Technically, there are sewage treatment methods available today which can provide even high quality water such as that needed for boiler feed. The seminar also covered the State-of-the-Art of sewage reclamation and industrial reuse, and highlight such experiences in India and elsewhere. Case study of the reclamation plant at Union Carbide, Bombay, which has a treatment capacity of 5 million litres per day, and examples of recycling of waste water within industries were presented as part of the Seminar.

very little margin for further development of surface sources with a view to meet the growing municipal and industrial water needs. The State is also simultaneously developing and using its groundwater resources through a system of 12 lakhs of wells. It has been estimated that the potential for further economic development of groundwater is limited to less than half the existing use. Therefore, there is an urgent need for carefully planning and implementing an integrated surface water and groundwater management system for meeting the growing water needs of the State. The papers in the initial sessions of the Seminar cover the water needs of industry with reference to quantity and quality, as well as the availability of surface

WATER SUPPLY SCHEMES

T. W. A. D. WORK IN BROAD

PERSPECTIVE

The first Water Supply Scheme was initiated during the last century in Tamil Nadu. Prior to Independence water supply was available in 47 towns in the State. The investment on urban Water Supply Schemes during the pre-independence period was about Rs. 300 lakhs only. The total urban population covered by Water Supply was 41 lakhs.

Post Independence Progress :

Soon after independence in 1947 a water supply and drainage Committee known as "The Kaleswara Rao Committee" was set up in the State to go into the problem of water supply and drainage. The Committee inter alia formulated a priority list for the provision of water supply to the towns in the State based on their endemicity scarcity of drinking water, population, religious and commercial importance of the town etc.

URBAN WATER SUPPLY

During the 3 years of its existence i.e., 1971-74 the T.W.A.D. Board has executed 40 Water Supply Schemes at a total cost of Rs. 980.20 lakhs benefiting a population of 13.27 lakhs. The position today is that both the Corporation cities, 87 Municipalities, 9 Townships and 71 Town Panchayats have been provided with protected Water Supply covering a population of 1 crore.

There are, at present, 118 Water Supply and Drainage Schemes at a total estimated cost of Rs. 5731.67 lakhs now under various stages of execution. The expenditure incurred under these on these going schemes represents Rs. 2943.22 lakhs

The Coimbatore Water Supply Scheme will apart serving Coimbatore, the towns proposed to be included in greater Coimbatore are 1. Upplipalayam, 2. Ganapathy, 3. Singanallur, 4. Sowripalayam, 5. Peelamedu, 6. Kuni muthur, 7. Telengupalayam, 8. Kurichi, 9. Sankanur (part), 10. Kavandampalayam, 11. Krishnarayapuram, 12. Ramanathapuram, 13. Puliakulam,

14. Anupparpalayam, 15. Sundakamuthur and 16. Attupalayam. Some of the villages lying enroute such as 1. Theppilipalayam, 2. Alandurai, 3. Puluvaipatty, 4. Madampatty, 5. Kallampalayam, 6. Patchapalayam, 7. Chettipalayam, 8. Perur and 9. Telengupalayam will also be included in the scheme. The scheme has been designed to benefit a population of 6 lakhs expected in 1996 for Coimbatore Town, a population of 3.24 lakhs in the areas proposed to be included in Greater Coimbatore and 5,000 in wayside villages.

Rural Water Supply Scheme

Under the Accelerated Rural Water Supply Programme 5754 schemes costing Rs. 29.35 crores were formulated and out of which 455 schemes were taken up and executed during the years 1972-73 and 1973-74 at an expenditure of Rs. 136.42 lakhs and 118.44 lakhs respectively. By this programme 237 villages have so far been benefitted.

The Government have sanctioned a programme costing a sum of Rs. 2.71 crores for the execution of 8850 tube wells in the scarcity and cholera affected villages of Tamil Nadu State, within a period of five years with the assistance offered by the UNICEF in the forms of rigs, vehicles and other equipments. It was proposed to drill 2000 bore wells during the three years period from 1971-72 in all the Districts of Tamil Nadu as the first phase of the programme. So far 1575 tube wells have been drilled out of which 1367 tube wells have proved to be successful. 947 handpumps and 18 power pumps have so far been erected. Under this programme a total No. of 706 villages have been benefitted at a total cost of Rs. 70.6 lakhs. Under the programme there are 13 rigs supplied by UNICEF free to Board and 2 more are expected shortly. The Board has since procured 20 rigs from abroad at a cost of Rs. 109.5 lakhs and 3 more rigs from other sources.

For the current year 1974-75, Rs. 200 lakhs for endemic villages,

Rs. 200 lakhs for scarcity villages Rs. 50 lakhs for the villages selected under the UNICEF Programme have been provided. The following physical target is set out for the year :—

- I. 1500 Nos. of 4½" bores with pumps under UNICEF Programmes.
- II. Various kinds of Water Supply works in 1041 No. of Endemic villages are proposed.
- III. Various types of works for 600 villages are also to be executed under scarcity Area Programme.

During the year 1972-73 the expenditure incurred was Rs. 1100 lakhs and during the financial year 1973-74 the Board spent 1437 lakhs, all this in the vast financial constraints. During the first year of the Vth Five Year Plan the outlay proposed for 1974-75 for the execution of Veeranam Water Supply Scheme and Rural Water Supply Scheme and Sewerage Scheme including the Corporation of Madras is Rs. 14 crores.

The future programme of the Tamil Nadu Water Supply and Drainage Board during Vth Five Year Plan is given as follows :—

	crores
Urban areas other than Madras City	25.50
Madras City	27.40
Rural Areas	25.00

Annual Plan for 1974-75 is as follows :

Urban areas other than Madras City	5.62
Madras City	5.50
Rural Areas	2.50

Additional amount allotted by Chief Minister :

Urban areas other than Madras City	1.00
Madras City	2.00
Rural Areas	3.00

Total Annual Outlay is Rs. 16.61 or Rs. 17.00 crores.

CHIEF MINISTER ASSURES

ALL-OUT HELP TO INDUSTRIES

Inaugural address by Dr. M. Karunanidhi, Chief Minister of Tamil Nadu, on 10th July, 1974 at the 64th Annual General Meeting of the Southern India Chamber of Commerce and Industry, Madras.

The President in his opening address, highlighted many of the problems that we are facing to-day. The problem of inflation, high oil prices, power shortage, the bad influence of black money, scarcity of raw-materials and above all, the population growth have been brought to our notice. No doubt, the problem of inflation requires urgent attention in this country to-day. We cannot dismiss this merely because this is a world-wide phenomenon. I fully agree that our economy may not bear even a little dose of inflation and therefore, drastic steps will have to be taken to check the inflation. The more we delay the higher will be rise in prices. Though the State Government have been subject to strict financial discipline by the Reserve Bank of India, the Centre is not subject to such financial discipline and it continues to rely on its deficit financing operation. This deficit financing, added with the slackness in the agricultural and industrial fields due to the unfavourable monsoon, power-cut and shortage of raw-materials, the problems are still complicated. The result is the galloping inflation which we have been experiencing for the past two years. The large amount of black money which is used by the speculators for non-productive purposes rather helps to increase the inflationary trends in our country. Hence some drastic steps have to be taken to check inflation and black money. But, I cannot go without mentioning that the State Government can do very little in this matter. We only hope that the Centre would take effective steps to control inflation and eliminate black money as early as possible.

Disappointing Ordinances

Regarding the price rise and inflation, the Centre has brought forward two Ordinances. But it is a great disappointment to me that no effective steps have been taken to eliminate black money or to touch the areas where black money is in abundance. These Ordinances

in theory may be very sound ; but there are several practical details in which we wish they had consulted the State Governments. We must have a total attack on the problem of inflation. Merely tackling wage increases and dividends is not enough. Unfortunately, fiscal and monetary policies are the responsibilities of the Centre, while the burden of high prices and increasing wage bills have to be borne by the States.

I now come to the greatest constraint at present to industrial development, namely, power supply. As you are all aware, our State is at present passing through a grave power crisis due to the delayed onset of South-west monsoon. The South-west monsoon has been erratic; there has been insufficient rain not only in Tamil Nadu but in Kerala and Karnataka also, with the result that even in Karnataka, a 60% power-cut has been imposed and that Kerala has been forced to suspend power-supply to us. This difficulty on power front has been highlighted by Thiru Narayanaswami. The fact is that Tamil Nadu is heavily dependent on hydel power. We have also fully utilised our rivers. We are also situated far away from the coal-fields. Therefore, in the long run additional power generation can come only from nuclear power and lignite. This requires a massive investment which we have to get from the Centre. Due to the strong pressure from us, Kalpakkam expansion has been sanctioned. The most important project in which we are now interested is the Neyveli mine cut expansion which promises us thousand mega watt of power. It is necessary for the entire industrial community of the State and indeed the people of the State to press for this Project. As a most important life line for the industrial growth in the future, it would not be possible to obtain the benefits of our development even in the 6th Five-Year Plan, unless the scheme is quickly sanctioned.

I would like to point out that the credit squeeze is implemented in a manner which does not take into account the needs of the industry. To deny or delay the credit for productive purposes is a short-sighted policy. By doing this we will only

be adding to shortages and high prices. This is a self-defeating approach.

More Responsibilities with lesser revenue sources for States

As regards the burden arising from additional sales-tax of 10 per cent on assesses with a turn-over exceeding Rs. 10 lakhs, I wish to say that the responsibilities of the State Government are many, but the sources of revenue left to them by the Centre are limited. Not only that ; the sources are not elastic. The numerous welfare schemes which we have been implementing in Tamil Nadu have no parallel in the rest of the country. I am happy that Thiru Narayanaswami has praised the schemes which our Government are implementing. We can finance such schemes only through taxes. Such taxes have also to be levied only on those who can afford to pay. If this is understood, I am sure, that the business community will reconcile itself to this and other levies.

Coming to the rise in oil price, the rise has contributed to a general increase in the prices of all commodities that need oil as fuel for their manufacture. It has also increased the general cost of road transport. We, in the Government, are trying to do our best to ensure most efficient use of oil and also to ensure equitable supply of essential oils like furnace oil, diesel oil, etc. Due to the shortage of furnace oil, the Centre has decided that there is need to cut the consumption of furnace oil and also to regulate the distribution of furnace oil, both to the large-scale and small-scale sectors. The distribution of furnace oil to small-scale industries has been entrusted to the State Government and arrangements have been made to set up a machinery for equitable distribution of furnace oil to small-scale units. I can assure you that the Government will try to ensure a proper distribution of furnace oil to small scale industries and have also moved the Government of India to ensure adequate supply of furnace oil to large industries in the State.

Why we plead for more powers for States ?

As for the delay in industrial licensing and need to avoid such

delays, I fully concur with the President's views, since any delay in the execution of a project means an escalation in the cost of project and also loss of valuable production. India is a vast country in which conditions vary from State to State. That is why, we insist that the State Governments are really in a position to appreciate the needs of their States for proper industrial development. Only in this context we plead for more powers for State Government to start industries and diversify production. This will also help to reduce the delays caused by the over-centralisation of powers in New Delhi. I would like to reiterate that the delegation of powers to the States for issuing industrial licences is the only salvation to the problems of delays in industrial licensing. As long as powers are not delegated to the States, there is very little that we can do in this sphere.

The problem of population is indeed a grave one. The Government is doing its best to tackle this problem through an intensive family planning programme and this programme has had the marvellous effect of reducing population growth rate in Tamil Nadu. During 1961 to 1971, population growth in Tamil Nadu was 22% as compared to all-India average of 24%.

It has been mentioned that industrial production is affected in our country because of non-availability of raw materials. The President has mentioned in his speech about the difficulty faced by the Cement Units with regard to the supply of coal. The State Government has on many occasions taken up this matter with the Union Ministries concerned and only on its intervention, the supply position of coal to the cement units has improved. We are keeping constant watch on the supply of coal to cement units and I can assure you that the Government will do its best to improve the supply of coal to the cement units.

The supply position of raw materials like iron and steel, red-phosphorous, aluminium etc. is not encouraging and we are trying our best to supply these raw materials adequately to industries.

Successful Industrial Growth

We have been trying our best to provide all infrastructure required for the development of the industries in our State through various organisations like SIDCO, SIPCOT, TIDCO, TIIC, etc. We have been successful to a large extent in our efforts to promote industrial growth in the State both in the large scale and small scale sectors. We are at present engaged in a special Census

of small scale industries under Centrally-sponsored programme and once this is completed, we will be in a position to know all the aspects of the working of small scale industries in our State. I am sure that this will help to a greater extent in improving our planning for the development of small scale industries. Recently, we have transferred all the industrial estates to the Small Industries Development Corporation with a view to avail the institutional finance for further development of these industrial estates by SIDCO. I think it is appropriate for me to mention about the successful rehabilitation of the six textile mills in the State. I am glad to inform that all the mills taken over by Tamil Nadu Textiles Corporation have been rehabilitated and modernised in a record period and most of them have started earning profits even in the first year of their operation. That is why, we have been pleading for the continued management of these mills by the State Government, while the Government of India has been wanting to take over the management of these mills and we are very firm in our views that the management of these mills will continue to be with us in view of the excellent performance of the mills under our management.

More and more cooks But Less and less food

INDUSTRIALIST'S LAMENT OF POWER IMBALANCE IN THE COUNTRY

The country has been in the grip of another type of energy crisis—namely inadequacy of electric power. Practically all States except Kerala have been confronting the spectre of power shortage. We do not know why power generation programmes never got under way for a whole plan period and why industry no less agriculture, were asked to bite the bullet of inadequate power supplies. We have a Central Water and Power Commission which is charged with the duty of giving direction and guidance on such matters as generation and distribution. We have the Planning Commission blue-printing our needs of all our requirements. We have the State Electricity Boards which formulate projects for sanction, be they hydel or thermal and send them up to Delhi. The C.W.P.C. could have given the green signal to at least such of them as they considered viable. The Tamil Nadu Electricity Board sent up more than a dozen projects for sanction over a short period. It is understood that even as the power crisis snowballed in the country, the C.W.P.C. had not finished scrutinising the projects, much less recommended them to the Planning Commission. I am happy that some of these projects have since been sanctioned.

Economic Consequences of Centre's inaction

I have often heard it declared by assorted people in Government that sections of the business community were anti-Plan, as though being anti-Plan could lead anybody anywhere. The business and entrepreneur communities are indeed somewhat impatient with a system of planning under which decisions are delayed dishearteningly and projects stay under paper weights, while their costs keep going up. When we reflect on how project costs have gone up from year to year and what even a three year delay means and involves, in terms of additional domestic and foreign exchange costs.

Is it too much to hope that dithering and decision-side-stepping, such as occurred in power generation would cease? I would like to add that among the many consequences of the power shortage is the marked checkmating of entrepreneur effort—meaning that many industries were left unpromoted and many expansions of existing units held over. The economic consequences of inaction on the power front by the Centre are reflected in inadequacies and high prices of consumption goods and durables, that are causing so much distress to the people and corresponding concern to all those involved in production.

Spoiling by coming into one another's way

We are told that a new Statutory Body charged with the exclusive duty of establishing power generation units is to come into being. We already have the Central Water and Power Commission. We have the less well known Central Electricity Authority, functioning under the Electricity Act 1948, though the exact part it is playing in this power set up is obscure. We have the Planning Commission's Cell on power and we have the State Electricity Boards. We have fixed a power target of 16,550 megawatts for the Fifth Plan against our subsisting generation capacity of about 18,700 megawatts, meaning an enhancement programme of 90% spread over sixty months or an addition of 275 megawatts a month. The progress of our power growth over the plan years has been ranging from 10.52 per cent to 12.80 per cent per annum, with the maximum being achieved in the Second Plan period and the Fourth Plan achievement being the lowest. There can be no objection to creation of one more Statutory Body and it would be the fifth so long as it can be clothed with the authority to cut through the many check-posts and it goes ahead and implements projects as

they emerge from drawing boards. In the past, Statutory Bodies tended to proliferate at no small cost to the tax-payer with very little being known of what they were doing to help the country's development. What worries the citizen is not only the cost, but that the personnel manning these bodies, in their effort to establish their prestige, their authority and not infrequently their superior technological competence, came in one another's way and implementations were put off. Meantime we have the per capital power consumption figure stagnating at around 95 kilowatt hours; against 89 times as much in Canada, 75 times in United States, 41 times in Great Britain and 27 times each in the U.S.S.R and Japan and more than twice as much in a vast cross section of developing countries.

The late Franklin Roosevelt in the noble effort to pull the U.S. out of the Great Depression created a small body called the Tennessee Valley Authority, which with incredible speed put up hydel dams and thermal stations in one of the then-most-backward of U.S. Southern States—that still holds the record as the largest of power complexes in the world—with 48 dams and ten steam units, and 12,000 miles high voltage transmission lines. In 1962 the system produced 65 billion kilowatt hours of energy at the world's lowest cost, producing an operating revenue of 252 million. The Kingston steam plant, which I visited in 1963, had a plant capacity of 1,600,000 kilowatts—and I believe it is still the largest power station in the world. All this was achieved by a compact Board of Directors, whose names do not appear in any one of the many attractive T.V.A. hand-outs. Nearer home, it should not be beyond our capacity to achieve our Fifth Plan power targets, if fewer vetoes are involved, technical decisions are speedily decentralised and delays in financial scrutiny do not convert a viable project into a non-viable one—through sheer increase in capital outlays. I should not have dwelt at this length on

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We extend to members who really need.
Working in the Co-operative Sugar, we greet
To consolidate the gain we already made.

power, but for the far-reaching impact of recent shortages on production, on public revenues, promotional effort, on employment, on export and lastly on entrepreneur psychology.

Statistical understatement of distress.

The widespread distress caused by high prices and nonavailability of consumer articles can only be assuaged by measures that would enlarge and encourage production in the short run. The increase in wholesale prices by 22.7% which occurred in the twelve months of 1973/74 was the highest rate in recent years. The aggregate of the increases

that occurred during the prior four years 1969/70 to 1972/73 was 23.1% which was nearly equal to the rise that occurred last year. A recent comparative study of cost-of-living rises in selected developed and developing countries indicates that with 1963 as base year, West Germany suffered an increase of 48.4% in 1973, while U.K. bore up with an 80.2% increase, Pakistan with a 97% increase and India with a 140.6% increase. All such statistics are based on wholesale prices, with consumers having to pay more for retail purchases. No wonder the consumer is sometimes exasperated by what he regards as statistical under-statement of his stresses and strains.

We would like to believe that fresh links would be forged quickly—but Governments keep telling us, the power situation would improve only in four or five years from now—which means that our growth rate would remain inhibited. I must pay a tribute to the Tamil Nadu Government for the manner in which they have been husbanding their power resources, despite poor and critical hydel water heads on one side and capricious coal supplies to our thermal stations on the other. The industrial units in the State have done tolerably well during the year, considering power, raw material and transportation inadequacies—with textile and sugar units reporting fine performances. The commercial and industrial community in this State has maintained close and cordial liaison with the Tamil Nadu Government, which has shown lively appreciation of business and industrial problems as they arise. The Paison Committee with the State Electricity Board is an instance in point.

—Presidential speech of Thiru. S. Narayanaswamy, M.L.C., South Indian Chamber of Commerce and Industry at the 64th Annual General Meeting held on Wednesday the 10th July, 1974.

ALL TIME LOW IN INDUSTRIAL PRODUCTION

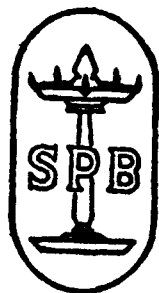
During the year 1973, the Industrial Growth Rate came down below one per cent—which was an all-time low since we started our Five Year Plans. It is true that power shortage, the consequent propensity for the entrepreneur to draw his horns in low rates of saving, reduced flow of risk capital to industry, high interest rates and shortages of important raw material accounted in the main for this some-

what unflattering record. If we are to draw any lesson from this, it is that our infra-structure needs to be vastly strengthened in terms of power fuel, transport, communication, water supply and shipping; all of which form links in the chain of industrial development. The saying goes that the strength of a chain is the strength of its weakest link. Power proved to be the unpredictably weak link in our chain last year.

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House-Sites ^{H21} for Rural Workers Pace-Setting Programme Completed in Record Time

The scheme for provision of house-sites to landless workers in rural areas which was put into operation in Thanjavur district initially, has helped 33,692 families acquire their own house sites out of more than 1 lakh families in the district who are eligible for the benefit. The land utilised for this purpose was of the order of 842.3 acres spread over 1200 villages. The work was taken up and completed on a "war footing." The details of implementation of the scheme is a fore-runner and a pace-maker for the whole country.

The following were the guidelines issued for speedy implementation of the scheme.

Each family consisting of husband and wife and sole dependents, none of whom owned a house site of their own, are entitled for a house site. Major children living in joint families are enumerated as separate families. Persons already owning "Kudiyiruppu" or who have encroached upon unobjectionable poramboke lands and put up huts or houses are not eligible. Harijan families living in the villages are also included. "Narikuravar" families, one of the Scheduled Tribes—a nomad or gipsy clan, who apply for house sites should also be included in this scheme. To the total number of families enumerated an addition of 10% is made to provide for marginal increase of population or omissions.

Enumeration

Each Revenue Inspector was expected to enumerate one village per day, or 25 villages per month

and the target for a Tahsildar was fixed as 100 villages per month. This was done in the presence of Village Officers and Panchayat Presidents whose signature should be obtained and the list of the beneficiaries prepared. This is done to avoid complaints of omissions later on. A register of eligible persons is maintained in a form prescribed by the Government.

Selection of Site

(a) To the extent possible, elevated, dry, even ground which is fit for immediate construction of houses should be selected.

(b) As far as possible the site selected should be in close proximity to the present habitation. Wishes of the beneficiaries as well as the willingness of the owners to part with the land may be complied with wherever feasible.

(d) Acquisition from small pottars is to be avoided.

(e) In cases where wet fields have to be acquired, an estimate of cost of filling of land should be obtained from the engineering staff and enclosed along with the provisional valuation statements.

(f) The suitability of the site for the construction of houses should be certified by the Junior Engineer of the Housing Board.

Mode of Selection

The selection of the site was done jointly by a Junior Engineer and Tahsildar at the rate of 2 sites per day (viz. 2 villages per day), keeping in view the guidelines laid down. The Tahsildar will also explore the availability of any Government land

and its suitability. If private land is selected, a certificate stating the Government poramboke lands are not available, is given. As most of the lands selected involve land acquisitions proceedings, the Tahsildar prepares the Sub-division records and gets them scrutinised by the Head Surveyor. It is proposed to invoke the urgency provisions of the Land Acquisition Act, the Sub-divisional records, along with 4 (1) Draft Notification, Draft Declaration under Section 6 and Valuation Statements are all sent together.

The target for land acquisition proposals for Tahsildar is fixed at 40 nos. per month. The Diaries from the Tahsildar and Revenue Inspector are being sent to the Collector fortnightly.

A ceiling of cost of land normally Rs. 5,000 per acre is fixed for lands acquired. In the selection of site, this factor should also be taken into consideration. Land values are fixed on the basis of the Land Acquisition Act.

Particulars of the Scheme

Although in the Thanjavur District there are more than a lakh of families eligible for allotment of house sites, in the first instance, it was proposed to take up the scheme for 33,692 families who were enumerated by a very rapid survey. The land required for the purpose is 842.3 acres. 1,200 villages were involved.

Hence, the works were started and proceeded on a war footing.

The cost of development is restricted to Rs. 150 per family as prescribed. The extent of land allotted to each family is only 2 cents with provisions of $\frac{1}{2}$ cent for common purposes. In an acre of land, 40 families are accommodated.

Development Works

The development work consisted of:

- (i) Filling or cutting of earth wherever necessary,
- (ii) Providing 8' gravel road of 6" thick,
- (iii) Providing demarcation stones,
- (iv) Light jungle clearance,
- (v) Removal of trees,
- (vi) Providing earthen drains,
- (vii) Providing hand pumps or bore pumps or wells for water supply,
- (viii) Providing name board, etc.

The following steps are followed in each case :

(a) House sites with an extent of 2 cents each are provided. Roads were demarcated and the lands for common purpose were also similarly demarcated.

(b) Out of 13' width of road, 8' path way is provided with gravel soling 6" of thick. Earthen drains were provided on either side of the roads.

(c) The plots were raised to the approachable road levels by earth filling to the extent required as governed by existing and formation levels. For most of the plots, block levels were taken. The earth was filled up in layers and was consolidated by hand rollers. The gravel road was also consolidated by rollers.

(d) Each group of sites was provided with water supply facilities either with hand pump, bore well or open masonry well. For augmenting of water supply in certain sites, ground level reservoir was also built.

(e) The sites were identified by name boards indicating the extent of the sites and number of beneficiaries and full particulars of the site.

(f) In certain sites approach roads were also provided with the consent of the Panchayat.

(g) Culverts wherever found necessary were built as a part of the road work.

(h) After completion of all the development and amenities work, six copies of lay-out plan as executed were prepared and given to the Collectorate Office for them to prepare documents for transfer of ownership rights, and handing over of the sites to the beneficiaries.

(i) A fixtures register was maintained indicating the number of demarcation stones, name boards, and pump, well, etc., which have been handed over to the Village Headman.

Achievements

(i) No. of Plots developed	35,000
(ii) Area completed	873 acres
(iii) Amount spent	
On development	Rs. 44 lakhs.
Works under development	Rs. 6.44 lakhs
Cost of acquisition	Rs. 25.07 lakhs.
(iv) No. of villages covered	1,120.

According to the Government of India Scheme, the extent of land allowed for each family is only 2 cents. For rural families who rear domestic animals and fowls and also require space for drying their produce, it is felt that this extent is too small and inadequate. A minimum of 4 cents may be allowed in future schemes. It is understood that in Kerala 4 cents have been allotted.

Under the present scheme, house sites are allotted to the landless families who are expected to put up their own houses. The economic condition of the rural workers is not such as to enable them to build houses of their own. It is therefore suggested that there should be an integrated approach to housing whereby the beneficiaries could put up pucca houses with the financial assistance of the Government. It may be stated here that the newly formed Harijan Housing Corpora-

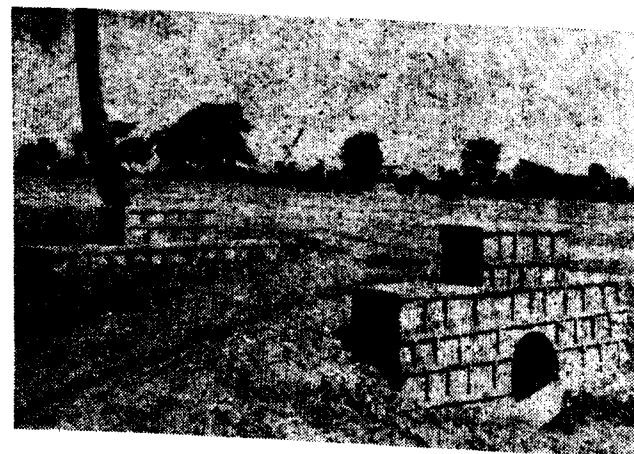
tion of Tamil Nadu has been utilising the sites developed under this scheme for its housing scheme.

At present a ceiling of Rs. 150 has been fixed for development of site. Within this amount, development works such as filling up of low lying areas, formation of roads, water supply, drains and culverts are included. Though in some areas the sites could be developed within the ceiling limits of Rs. 150 there are areas where the cost of development goes up to 575 per family as shown below. But development is not complete without providing electricity, common bath rooms, common cattle sheds and reading rooms. The ceiling cost should be enhanced to enable the provision of these essential amenities.

The above scheme has since been transferred to the State sector from the Financial year 1974-75.

CALENDAR OF EVENTS

1. Scheme formulated by the Central Government—December, 1971.
2. Proposals sent by the Tamil Nadu Housing Board to the Union Government—February, 1972.
3. Scheme sanctioned by the Central Government—May, 1972.
4. The arrangements for execution of the scheme finalised—August, 1972.
5. Land acquisition work started—September, 1972.
6. First batch of land acquisition work completed and development work started—May, 1973.
7. Intensification of the scheme—December, 1973.
8. Completion of the project—March, 1974.



House-sites for rural workers are developed plots with proper drainage. The above culvert was built for the Kurvadipatti site in Thanjavur dt.



Another house-site area showing side-drains, with markings for roads at Ramanathapuram in Thanjavur dt.

Millions live in villages. Most of them do not own houses. Some of them own houses, but they are either far inadequate or vulnerable to hazards of fire or floods. The Government, which stands dedicated to 'Rural Uplift', desires to improve the living conditions of the villagers, extending facilities to build houses for them, both by the Government and by the people themselves. The Village Housing Project lays greater stress on houses being built by the owners themselves availing loan facilities from the Government and adding to a small degree their own efforts and resources.

The Rural Housing Cell inaugurated in the year 1958, has been functioning continuously for the last 15 years. Although the grant of loan has been on very liberal terms, the scheme had not been adequately availed by the public. It can be seen from the figures given below that the physical achievement and financial outlay had not been substantial. Over a period of 14 years i.e. till March, 1973, only 3704 houses have been completed availing loan amounting to Rs. 120 lakhs as detailed below :—

Year	Amount spent	Number of Houses constructed.
1960	2.50	—
1961	8.53	131
1962	7.27	555
1963	9.71	536
1964	9.56	521
1965	5.59	235
1966	4.14	75
1967	5.35	58
1968	8.10	214
1969	13.29	200
1970	6.24	218
1971	9.03	240
1972	13.56	309
1973	20.22	412
1974	72.00	1,800
1975	100.00	2,500

T.A.—4A

WORK OF RURAL HOUSING PICKS UP MOMENTUM

BIG STRIDES IN LAST 7 YEARS

Conscious of the enormous need for housing in villages and of the inadequacy of the plan allocation, the Chief Minister sanctioned Rs. 50 lakhs from the Welfare Fund with a programme to construct 1,200 houses from the fund. The plan allocation for the year 73-74 was also increased to Rs. 27 lakhs and further revised to Rs. 46 lakhs. Thus, very nearly a crore of rupees has been allocated to further the programme of Rural Housing Programme to complete 1,800 houses in the year 73-74. The allocation for the next five year plan is also quite promising. Already a sum of Rs. 100 lakhs has been indicated for the year 1974-75 which is hoped to be substantially increased by widening the scope of Village Housing Project Scheme. It is hoped that about 2,500 houses will be completed in 74-75.

The need of housing in rural areas is very large and there is a long way to go. So a vigorous impetus has been given to this problem in addition to providing various incentives such as liberal loan facilities, engineering specification in the shape of model type of houses, etc to the village folk so as to lure them to avail themselves of the benefits of the scheme in abundance.

Liberal Loan Facility :—This scheme is operated throughout Tamil Nadu excluding Municipal areas. The farthest village from the town is the most welcome. The scheme does not discriminate any class or community. The conditions to be satisfied by these, who opt to avail loan, are very liberal and simple. Loan can be availed for new constructions or improvements. The Scheme is helpful when people are rendered houseless in times of flood and fire hazards.

The applicant shall own a piece of land suitable for house construction. The extent of land shall not be less than 5 cents and in exceptional circumstances not less than 3 cents. The size of land (i.e. length and breadth) shall accommodate a plan acceptable to the department. The land where the house will be constructed shall be free from encumbrance. The applicant shall be capable of repaying the loan over a period of not more than 20 years, either in monthly or annual instalments. The applicant shall raise the building upto plinth level and produce nonencumbrance certificate to become eligible to receive the first instalment of loan.

The maximum amount of loan is Rs. 4,000/- per individual. The rate of interest chargeable is 6 % which is the lowest levied by the Government. The period of repayment is not more than twenty years. Any one who desires to opt for a shorter period of repayment can do so. Loan is disbursed in four instalments. The loanee is expected to plough in his/her resources to raise the building upto floor level which is not less than a foot above the proposed ground level around the house. At this stage the first instalment of Rs. 1,000/- is disbursed. Availing this amount the loanee may raise the building above floor level. When the construction reaches the level of window, the second instalment of Rs. 1,000/- is disbursed. This enriches the loanee sufficient and more, that he

raises the construction to roof level in a few days. At this level, the third instalment of Rs. 1,500/- is disbursed enabling him to buy roof timber, tiles, etc and engage labour for fixing them and plastering outside of walls. Then the fourth and final instalment of Rs. 500/- is disbursed with which the loanee completes plastering, inside flooring, white washing, colour washing, painting, etc.

Process for Repayment of loans :

The loanee is expected to complete the building within a period of one year from the disbursement of first loan. The repayment will be scheduled to commence eighteen months after the disbursement of the first instalment or six months after the disbursement of the final instalment whichever falls earlier.

The loan is disbursed by the respective Union Commissioner. The first instalment is disbursed only when the prospective loanee produces legal documents to establish ownership of land and also no-encumbrance certificate to establish that the site under reference is free from encumbrance. The loan shall be repaid in a period not exceeding twenty years, from the day scheduled for repayment. Repayment of loan is collected by the Tahsilder of the Revenue Department, and accounted for.

Any loanee failing to abide by the conditions cited above will be subjected to enforcement of penal action and summary recovery under "Revenue Recovery Act".



Two of the experimental houses constructed with pre-fabricated shell type of roofing.

TECHNICAL HELP

Type designs are available with this department. The loanees may avail them free of cost. Should they desire to have their own plans, they may furnish them to the section Officer, Rural Housing Cell of the area and get them approved. The plan should be got marked on ground only by the staff of the Rural Housing Department., and execution should follow plans strictly. Subsequent additions and alterations during the course of construction shall be got approved by the Section Officer, Rural Housing Cell prior to execution.

The foundation particulars regarding depth and width and nature of building materials to be utilised etc., will be advised by the staff of this department taking into account the site and local conditions. By and large, the loanees are advised to use minimum quantity of cement, restricting its use only to damp proof course and plastering of walls & floors, and to eliminate use of steel. Brick, Rough Stone, Mud Mortar, Lime Mortar and Country Wood shall be liberally used.

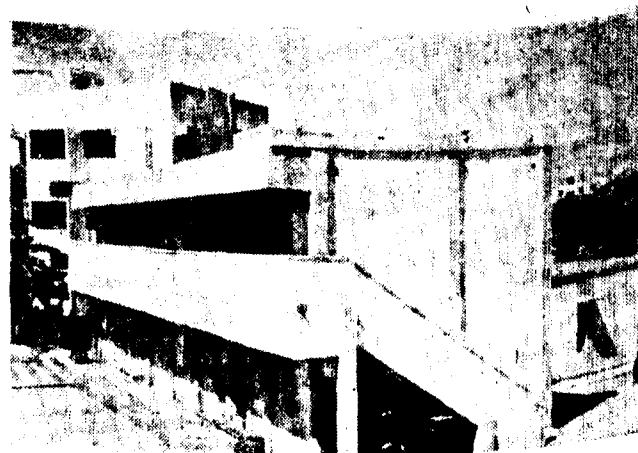
The construction shall be undertaken by the loanees themselves. The Rural Housing Department offers technical guidance free of cost. Model houses may be constructed by the Rural Housing Department and made available to people who are willing to buy them.

Any one who desires to avail loan under this scheme shall apply to respective Panchayat Union Com-

missioner, who scrutinise correctness of the particulars furnished by the applicant, with the help of the village officers, and recommends the same, if satisfied, to the Divisional Engineer, Rural Housing Cell, Madras, marking a copy to the respective District Collector. The Divisional Engineer, Rural Housing Cell then accords 'Preliminary Approval' authorising the applicant to go ahead with the construction. The applicant shall approach the Section Officer and get his plan 'approved and marked' on ground by the Section Officer, Rural Housing Cell, and undertake construction. When the building is raised upto ground level, the Section Officer, Rural Housing Cell and/or the Panchayat Union Commissioner will report to the Divisional Engineer, Rural Housing Cell, requesting sanction of loan. The Divisional Engineer, shall, then issue 'proceedings' sanctioning loan authorising the Panchayat Union Commissioner to disburse the same.

The Panchayat Union Commissioner receives certificates from Section Officer, Rural Housing Cell at different stages of works i.e., the first at floor level, the second at window sill level, the third at roof bottom level and fourth when the roof has been fixed and outfaces of walls plastered.

Recovery of loan is effected over a period of 20 years, charging an interest of 6 % only per annum. Recovery is commenced eighteen months after the date of payment of first instalment or six months after the date of final instalment whichever falls earlier.



A block of 8-in-1 tenements, gunited pre-fabricated roof and wall panels have been adopted.

HEAVY FERTILISATION

Not necessary for high yielding variety paddy

Our rice cultivation practices are handed from generation to generation for many centuries. They are all based upon tall rice plants; our practices must be re-oriented to the Dwarf varieties, declares the author in this article.....ed.

The Dwarf rice varieties are distinctive for their high yield potential and for high responsiveness to fertilizers. The latter of the attributes unfortunately has been over-emphasized in the early days in order to establish a good credibility for HYV programmes. It is, therefore, accidental that heavy fertilization and high yielding varieties got inadvertently linked in the communication, although from the early days of research with dwarf rice varieties, it has been clearly established that dwarf varieties outyield the locals at all levels of management. The farmer does not, therefore, suffer loss in yield by preferring a dwarf variety even when he has no access to fertilizers. He might, however, fail to recognise the difference between low and high yielding varieties grown under unfertilized conditions.

Performance under native fertility :-

A vast area of monsoon season rice is grown under native fertility. In such situations, mostly local varieties are grown. Such areas suffer not only from deficiencies of nutrient elements (mostly nitrogen), but also from the deficiency of plant type. During the years 1966 to 1972, a large number of agronomic trials (wherein one of the treatments was "Zero-nitrogen") were laid out at several locations in India, at the instance of the All-India Co-ordinated Rice Improvement Project.

From these trials it is evident that it is possible to produce most frequently 2-3 tons/ha, less frequently 3-4 tons/ha, and exceptionally 6 tons/ha, even under native soil fertility conditions in a majority of the rice growing areas. The range in yield is not as much due to differences in native fertility as due to differences in management, as would be evi-

dent from good yields at Garikapadu—a location with light coarse textured chalky soils, and relatively lower yields in Sabour, Dholi and Rajpur—all with better soil type and fertility. The data from the Nitrogen variety Trials, AICRIP, 1971, likewise, clearly establish that N-response at different locations is more dependent upon cultural practices rather than on nature of soil fertility.

Cultural practices :-

It is erroneous to expect that a good variety plus abundant supply of fertilizer will result automatically in high level of production. A wide scatter of yields realised in the same environment is clear refutation of the above expectation. In the spread of high yielding varieties, greater emphasis is given to rates (level) of fertilizer application rather than the more important elements of management which permit an efficient use of added fertilizer and of native soil fertility in order to achieve higher yields. For example, the age of seedlings,

depth of transplantation, top dressing the fertilizer on drained field etc. are not emphasized while the "recommended dose of fertilizer" considered inviolable; often any reduction in fertiliser dosage is considered perilous. The effects of these practices are evident in the Management Display Trial conducted at AICRIP in rabi 1972 with Sona (IET 1991). In this experiment, all plots received the same level of N (150 kg/N/ha) and the crop was free of major pest and disease problems to such an extent that the yield differences among treatments (table 1) were largely due to the cultural practices adopted.

It is possible to bring about 69% increase in yield just by the improved cultural practices. Thus a farmer who adopts a new variety as well as high levels of fertilization but neglects the cultural practices, loses about 4 tons/ha.

N-responsiveness :-

The rates of fertilization would naturally be guided by the magnitude of response. Poor plant type

TABLE 1

Grain yields (kg/ha) of Sona (IET. 1991) under different management levels, AICRIP, Rabi 1972.

Treatments	Grain yield (kg/ha)	% increase in yield over control)
Old seedlings; deep planting; wide spacing CONTROL ..	6,046	—
Young seedlings ; Deep planting ; wide spacing ..	6,943	15
Old seedlings; SHALLOW planting; wide spacing ..	7,791	29
Old seedlings ; SHALLOW planting; close spacing ..	8,255	37
YOUNG SEEDLINGS; SHALLOW PLANTING; Wide spacing..	9,033	50
YOUNG SEEDLINGS; SHALLOW PLANTING; CLOSE SPACING. ..	10,193	69

varieties do not stand high rates of fertilization and even at moderate N-levels (20-50 kg N/ha) the response is in the order of 15 kg grain/kg. of N, as opposed to the dwarf good plant type varieties with nearly double the response. Since dwarf rice varieties keep on responding even beyond 100 kg N/ha, it has become customary to recommend and practice higher rates, overlooking the fact management of added fertilizer and associated cultural practices are even more important than the rate of N-fertilization adopted.

The choice of varieties (dwarf high yielding) which respond to fertilizers and of practices which interact favourably with the chosen level of fertilization would, therefore, constitute the primary strategy to more effectively use this scarce and costly cash input.

Multilocal data on N-response of dwarf rice varieties grown under graded levels of nitrogen (0-200 kg N/ha) bring out the wisdom of management of dwarf varieties at moderate levels of fertilization until other skills in management of these varieties are perfected. The grain yield data from several Nitrogen variety Trials (AICRIP) conducted with some dwarf varieties over several seasons are summarized so as to indicate the yield under unfertilized conditions under moderate N-level.

In most cases, no more than 20% yield is "sacrificed" by choosing a moderate N-level in contrast to the maximum yield obtained at 100-200 kg N/ha. In other words 30-50 percent of the N-fertilizer applied is contributing to 80% of the grain yield. The appropriateness of adopting moderate fertilizer dose to dwarf rice varieties would thus be self-evident.

The above summarization also clearly illustrates that in two locations such as Coimbatore and Aduthurai and with the prevailing practices, maximum possible yield is already obtained at 50 kg N/ha rendering higher rates unjustified. This does not imply that rates of N-fertilizer over 50 kg/ha are not profitable. They really are profitable in locations such as Coimbatore and Aduthurai. But even here, a farmer who is faced with shortage of fertilizer would be well advised to curtail the rate of N-fertilization and improve his management practices

rather than limit the area under high yielding varieties.

Norm of crop growth

The dependence upon tillering is greater in kharif than in rabi for comparable yield targets. The norm state of the crop is best determined by the density of tillering in vegetative stage, since the loss in tillers is hardly compensated by better management during ripening period. It is, therefore, essential that every management practice be utilised for the promotion of tillering which is so strongly correlated with yield. Close spacing, young seedlings, shallow planting, maintenance of thin film of water during tillering period, efficient nitrogen management and avoidance of nutritional deficiencies of zinc and phosphorous—are all aimed at securing a good density of tillering. **These practices assume special significance when the level of fertilization is low and/or when the climatic environment is not as favourable.**

The choice of dwarf varieties is inescapable. Even among the dwarf, a variety with the highest yield potential is to be chosen if the objective is to make more efficient use of a moderate level of applied fertilizer. The varieties of 130 day duration exhibit the highest yield potential, and hence wherever possible, the choice should be from this group such as Jaya, or Sona (IET 1991). If the duration of 130 days is unrealistic for other reasons, the variety with the highest yield potential in appropriate duration group should be chosen, e.g.,

- 150-160 days—Jagannath
- 140-150 days—Vijaya
- 130-140 days—Jayanthi (IET 1039), IR.8
- 125-130 days—Jaya, Sona (IET 1991)
- 115-120 days—Ratna, IR.20
- 100-110 days—Cauvery, Bala.

Close spacing of seedlings, preferably with young seedlings of 4-6 leaf stage, and shallow planting are essential. While the dwarf varieties, in general, perform equally well over a wide range of spacing of 10 cm x 10 cm. to 30 cm x 30 cm. it is essential to plant as close as possible (say, 10 cm x 15 cm) under moderate N-level management. Close spacing ensures adequate density of tillers, leads to a better exploitation of native fertility and ensures a good root spread to maxi-

mise the nutrient uptake and minimise the losses of added fertilizer.

No basal fertilization is necessary when the high yielding variety is programmed to be managed under moderate N-level. In situations where severe phosphorous or zinc deficiency is noticed, the basal application of fertilizer could be practised to correct these deficiencies. Basal application of N-fertilizer runs the risk of losses since the nutrient uptake in transplanted rice does not accelerate until 2-3 weeks after planting and during this period, losses of added N-fertilizer could be considerable.

A single topdressing with 40-50 kg N/ha either as urea, ammonium sulphate or even ammophos should be given approximately 10 days before flowering—which would be approximately 30-35 days after planting for a variety of Jaya and Sona duration; and 20-25 days after planting for a variety of Ratna duration. By the time the topdressing is programmed, the crop would have fully drawn upon native fertility and might develop slight pale colour, but would have developed a good root system so as to absorb most of added N-fertilizer. In the experiment conducted at AICRIP on moderate N-management, it has been possible to secure over 70 kg. grain/kg N for the variety Sona and over 50 kg grain/kg N for the variety IR. 20—when 40 kg N was given as a single top dressing 40 days prior to flowering. Similar applications earlier and later to this stage are not as efficient with a single top dressing in mod-tillering phase, the efficiency of N-fertilizer has been nearly doubled, and hence despite reduction in rate of nitrogen applied a good yield level has been there.

The scarcity of fertilizers in Indian agriculture is in itself the reflection of the credibility of high yielding varieties. It should not be brushed aside with complacency that the scarcity would be a passing phase. Rationalization of use of fertilizers, erasure of the imaginary linkage between high yielding varieties and high levels of fertilization and promotion of cultural practices which favourably interact with fertilization are the only routes through which to sustain the high yielding variety programme and to ensure stable high levels of production.

S. V. S. SHASTRY,
Project Co-ordinator (Rice) AICRIP.

SUCCESSFUL FARMING IN DRYLANDS



When we talk of improvement in Agriculture, we always think of growing high yielding varieties of crops, adopting all the recommended package of practices in areas of assured irrigation facilities and getting plentiful yields forgetting the fact that in Tamil Nadu 60 per cent of cultivable lands have no irrigation facilities. It is estimated that about 45% of the farm produce in India is obtained from drylands which depend on rains. We can increase food production only if we aim at maximising crop production in these dry lands. Before going into the details it is worthwhile to consider the reasons for the poor yields in drylands. These lands receive erratic and insufficient rainfall which are not evenly spread. Improper use of the scanty rainfall, subsistence level of farming in drylands and lastly general social, economical and agricultural backwardness of the dryland cultivators are some of the valid reasons for poor yieldings in dry land cultivation.

The measures to increase productivity in drylands can be broadly classified as follows —

- (1) Water and soil conservation and
- (2) Improved cultivation methods.

For preventing the wastage of water received through the scanty rainfall and to avoid soil erosion due to excess rains, contour bunding

has to be undertaken in drylands. This will ensure better retention of water in the soil and increase the soil moisture content. Water table is also increased resulting in improving irrigation through wells.

In rainfed Blacksoils, a bund former can be worked to form beds of 10 cents size. This will ensure bunds of 9 inches to 12 inches height. This will prevent soil erosion and increase soil moisture due to retention of rain water.

Secondly a basin lister can be worked in the land which will form small basins for retention of water for irrigation.

Thirdly the land should be ploughed across the slope. This facilitates rain water to be retained in the furrows. The above measures will promote conservation of soil and water in dryland areas.

Improved cultivation methods

(i) The land should be well ploughed with iron plough or Melur plough or by tractor. This will promote absorption of water by the soil, destroy weeds and thorough mixing of the applied manures with the soil.

(ii) To ensure better utilization of the available moisture and scarce nutrients in the soil, optimum plant population in the field should be ensured. This can be done by using

seed drills for sowing, instead of indiscriminate broadcasting of seeds. Seeds should be pretreated with suitable fungicides prior to sowing.

(iii) Experiments have shown that it is advantageous to manure drylands also when there is adequate soil moisture.

(iv) Weeding in drylands is very essential to avoid the competition of weeds for the scarcely available soil moisture and nutrients in drylands. If line sowing is done using seed drills as already indicated, labour saving implements like junior hoe or Dantulu can be used with advantage for weeding.

Dryland Weeder

A new dryland weeder is developed for row crop weeding. It can be used for weeding in rainfed lands. Triangular teeth are fixed on the rotor of the weeder for easy primary penetration into the soil. A harrow blade behind the toothed rotor completely uproots the weeds. Soil stirring is an additional advantage by using this weeder. It can be used for row crops with a minimum distance of 18 cm. It is found suitable for all types of soils. Additional manual efforts are however required to remove the weeds which are nearer and between plants. The average output per day of 8 hours is 25 cents. This implement weighs 5.5 kg. and cost Rs. 50/- each.

(v) Mixed cropping to offset failure of monsoon rains and avoiding pests and diseases can also be resorted to. Mixtures like Cotton plus Tenai, Cotton plus Pulses, Groundnut plus Redgram, Cumbu plus Pulses and Cholan plus Pulses can be raised. Such mixtures will ensure some yield even under adverse conditions.

The above crop mixtures can be raised in year to year rotation also to preserve soil fertility.

(vi) Dairy farming, Poultry keeping and raising drought resistant fruit trees like guava and pomegranate can also be resorted to by dryland farmers to augment their income.

(vii) Improved crop strains, specially suited for raising in rainfed conditions, are available for cultivation. Dryland farmers should always go in for these varieties, for maximising production from their lands. Some of the improved strains suitable for dryland farming are given below :

1. Paddy	..	Co. 31
		Co. 19
2. Cholan	..	CSH. 2
3. Cumbu	..	HB. 3
4. Tenai	..	Co. 3
		Co. 4
		Co. 1
5. Samai	..	Co. 2
6. Varagu	..	PLR. 2.
7. Redgram	..	Co. 1
8. Blackgram	..	Co. 1, Co.2
9. Greengram	..	Co. 1, Co.2
10. Bengalgram	..	Co. 1
11. Cotton	..	MCU .6
12. Groundnut	..	TMV. 7,
		TMV. 4,
		POL. 2
13. Gingelly	..	TMV. 1 and
		2, KRR. 1
14. Castor	..	SA.1, TMV.1,
		2 and 3
15. Sunflower	..	K. 1

The details of some of the strains suitable for drylands evolved by the Tamil Nadu Agricultural University and the package of practices to be adopted are furnished hereunder.

Co. 2 Samai :

It is a medium bushy type with narrow leaves, bearing 8-10 tillers and the panicle type is open and loose. It is non-lodging, drought tolerant, non-shattering type, suitable for early and late sowing. The

PACKAGES OF PRACTICES

TABLE I
Co 2—SAMAI

Duration	..	..	80—85 days.
Season	..	..	September—October.
Seed rate	..	..	4 kg/acre for line sowing and 5 kg/acre for broadcasting.
			Sowing in lines is recommended to cover large areas in short time.
Manuring	..	..	Basal dressing 5 tonnes of Farmyard Manure or Compost per acre. N. 18 kg/acre. P. 9 kg/acre.
Spacing	..	..	25 cm. × 10 cm. for line sowing. Broadcasting and thinning to 10 cm. between plants.
Weeding	..	..	First weeding on 15th day and second on 40th day after sowing.
Thinning	..	..	Hand thinning after first weeding or before 20 days after sowing.
Yield	..	..	350—450 kg/acre.

TABLE II
Co 4—TENAI

Season	..	..	Throughout the year.
Seed rate	..	..	4 kg/acre pure crop 1 kg/acre mixed crop
Seed treatment (with organo mercurials)	..	..	2 gm/kg of seed
Spacing	..	..	10 inches between lines.
Manuring	..	..	Basal 5 tons of compost—or Farmyard Manure per acre—N. 18 kg/acre—P.9 kg/acre.
After cultivation	..	..	Thinning on 15th day after sowing. Weeding whenever necessary. Intercultivation with guntake in line sown crop or hand hoeing in broadcast crop on 15th and 40th day.
Yield	..	..	250—300 kg/acre as a mixed crop.

duration of the crop is about 80-85 days and is cultivated normally during September-October rainy season. It can be cultivated in hill areas also.

The package of practices to be adopted for the strain is given in table I.

Co. 4—Tenai :

This is the first Tenai strain released in our country with a duration of 65—70 days. The plant has a short height of 2 ft. 4 inches and has 6—8 tillers and a short duration of 65—70 days. Package of Practices are detailed in table II.

P.O.L. 2 groundnut—a new bunch groundnut variety

This is a high yielding groundnut variety suitable for Parambikulam Aliyar Project area of Pollachi taluk. This variety is capable of yielding 600 kg. of pods in 105 days.

Characters of P.O.L. 2 :

1. Shelling—77.8%
2. Oil content—50.2%
3. Seed dormancy—15 days.
4. No. of kernel per kg.—3,173.
5. Seed rate—48 kg/ac.

It has the added advantage of possessing seed dormancy which is a rare feature in bunch varieties. Loss due to sprouting in the rainy season can be eliminated. The small kernel size is an important character contributing to reduction in seed rate by 20%.

Co. 2 Blackgram

This has a short duration of 65—70 days and can be raised throughout the year. March—April, July—August, and September—October, sowings will give good yields. Details are given in table III.

Co. 2 Greengram

This has a duration of 60—70 days and can be raised throughout the year except during October—December. The seed rate, manurial schedule and other cultivation practices are same as that of Co.2 blackgram. Yield — 240—280 kg/acre.

CSH. 5 Cholan : It is a short duration (100—105 days) variety suitable for raising in September-October. This has got lustrous pearly white grains and gives tasty straw as cattle feed. The following detailed in table IV are the salient features of its cultivation :—

Cholan 771

It is a derivative of IS. 3922 and Aispuri. It has an yellow endosperm and matures in about 105 days. It is medium dwarf in stature growing to a height of 170 cms. It is fairly resistant to pests and diseases, non-lodging and responsive to nitrogen. Since it is an improved variety (not a hybrid) the farmers need not go in for renewal of seeds every year. Its short duration and ability to endure drought are distinct advantages over local varieties particularly when the crop is grown in late Kharif season (September-December). Package of practices are given in table V.

[Source : Director of Extension Education, Tamil Nadu Agricultural University, Coimbatore-3.]

TABLE III
Co 2—BLACKGRAM

Preparatory cultivation	..	..	Four ploughings.
Manuring	..	..	4 Cartloads of FYM or Compost and 10 kg. phosphates, 5 kg N. just before sowing.
Sowing	..	..	10 kg of Rhizobial culture treated seeds to be sown. Seeds are to be sown at 2.5 cm. depth at a distance of 10 cm. in rows spaced 20 cm apart.
Weeding	..	..	15th and 30th day.
Plant Protection	..	..	Dusting equal quantities of BHC 10. % and DDT 5% or spraying Endrin or Ekatin for controlling Aphids, Jassids, White fly and Caterpillars. For controlling pod borers DDT 5% or Sevin 10% or Dipterex 5% or Trithion 2% may be dusted.

TABLE IV
CSH 5—CHOLAM

Seed rate	..	..	10 kg/acre.
Spacing	..	..	18 inches × 6 inches.
Basal manuring	..	..	5 tonnes of FYM, 18 kg N, 9 kg P. 205.
Weeding	..	..	1st weeding—21 days after sowing and second weeding 2 weeks afterwards.
Plant Protection	..	..	4 kg of Thimet granuals to be applied in the soil before sowing as a protection against shoot fly attack. 30 days after sowing and 45 days after sowing apply Sevidol or Endosulfam granules at 3.5 kg/acre against stem borer.

TABLE V
CHOLAM 771

Package practices			
Season	..	..	September—December.
Age	..	..	100—105 days.
Seed rate	..	..	4 kg/acre.
Spacing	..	..	45 cm × 15 cm.
Fertilizer dose	..	..	N 18 Kg, P205 9 kg—Basal application.
Plant Protection	..	..	Application of Sevidol granules 4 kg/ acre on 30th day for controlling stem borer.
Yield	..	..	1000—1200 kg/acre.

Distribution of Controlled Cloth- Instructions to Consumer Co-ops

The following are the guide lines issued by the Government for the distribution of controlled cloth by Co-operative Consumer Societies.

The Tamil Nadu Consumers Co-operative Federation would allocate every month the quota of controlled cloth among the District Co-operative Supply and Marketing Societies, Co-operative Wholesale Stores and large sized industrial co-operative societies recognised as wholesale stores under the Centrally sponsored consumers' scheme on the basis of population, volume of their transactions and the number of retail units and primaries served by them. The regional Joint Registrars will in consultation with the District Co-operative Supply and Marketing Societies and Co-operative Wholesale Stores, select co-operative societies

in their area as retailers for the distribution of controlled cloth. Stores and societies, wherever they are functioning, will be given preference in the selection and where there are no stores and societies, good working marketing societies, agricultural banks and village credit societies (preferably societies running fair price shops) are to be selected for retail distribution. The societies appointed as retailers for the distribution of controlled cloth will lift the stocks on allotment from the District Co-operative Supply and Marketing Societies, and Co-operative Wholesale Stores.

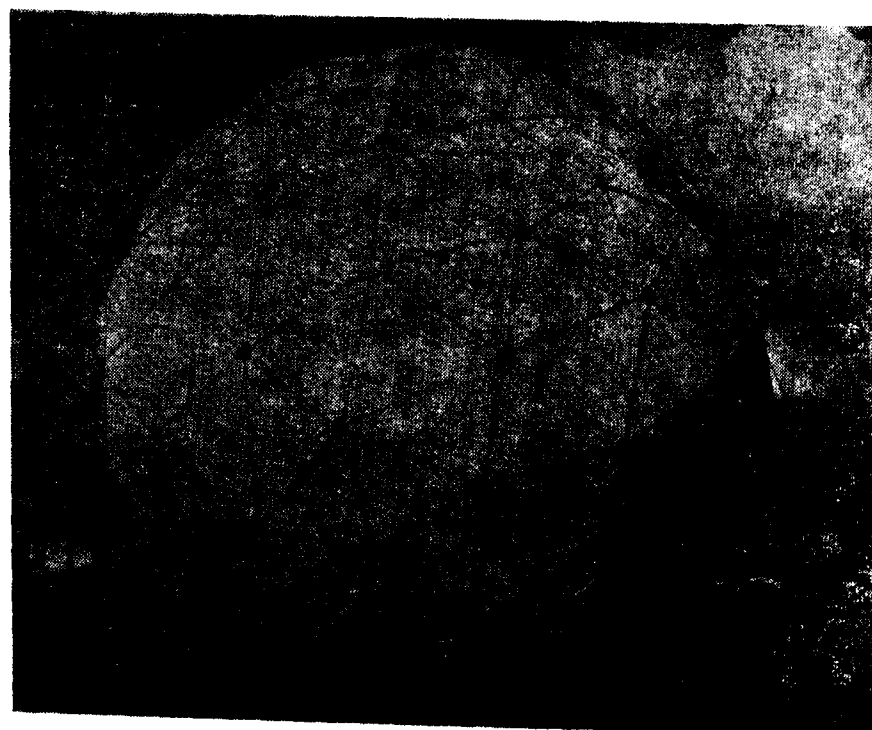
Wide Publicity

As regards the sale of controlled cloth by the societies in the rural area, wide publicity would be given

to the public that controlled cloth would be sold to the public on production of family cards issued for the supply of levy sugar. The purchasers will have to produce the family cards at the time of purchase of controlled cloth. As regards the quantity of cloth to be issued to a person at a time, periodicity etc., the retail societies have been issued with strict instructions to follow. The societies selling cloth in rural areas have been asked to maintain a register with suitable columns for entering the names of heads of families, village-wise, with family card numbers.

In view of the proposed appointment of more number of retail points including the credit societies in the rural areas there may not be any scope for accumulation of stocks at all. However, the question of reducing the time limit will be considered, if necessary, after some experience is gained under the proposed arrangement. It has been emphasised that the societies, both wholesalers and retailers, should give wide publicity for the sale of controlled cloth and stock boards with the varieties of cloth available and their retail prices would be exhibited at the counters where this cloth is sold.

METEOROLOGICAL SERVICES IN INDIA



The India Meteorological Department is regarded as the most advanced meteorological service in South Asia.

It has been rendering valuable service by giving timely warnings about cyclones, thus helping in protecting installations at ports and minimising losses. Four cyclone warning radars are functioning at Calcutta, Paradeep, Visakhapatnam and Madras, shown in picture.

The Cyclone Warning Research Centre functioning at Madras is to be expanded further during the Fifth Plan period.

Plans are under way to establish meteorological centres at State capitals for providing service to the respective States or groups of States. First such centre was set up at Srinagar.

At present, flood meteorological offices are functioning at Delhi, Lucknow, Patna and Gauhati to help flood forecast work and Control Services. Three more Centres at Jalpaiguri, Bhubaneswar and Ahmedabad are to be set up shortly.

Tamil Nadu Housing Board Takes Earnest Steps to Reduce House Building Costs

In view of the large investment that the State and the Central Governments make in housing and other construction work through public sector industrial undertakings as well as through the Housing Boards and other engineering organisations, it is of the utmost importance that the maximum possible economy is achieved so that the limited resources available could reach the maximum number of persons. While, of course, economy should be the watch-word, it is also essential to take note of the functional requirements of the structures put up and the physical comforts that they afford to the residents. For achieving overall economy, therefore, it becomes necessary to lay down norms and standards which satisfy the criteria of cost as well as functional efficiency. These norms should cover all aspects of construction activity such as contracts, contract administration, special requirements, specification of materials, construction techniques and amenities which would satisfy these criteria. The study of the cost increase through years reveals that there has been a continuous steep increase in the cost of construction at an average rate of 10 to 15% every year. During the last four years, there has been a steep rise in the building cost by 40%.

From this point of view, the Housing Board has been keeping liaison with the research bodies in the country, such as the CSRI, CBRI and organisations like the NBO and the ISI. Wherever possible the results of research are applied to the field. It may be stated that,

perhaps, no other organisation in the country feels the need for transfer of technology as extensively as the Housing Board.

1. The use of funicular shells as elements of roof has been adopted as a standard substitute for RCC roof. This saves in the cost of roofing up to 40%.

2. Catenary type of houses eliminating the use of cement, steel and concrete to a large extent is one of the solutions found by the Housing Board for the reduction cost. The cost of this type of house is less than 50% of the traditional type. The Housing Board has popularised this design. In Madurai, 300 houses have been constructed for the Burma repatriates. It has found acceptance at the hands of the general public.

3. For the catenary type of houses, hollow clay tiles in place of bricks have been adopted. These tiles give greater thermal insulation and are lighter in weight.

4. The integrated type of construction whereby R.C. frames and brick-work are adopted even for the single-storeyed building, is an innovation which has proved economical, especially in clayey soils.

5. The Housing Board is one of the earliest users of secondary species of timber with the object of better utilisation of the timber wealth of the country and to conserve teak wood which is scarce.

6. A system of prefabricated house to cater to the needs of the lowest income group has been evolved. The cost of this type is only a third of the traditional type of buildings. It saves steel to the extent of 30% and cuts down construction time by 75%.

7. Another technique which the Board is proposing to popularise is the guniting process of prefabricated houses. Up to four storeys could be constructed by this method. Twenty-five per cent of the cost of the construction could be saved besides conserving cement and steel to the extent of 20 to 30%.

8. The Housing Board has been extensively using fly-ash as a partial substitute for cement. This has resulted in cost reduction to the extent of 2 to 5%.

9. The execution of works by departmental staff directly without employing contractors is another pioneering step taken by the Housing Board towards reduction of cost. Even though the Government rules do not favour departmental execution of works except in emergencies, the Board has launched on this bold experiment with a view to save for the allottees the margin of profit the contractors are likely to make if work is got done through them.

10. Besides the above measures of cost reduction in the field, the Housing Board has always laid stress on economic designs, both architectural and structural, with a view to achieve maximum economy.

11. Through bulk purchase of building materials by open competition well in advance of the actual requirement, the Board secures competitive prices for the building materials purchased.

12. The Board has set up a wood-working unit for the supply of doors and windows for its works. It is proposed to set up a semi-brick plant in the City. The Board has a programme of establishing building industries such as the manufacture of stoneware pipes, mosaic tiles, etc.

13. A plant for the manufacture of cellular concrete, first of its kind in South-East Asia, has been erected with Polish collaboration at a cost of Rs. 3.65 crores. The products of this plant will replace bricks and RCC in all the works of the Housing Board within a short

The Bureau of Public Enterprises, the National Buildings Organisation and the Housing and Urban Development Corporation have been making valuable suggestions for effecting the utmost economy in the cost of construction. It is hoped that the measures suggested by these major organisations are strictly enforced in the interests of national economy, especially in the matter of conservation of scarce building materials.

Among the measures adopted for reducing cost of construction, the prefabricated houses seem to offer satisfactory results. The Housing Board has been a pioneer in introducing prefabricated technology in housing. A small-panel single store-

yed prefabricated house has been evolved at a cost of Rs. 2,500. The SERC evaluated this design and has also recommended its adoption. This house which could be erected in less than 24 hours holds a solution to the problem of housing the masses. By adopting mass production, it will be possible to put up a large number of houses in the minimum time and save considerable steel.

Another semi-prefabricated type of house which has already been evaluated by the SERC is the integral type of house.

Using the process of guniting wall-panels, columns and roof slabs, prefabricated experimental tenements have been constructed by the Housing Board.

In collaboration with the SERC and the concurrence of the National Buildings Organisation, the Housing Board has taken up the construction of 144 four-storeyed, large panel prefabricated houses for the first time in the country. Though, initially the cost of such houses may not be appreciably lower than the traditional buildings, the quickness of construction, greater floor area, plinth area ratio, strict discipline in the use of critical materials like cement and steel are some of the factors in favour of prefabrication. Besides, the employment of skilled labour on a large scale and for long periods is reduced. On the whole, the prefabricated houses are more labour-intensive and comparatively gives employment to a greater number of semi-skilled and unskilled labourers than transitional buildings. But prefabrication technique can be adopted only in places where, due to the massive scale operation, the overheads due to machinery and other infrastructural arrangements constitute only a small fraction of the total outlay. Prefabrication will prove both economical in cost and time saving, provided the work is concentrated in specified areas.

For the prefabrication technique to become successful, it is necessary that there is standardisation of sizes and the place of construction is not far removed from the place of manufacture of prefabricated units.

By

K. S. Logavinayagam, B.E., F.I.E.,
Chief Engineer, Tamil Nadu
Housing Board.

HOLLOW CLAY BRICKS REDUCE COST AND GIVE BETTER INSULATION

Madras City and the west-coast have been all along producing good quality clay blocks. At present, the Government Brick Factory at Madras is fully equipped to produce the type of hollow clay blocks required for use in structural components. Therefore, the scope of the developed system is primarily aimed at using the local materials and working under restraints of circumstances mentioned above. The developed system is based on on-site prefabrication requiring only tower crane and the casting and erection accessories. The number of storeys is also restricted to four as this does not call for the installation of lifts.

Selected Plan

The Tamil Nadu State Housing Board have prepared plans for the 4 storeyed building 24-in-one block for the pilot housing project involving 144 middle income group flats. The projection for sun shades and balconies have been restricted to the bare minimum as it will otherwise create problems of manufacture and handling.

External Panels

In most of the systems of large-panel prefabrication developed abroad, the load bearing cross walls and light facade walls have been predominantly used. Since the insulation for the external panels is a major problem and since we do not still have any inexpensive type of manufactured insulating material, it was decided that the external panels will also be made load bearing and hollow clay blocks will be used for load bearing and as insulating material in external panels. Moreover, the system with 4 storey height develops stresses of only 3 to 4 kg/m² on the walls. The spanning of slabs in both the directions will also be possible by this method. This results in lower consumption of material for the slab. The panel with external concrete rendering and hollow clay blocks as fillers is adopted for the present system. The prefabricated panels incor-

porates the external finishes but the internal surface will be left exposed. They are finished at site after erection of the walls and slabs. This wall is expected to give adequate thermal conductance values.

Floor and Roof Panels

The Structural Engineering Research Centre has developed and applied extensively the doubly curved shell units in various buildings. Over 2000 houses were built in South India in the recent past using the waffle shell scheme. This offers considerable savings in consumption of steel and results in lighter floor and roof panels. Therefore, this scheme was incorporated for floor and roof panels.

Balconies and Projections

Necessity of providing balconies for tropical living need not be over emphasized. Projections are also required for projection of the penetrations against sun and rain. However, this has been the most difficult problem and in the system developed this has achieved by setting in the walls.

Finishes

In large-panel prefabrication the finishes on external wall surfaces are to be incorporated while casting. Provision of scaffolding or any other facility for plastering the entire of the building will defeat the purpose of prefabrication. Finishes like rough-cast surface, exposed aggregates, tiles, and pattern impression on concrete will be used. For internal panels, the surfaces will be of smooth finish to receive paint directly, obtained in horizontal casting. External panels will need in-situ plaster in the interior. This can be done within the ceiling height without elaborate scaffolding before laying the floor finishes. Plastering internal wall surfaces in-situ will also help to cover inaccuracies in casting done with lesser degree of control.

The Cellular Concrete is a novelty in the building industry invented to meet the growing demand and to tide over the potential gap of building materials as an alternative and substitute to the conventional ones. It is a light weight material of uniform porous structure obtained as a result of aerating the green concrete. It is having functional, economic, structural and aesthetic factors. It also lends itself to pre-fabrication technique. Poland is one of the pioneer countries which has specialised in the technique. The trade name of the Cellular Concrete manufactured under 'Unipol' technology in the Ennore Factory by the Tamil Nadu Housing Board is "Celcrete."

Under the agreement of economic cooperation, a contract was signed with the polish organisation by the Tamil Nadu Housing Board for setting up a Cellular Concrete Plant at Ennore. The production plan is to manufacture '07' type of celcrete medium blocks of sizes 59 cm x 24 cm x 19 cm; 59 cm x 12 cm x 19 cm and roof slabs of size 299 cm x 59 cm x 12 cm with a total output of 500 M3 per day in three shifts. The total revised capital cost of the plant is Rs. 365/- lakhs. The plant was successfully commissioned on 15th December, 1972.

Incidentally, it is to be noted that the clay fields for brick manufacturing in and around Madras City are almost exhausted. After manufacturing the bricks too, it is a problem for filling the low lying areas with suitable material in order to avoid stagnation of water which leads to unhygienic conditions and it also involves additional expenditure.

CELCRETE

The Cheap And Versatile House Building Material

K. S. LOGAVINAYAGAM

B.E., F.I.E.,

and

T. JAGADESAN B.E. (Hons),
M.Sc., (Eng.)

Building activity of the order of Rs. 28.6 crores per annum should generate a demand for about 34.30 crores of burnt bricks of size 3" x 4" x 9" or suitable alternative materials. The present and anticipated production of bricks in and around Madras City will be about 24 Crores of bricks per annum. This would indicate a potential gap of about 10.3 crores of bricks per annum. Hence there is an absolute need to find a suitable alternative to the conventional burnt clay bricks and Cellular Concrete is one such material. Suppose, if the entire production of Cellular Concrete is converted into building blocks, then the annual output of building blocks will be equivalent to 5.6 crores of conventional bricks and even afterwards there is a potential gap. Also, there is a steady and growing demand for the Celcrete floor slab, roof slab and other components.

The raw materials required for the production are

1. Sand or Fly Ash,
2. Quick Lime,
3. Cement,
4. Aluminium Powder and
5. Gypsum.

FLY ASH TECHNOLOGY

In using fly ash instead of sand for the production of Cellular Concrete, the advantages and necessity are more. The Cellular Concrete Plant at Ennore is located opposite



Parapet wall of Selvam Park built with celcrete

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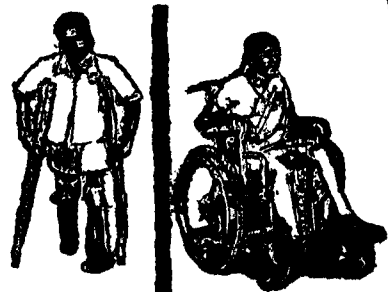
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**DRAW
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to Ennore Thermal Station in order to switch over to fly ash technology. Using Fly Ash will not only reduce the cost of production in respect of power consumption for grinding, but also the reduced quantity of binder, and it solves the problem of disposal of fly ash at the power station.

It can be stated that fly ash, owing to Pozzolanic properties is capable of completely fulfilling the requirement of building especially, the manufacture of Cellular Concrete and even manufacture of pre-cast units used in high building and properties in common with Concrete upto density 1.2.

Properties

The most characteristic properties of Cellular Concrete, which make this material so effective in the building practice are, listed below:—

- Low Density,
- Exceptional insulation properties,
- Very low shrinkage in course of time,
- High compressive strength in relation to density,
- Adequate resistance to frost,
- Rapid evaporation of dampness,
- Low water lifting,
- Non inflammability,
- Resistance to rot and
- Chemical inertia within the limits of that of concrete.

As most of the properties of the Cellular Concrete depend on its dampness, it is assumed that only those in dry state may be considered for comparison purposes.

Applications

The applications of this material in house construction are as follows:

- As a filler wall in between framed structures of multi-storeyed buildings;
- As a load bearing big panel for walls of multi-storeyed structures;
- As partition walls;
- As load bearing block masonry wall upto four storey construction;



A 4 in 1 unit of a single roomed tenement constructed with pre-fabricated unitized process. The house costs about Rs. 20 per Sq. ft.

(5) As an insulation cladding to the outer walls to protect the interior from cold;

(6) As precast roof and floor slabs;

(7) As ornamental facing panel with embossed designs and colour painted blocks for architectural purposes and

(8) As precast lintels.

Experimental Investigation

At the instance of the Tamil Nadu Housing Board, the Structural Engineering Research (Regional) Centre, Madras, has taken up detailed investigations on the use of pre-cast reinforced Cellular Concrete Slabs in roofs and floors for residential and office buildings. These slabs are manufactured at the Cellular Concrete Plant of the Tamil Nadu Housing Board at Ennore. They have been designed on the basis of the elastic theory and for a super-imposed load of 200 Kg/m² and a live load of 200 Kg/m². The slabs were tested in accordance with the relevant Indian Standard Specifications (I.S. 6037-1971). The loads were applied at about the quarter points and measurements of strains and deflections were taken at different stages of loading. The load was applied in increments of 100 Kg. and was sustained for half an hour, when the equivalent half and full working load moments were reached. After examining for any possible cracking, the load was continued till the ultimate failure of the slab.

Initial tests carried out on the slabs have given satisfactory results both with regard to the cracking and the ultimate failure loads as well. During the course of investigations, the role of the compression steel and the contribution of the screeding concrete in controlling deflection at the working load were also studied in detail. From the preliminary tests carried out so far, it is concluded that the increase in the compression steel does not contribute significantly to minimise the deflection at the working load, even though substantial improvement in the ultimate load carrying capacity of the slab was observed. Tests on composite 'Celcrete' slabs provided with an in-situ screeding layer of plain concrete of 2.5 cm thickness indicated a reduction in the working load deflection as compared to the deflection suffered by a companion plain slab without screeding. However, there was no increase in the ultimate load of the composite slab, since the bond between the slab and the screeding was totally destroyed at a load of about 1.5 times the working load and slab failed by the crushing of concrete in its own compression zone.

Further tests are being contemplated to study the long term behaviour of 'Celcrete' slabs with particular reference to their bond and deflection characteristics under sustained loads. Tests on filler-block floor construction using celcrete blocks and precast reinforced concrete units and reinforced 'celcrete' wall panels are also to be carried

out to ascertain their relative performance and suitability to large scale applications.

With proper design and production methods, precast structural components made out of aerated light weight concrete are likely to complete economically with conventional in-situ concrete construction. The development of component designs and pre-fabricated systems using aerated Cellular Concrete has been identified by the NCST specialist sub-group on pre-fabrication as one of the important R & D taken to be vigorously pursued during the Fifth Five year Plan period.

Economics

Apart from exceptional qualities of celcrete, greater economy is also achieved.

Due to light weight by volume consumption of building materials used for the foundation and sub structures are reduced. There is about 20% savings in foundation.

Savings in the use of scarce materials gained are as follows :

1. Cement 30% Savings
2. Steel 30% Savings
3. Water 60 to 80% Savings
4. By transportation of celcrete products 50% savings.

Due to rapidity in construction, it is observed that there is 30% savings in labour and 88% savings in time.

What is NBO?

The National Buildings Organisation (NBO) completes two decades of its existence in July, 1974.

Notwithstanding various constraints of resources and manpower NBO an affiliate of the Ministry of Works & Housing has to its credit achievements in the field of housing and building which have earned it national and international recognition.

The objectives and functions of NBO are :

NBO takes measures to augment and improve the production of traditional building materials and promotes the establishment of new building material's industries. It also partially finances experimental construction schemes to implement results of research.

The Organisation promotes rural housing through research, training and demonstration and collects and disseminates information on the latest advances in building techniques and housing. Its primary



Pre-fabricated houses with an area of 123 Sq ft. each costs about Rs. 2,500

By using celcrete floor and roofs, good thermal insulation and also about 20% savings in cost are achieved.

Advantages

Advantages resulting from Cellular concrete constructions are :

- i. Economy in building material consumption,
- ii. The mortar consumption for erection of wall of Cellular Concrete Blocks amounts to only about 20% of mortar quantity required for brick laying,
- iii. Economy in foundation,

object is to develop housing and building. It also collects the statistics and conducts studies relating to social, economic, financial and investment aspect of housing.

NBO establishes close liaison with the research organisations in India and abroad on one hand and construction agencies, both Government and private including the individual builders, on the other. NBO ensures that the findings of the research reach the users and requirements of users are brought to the notice of research institutions. This helps to bridge the communication gap between the research workers and the users.

Viewing negatively, NBO is not expected to construct houses and buildings on its own, though it does finance experimental housing projects in order to propagate the use of new construction techniques and materials.

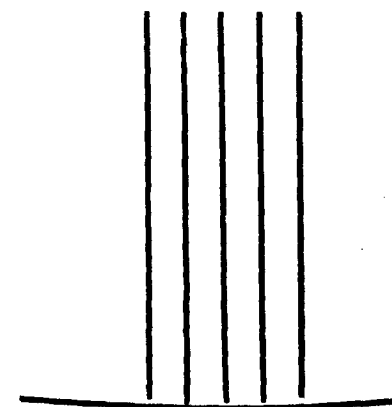
- iv. Reduction in transport cost (weight of Cellular Concrete is 1/3 that of bricks for same column),
- v. Quick construction. The time of erection of a building with cellular concrete instead of brick can be reduced by 88%
- vi. Thermal insulation that helps to shut out both heat and cold,
- vii. Sound absorption properties comparing favourable with brick construction and
- viii. It has got workability like wood i.e., sawing, nailing, drilling and screwing is very easy.

A design with Celcrete products works out to comparative reduction in cost with the following key-note.

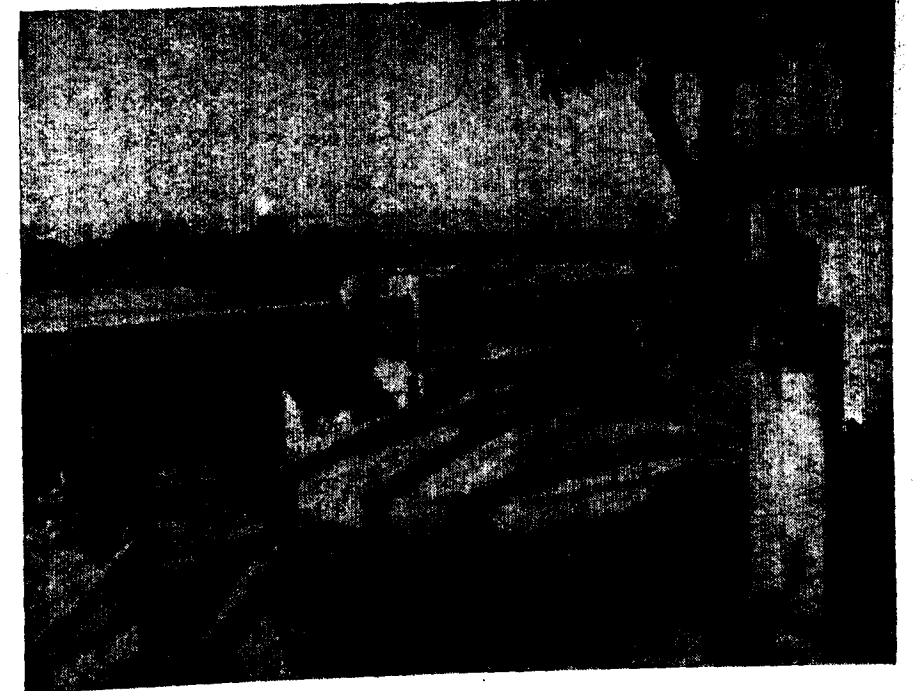
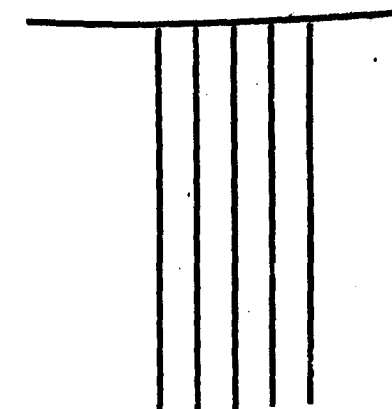
- (a) Savings in foundation and sub-structure,
- (b) Reduction in wall thickness,
- (c) Dispensing with external plastering,
- (d) Elimination of scaffolding and centering and
- (e) Savings in cost of floor and roof slabs.

In view of the large scale building activities proposed under the Fifth Plan, the use of celcrete will greatly accelerate progress and save conventional building materials.

It is to be recommended that a smaller semi-mechanised Celcrete Factory may be proposed in each district of every State by utilising the locally available raw materials in order to cater to the growing building industry by reducing the cost towards transport and helping in rapid construction.



How To Install And Maintain A Gobar Gas Plant



In Gobar Gas Plants the dung is fermented to yield a combustible gas which can be used for cooking as well as lighting purposes and the spent residue becomes available for use as manure.

The gas plant operates on the simple principle that fermentation of dung or any other organic material in the absence of air produces a combustible methane gas. In the gobar gas plant this fermentation is carried out in a brick lined well which is filled with dung made into a liquid slurry with water. This is then covered with an iron drum introduced upside down into the well which serves to cut off air and provide the necessary conditions for fermentation.

The gas produces bubbles inside the drum which gradually fills up and begins to float and rise. The gas is taken through a wheel cock on the top of the drum and led to kitchen by pipes and burned through suitable burners. The spent slurry overflows from the top of the well and collects in a pit from where it is periodically removed and added to the compost pit.

The site for installation of the gas plant should be near the kitchen in open space and away from any wall or tree so as to be under sunshine as much as possible. This will ensure better fermentation and better gas production.

An average-sized gobar gas plant costs less than Rs. 1,000. Four or five animals can provide enough dung to run a small plant.

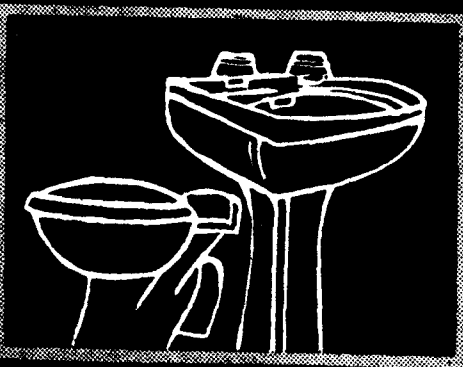
Construction

A well, 2 metres in diameter, is dug to a depth of 4 metres. A sloping channel of 15 cm diameter is dug to a horizontal distance of 60 cm from the well and carried to a depth of 65 cm above the bottom of the well. The bottom is then brick floored and plastered with cement.

A well-one-brick thick—is now raised from the bottom, keeping an internal diameter of 1.35 metre of the well. The feeding pipe is then fixed in position in the channel and buried, with one end projecting 10 cm inside the well and the other about 25 cm above ground level. Brick lining of the well is continued to a depth of 1 metre from the top.

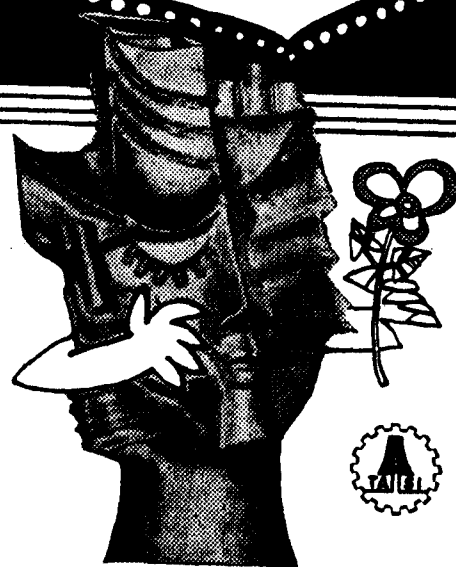
Three brick cornices projecting 15 cm inside the well are constructed for supporting the gas holder. Alternatively 3 stone slabs or angles from pieces each 40 cm long, can be fixed projecting 45 cm inside the well. The brick wall is then continued and finally raised 30 cm above ground level. A channel 10 cm wide is taken from the top for carrying the overflowing used slurry to the compost pit.

A small brick lined pit, 30 cm square and 30 cm deep, just outside



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the well, serves as a water catch to remove the condensed moisture from the gas pipe. By opening the tap periodically, once a week, the condensed water is let out and the pipeline for gas kept clear.

The gas outlet pipe with the wheel cock is then connected with the pipe line taken to the kitchen where a suitable gas tap is fixed to take off gas for burning. The drum is then carefully introduced into the well so as to rest on the three projecting supports. Three 240 cm long black iron pipes 4.2 cm in diameter, with pulleys on the top are fixed at equidistant points outside the well, emerging 180 cm above ground level.

Three iron buckets are tied to lengths of twisted wire rope if iron chain with the other end tied to each of the handles of the gas drum. The wires are then passed over the pulleys so that the buckets keep hanging 45 cm from the ground level. The pipeline is fixed to one of the supporting pipes, with a bend at the upper end to which is attached one end of a 240 cm long hose pipe and the other end is connected to the nipple in the drum.

Operation

The gas plant is now installed and ready for operation. Dung is first made into a slurry with an equal proportion of water and introduced in the fermentation well through the funnel until it is completely full. This may take a week or more and require about 1,000 kg. fresh dung to fill. The wheel cock of the gas holder should be kept open during this period to allow the air to escape. When the fermentation well is full, the wheel cock is closed and the gas pipeline and the bend on the gas holder are connected by means of the rubber hose.

Production of gas normally starts within a week, the gas accumulating inside the holder causing it to float and rise. The first gas after installation may not burn due to a large proportion of carbon dioxide in it. In such cases the rubber hose may be detached and the wheel cock be opened to release the gas. The drum will settle down and again rise with fresh gas which may be similar tested. When the gas is required for use, wheel cock may be opened on the drum.

After the gas has first formed, production is maintained by daily feeding about 50 kg. fresh dung made into a slurry with an equal proportion of water. This produces about 3 cubic metres of gas daily, sufficient for the cooking requirements of an average sized family.

Larger sized gas plants can be constructed on the same principle by increasing the dimensions of the fermentation well up to 2.55 metres diameter and 4.5 metres depth with a gas holder of 2.4 metres diameter and 1.2 metres height, to yield about 9 cubic metres of gas daily. These bigger plants need more dung.

For an average family five cows will be able to satisfy their domestic fuel and lighting energy requirement through gobar gas. The remaining may be used as fertilizer for their kitchen garden.

Simple Design

The gas collecting in the drum contains water vapour which gradually condenses in the rubber hose and the pipeline leading the gas to the kitchen. The pipelines should, therefore, be laid with a small slope from the pit so that all condensed water may collect here. For proper maintenance remove this water periodically by disconnecting the hose pipe and opening the water tap in the pit.

In summer the slurry on the top of the fermentation well is apt to become so thick that the drum does not easily sink when released for using the gas. The flame obtained is good to begin with but later becomes low. To remedy this, a few buckets of water should be poured directly in the fermentation well and it should be stirred all round with a bamboo pole until the slurry is sufficiently thin. The drum should be shaken and the flame tested.

The gas drum should be taken out and given a coating of a protective paint at least once a year.

The digested slurry overflowing from the top of the well daily when fresh dung is fed, is led by means of a channel directly to a compost pit filled with leaves, straw, etc., where it promotes the decomposition of these materials and yields a large quantity of manure.

If space for a compost pit near the gas plant is not available the

liquid slurry may be collected in a smaller pit from where it may be cleared periodically and either applied to the land directly or put in a compost pit. Liquid slurry can also be dehydrated quickly by absorbing it in leaf powder, paddy, husk, saw dust and such other waste materials and further dried in the sun and stored for use when required.

FLUCTUATING YIELD OF GAS

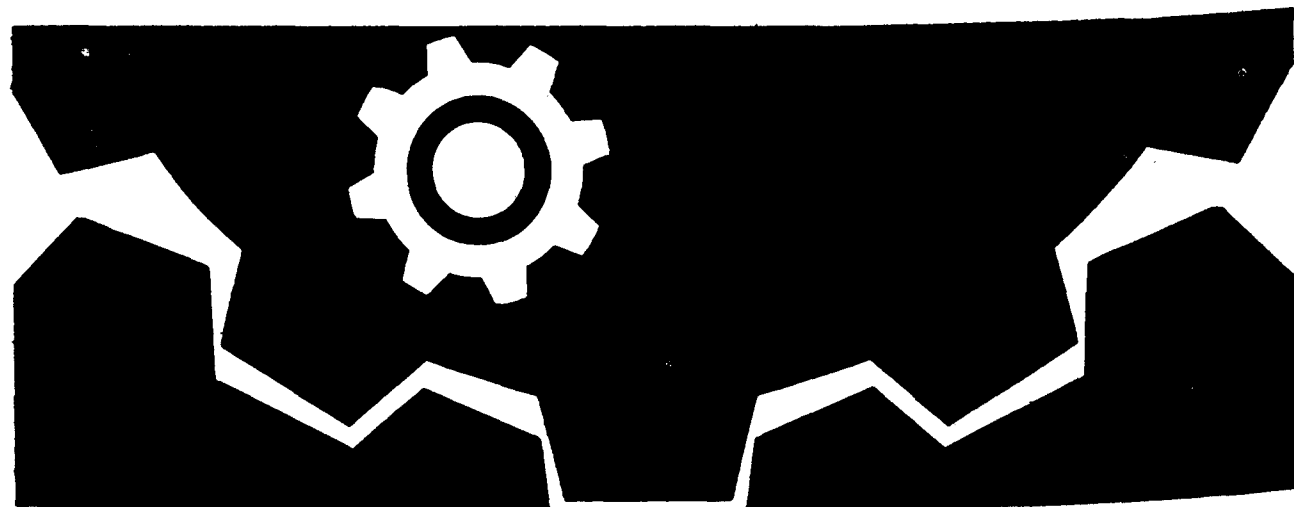
In the North, the yield of gas obtained in winter is reduced to about one-third due to the effect of low temperature on the activities of the micro-organisms. This difficulty can be overcome by incorporation of about 10 litres of cattle urine with 50 kg. dung daily.

Arrangements can be made for collecting the urine fraction in cattle-sheds or by absorbing it in suitable litters, which can then be immersed in water and the extract incorporated in the well. The water for preparing dung slurry may be kept exposed to the sun for the day and used in the evening for mixing with dung and introducing this in the well.

About 1 kg. powdered leaves or wheat straw mixed with 50 kg. dung will give increased yield of gas by providing simpler energy material for the fermenting micro-organisms. The gas plant may be covered with wood or polythene structure to maintain higher temperature inside.

The gas is excellent for cooking purposes, since the blue and smokeless flame provides a neat and efficient fuel. Suitable gas burners of different sizes are available in the market for this purpose. It can be used for lighting purposes also. Suitable gas lamps are available in the market.

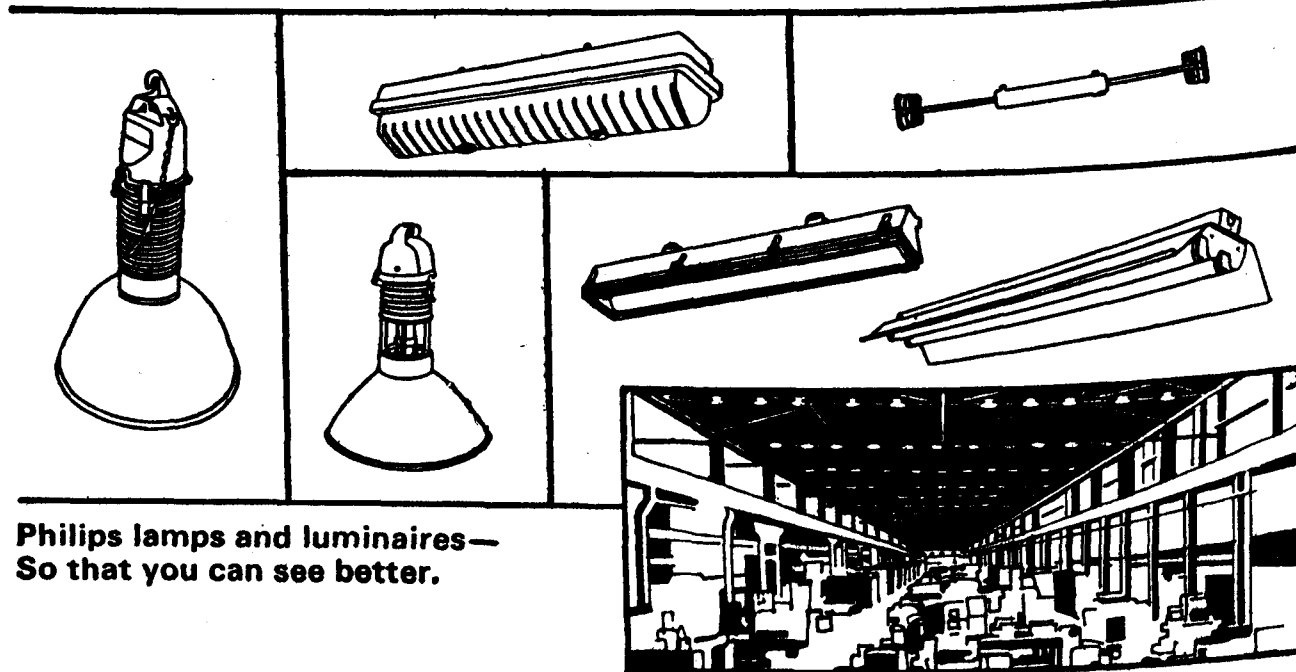
The usual petrol, kerosene and diesel oil engines of any horse power can be adapted to run on gobar gas and the power generated utilised for pumping irrigation water, grinding flour, generating electricity, etc. Adapted diesel oil engines are available in the market. For this purpose large capacity gasplants can be constructed. (From "Kurukshetra")



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Utilisation of Surplus Funds in Panchayat Unions for Link Roads & Rural Water Supply

DETAILED INSTRUCTIONS ISSUED

The following are the detailed instructions issued by Government to Panchayat Union Councils for utilisation of their surplus funds :—

Various representations have been made to Government for liberalising the conditions prescribed for the utilisation of surplus funds to enable the Panchayat Union Councils to fulfil their obligatory and discretionary functions under Sections 65 and 67 of the Tamil Nadu Panchayat Act, 1958.

According to G.O. Ms. No. 634, R.D. & L.A. dated, 10—3—66 and G.O. Ms. No. 1302, R.D. & L.A., dated, 4—7—1968, the Panchayat Union Councils having a surplus of over one lakh of rupees in the General Account after providing for the items specified in para 4 below, are permitted to utilise their surplus funds for the items of work mentioned below. The order of priority shall be as follows :—

- (1) **Drinking Water Supply :—** Construction of overhead tanks and ground level reservoirs, sinking of wells for drinking water.
- (2) **Roads :—** Construction of roads, improvements of roads including upgrading and construction of bridges, culverts, causeways, road dams in roads vested with Panchayat Union Councils ; and
- (3) **Construction of buildings to schools maintained by the Panchayat Union Councils.**

4. The Collectors are authorised to accord sanction for the utilisation of surplus funds for the above items of work in the order of priority, subject to the following conditions :—

- (a) A minimum of 10% of the cash balance should be kept by the Panchayat Union Councils in their budget. This minimum cash balance should be computed by excluding the grants, debts and endowments in the budget.
- (b) A minimum amount of Rs. 1 lakh should also be kept in the General Fund as reserve so as to provide for any unforeseen expenditure such as increase in D.A. for the staff, etc., during the course of the year.

For items of work other than the three mentioned in para 3 above (e.g., dispensary buildings, buildings for maternity centres, supply of medicines for Animal Husbandry Centres, drainage, etc., which are not coming under the scope of this order) proposals should be sent to the Director of Rural Development for according necessary sanction for the utilisation of surplus funds.

5. All proposals for the utilisation of surplus funds should be sent to the Collector with requisite resolutions of the Panchayat Union Councils with detailed list of works and their approximate cost.

Government issues the following orders in G.O. Ms. No. 1488, R.D. & L.A. dt. 18th June, 1974, which will supersede all the orders issued previously in regard to the implementation of the Rural Water Supply Scheme by the various agencies :

- (i) In respect of Projects executed under Rural Water Supply Schemes, distribution systems should be cut out to avoid the Projects becoming costlier ;
- (ii) Drinking Water Supply Schemes in 'Endemic' (2,230 habitations) and 'No source' areas (4,916 habitations) should be implemented by the Tamil Nadu Water Supply and Drainage Board ;
- (iii) The Tamil Nadu Water Supply and Drainage Board should draw up schemes, with least capital cost and maintenance expenditure and adopt various alternatives viz., dug wells, deep bore in open wells or purely bore wells ;
- (iv) The Board should undertake works in all districts in proportion to the total population of the habitations, referred to under item (ii) ;
- (v) A priority list of the works to be taken up in each district should be drawn up by the Board in consultation with the Collectors of the Districts concerned ;
- (vi) In 'Endemic areas', Ground Level Reservoirs, should normally be provided. Over Head Tanks without distribution system shall however be provided only where the source of water is far away from the habitations, wherever it is found absolutely necessary ;
- (vii) In 'No source' areas, bore wells with hand pumps shall initially be provided. The provision of Over Head Tanks should however be resorted to depending upon the population of the area. Such works might be executed by the Board, with a minimum contribution of 25% from the local body concerned and also with its approval ;

(viii) Drinking water supply schemes in areas (13,040 habitations) where the water supply is reported to be 'Inadequate' would be executed by the Directorate of Rural Development through the Panchayat Union Councils, from out of the funds provided under the Village Works Grant. The term 'Adequate Water Supply' area will denote to a village where continuous drinking water supply was available in a normal year throughout, at a rate of not less than 5 gallons per capita per day. Other areas which do not satisfy the above requirements are to be taken as areas of 'Inadequate water supply'; and

(ix) The Schemes under the category referred to under item (viii) above shall consist of dug well, deep bore in dug wells or purely bore wells. Water Supply Projects under this category can however be entrusted to the Tamil Nadu Water Supply and Drainage Board for execution as deposit works, by the Panchayat Union Councils wherever the need therefor arises.

The Link Roads Programme

In the matter of allotment of funds provided during every financial year for 'Link Roads' under the Village Works Programme the procedure followed is changed now. Hitherto it was to all Panchayat Unions on a pro-rata basis. It has since been decided that from the current financial year (i.e., 1974-75) the funds provided for 'Link Roads' under Village Works Programme should be allotted with reference to the needs of each Panchayat and Panchayat Union and not on a pro-rata basis.

2. In keeping with the above decisions the following instructions are issued in the matter of distribution of the allotment provided for link road works in the Budget Estimate 1974-75.

G.O. Ms. No. 1469 R.D. & L.A. dt. 14th June, 1974 reads as :—

(i) Out of the total provision of Rs. 140 lakhs (Rupees One hundred and forty lakhs only) made under 'Link Roads' under Village Works Programme for expenditure during the current financial year, a sum of Rs. 48.53 lakhs (Rupees Forty eight lakhs and fifty three thousand only) is earmarked for spillover works and it shall be distributed among the various districts.

(ii) The balance of Rs. 91.47 lakhs (Rupees Ninetyone lakhs and forty seven thousand only) shall be distributed for improvement of the existing roads formed under the Link Roads Programme.

(iii) The entire allotment proposed for each district both for spill-over work and improvement works shall be placed at the disposal of the Collectors of each district, who in their turn shall distribute the amount to the Panchayat Unions on the basis of the norms referred to below.

(iv) The Collectors of districts are informed that beyond the amount now proposed to be allotted to each district for completing the spill-over works of previous years, no further amount will be allotted and that excess amount, if any, required for completing these works might have to be borne by the respective Panchayat Union from out of its general funds.

(v) While distributing funds for incomplete works amongst the Panchayat Unions, the Collectors of Districts are requested to allot funds to such of those Panchayat Unions, whose financial position is unsound and also to those unions, which have adhered to the instructions on the subject.

25 per cent of expenditure should benefit Harijan Colonies.

(vi) The existing instructions and orders issued so far in respect of works taken up for execution under the 'Link Roads' under Village Works Programme shall continue to apply.

(vii) Works such as culverts, causeways, etc., shall continue to be taken up for execution under the revised programme subject to a ceiling of Government grant of Rs. 15,000 (Rupees Fifteen thousand only) for each work, as specified in para. E (iii) of G.O. Ms. No. 1716, Rural Development and Local Administration, dated 13th July, 1971.

(viii) There shall be no change to the existing rates of public contribution to be collected from the beneficiaries.

(ix) In the case of those Panchayat Unions who, because of their slender financial position, find it difficult to complete the incomplete works, the Collectors of Districts are permitted to divert 25 per cent of the allotment made for improvement works subject to the condition that the prior permission of the Director of Rural Development in this regard is obtained.

(x) Twenty per cent of the total allotment made to each district should be earmarked for works benefiting Harijans and it should be ensured that on no account the above earmarked provision is diverted for other works.

3. The Director of Rural Development is requested to place the amounts indicated against each district in the Appendix of this order, at the disposal of the Collector of the respective districts immediately. He is also requested to furnish immediately to the Collectors particulars of the length of roads to be improved Panchayat Unionwise.

Rs. 122 LAKHS ALLOTTED for SCHOOL BUILDING PROGRAMME

UTILISATION FOR COMPLETION OF INCOMPLETE WORKS

G.O. Ms. 1467, R.D. & L.A., dt., 14th June, 1974 gives a clear account of release of Government grant and collection of public contribution in respect of school building works, executed under the Village Works Programme.

The newly issued G.O. reads:

(i) that in the matter of collection of public contribution and release of Government grant, different scales as indicated below should be adopted, Rs. 20,000 as the maximum cost for an Elementary school building :

Category of Block	Rate of Government Grant	Rate of public contribution
I ..	50%	50%
II ..	55%	45%
III ..	60%	40%
IV ..	70%	30%
V ..	75%	25%
VI ..	80%	20%

(ii) The revised rates of public contribution and Government grant will apply only in respect of new works to be taken up hereafter.

(iii) Out of the sum of Rs. 122.27 lakhs provided in the Budget for the year 1974-75 for the construction of school buildings under the Village Works Programme, the Government direct that a sum of Rs. 60.00 lakhs (Rupees Sixty lakhs only) be set apart for completing incomplete works and the balance of Rs. 62.27 lakhs (Rupees Sixty two lakhs and twenty seven thousand only) be set apart for the taking up of new school building works.

(iv) During the current financial year, the amount provided

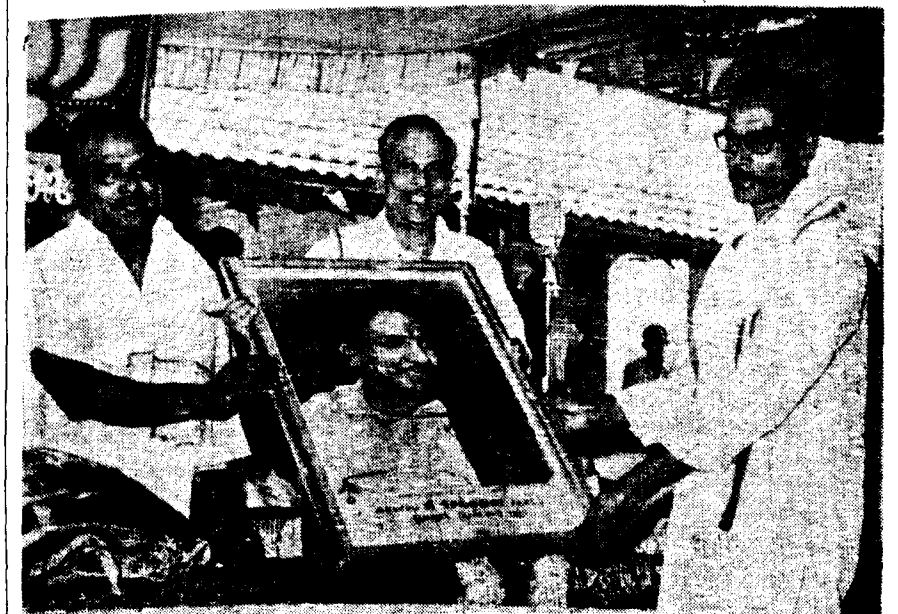
for new works should be utilised for the taking up of building works for Elementary schools alone and no new building work for Higher Elementary School be taken up. (New works for Higher Elementary school will however be taken up from the next financial year onwards as the number of Higher Elementary schools without buildings is less, when compared to the number of Elementary Schools which are without a building).

(v) The amount of Rs. 62.27 lakhs (Rupees Sixty two lakhs and twenty seven thousand only) now ordered to be allotted for the taking up of new school building works be distributed among the Panchayat Unions.

The discretion of selection of blocks for the allotment of funds is however left to the Director of Rural Development. The expenditure during the current financial year (1974-75) for the new school building works should however be limited to Rs. 62.27 lakhs.

(vi) The Director of Rural Development is also directed to distribute the amount of Rs. 60.00 lakhs (Rupees Sixty lakhs only) provided for the spill-over works, among the various Panchayat Unions. He is however requested to make it clear to the Panchayat Unions that beyond the amount now proposed to be allotted by him for the spill-over works, no further amount will be allotted and that excess amount, if any, required for completion of the incomplete works will have to met from out of the General funds of the Panchayat Union.

The Director of Rural Development has been requested to send a list showing the name of village, the total cost of work, and the amount allotted for such work at an early date for the information of the Government.



At a function held on 15-7-1974 at Nangavalli in Salem District, the Hon'ble Minister for Housing and Labour, Tamil Nadu, Thiru K. Rajaram, declared open the school building of Nangavalli—Vanavasi Government Girls' High School.

The photo shows Thiru V. Selladurai (extreme left) presenting a portrait of the Chief Minister of Tamil Nadu, Thiru M. Karunanidhi through the Hon'ble Minister Thiru K. Rajaram (centre) to the President of the School Building Committee Thiru P. Ardhanari vadhiar (extreme right).

WITH HEARTY GREETINGS FROM

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TAMIL NADU SMALL INDUSTRIES DEVELOPMENT CORPORATION LIMITED, 112, Anna Salai, Madras-6.

LESS BUREAUCRATIC DELAY IS THE SECRET OF TAMIL NADU SUCCESSES.

Tamil Nadu has been surplus in production of cement and is therefore a nett exporter to other States—both because the units are large-sized and are efficiently operated. It is a matter for grave concern that coal supplies from Singareni Collieries and from North East India have been fitful and inadequate and these units have suffered sorely as a result. Tamil Nadu has to initiate fresh talks with the Coal Authority, the Railway system and with Indian Shipping, to ensure that adequate supplies of coal are made available in the coming months and years in order that a vital building material may be made available to the country as a whole. The Government of Tamil Nadu have also a direct take in the Cement Industry and I believe Mr. Chief Minister, that our government's companionship in distress makes these units feel that succour would be speedily secured.

There are some disturbing reports about the latest thinking of the economic ministries on the question of price rises. A proposal to increase the official Bank rate to 9 or 10% with corresponding increases in lending rates to levels that we have so far associated only with usury, is said to be under examination. There is also talk of a proposal to enhance Wealth Tax slabs stiffly. The Banking system has latterly reported that, despite the spectacular deposit accruals of last year, fund depletions have left them illiquid. Increase in lending rates will enhance the already massive interest outgoings of the industrial sector and enhance the prices of goods produced. Aggravated Wealth Tax levies will only operate as a disincentive to entrepreneur effort. These rumoured Draconian measures seem to be contradicted by the requirements of Indian economy to-day, which is larger production and broadening of our industrial base. These reports have caused much concern to the commercial community.

The Railway strike is come and gone. Railways are the largest of our public utilities and indeed

constitute the largest sector of economic activity in India. The strike was no doubt an effort to secure higher wages and benefits through collective action of railwaymen, but it was also an effort to immobilize the travelling public and what is far more dismaying, to prevent movement of goods including food-stuffs from one part of India to another.

In short, it was an attempt to paralyse economic activity and dislocate daily life. The commercial community and no less the travelling public were plunged in deep anxiety as to whether the outcome would not be the same, as in other sectors where strikes have been threatened or promoted; namely a near-total conceding of Trade Union demands that would at once have made travelling costlier and increased the prices of goods through the enhanced railway freight element built into them. It was an act of courage and farsightedness on the part of the Central Government to have refused to be dragooned into capitulating before a demand that took no account of what the man who travels and who consumes goods could pay, when his per capita income was still unimproved. In short, it was a clamour by a powerfully organised wage-earning sector that the vast masses of inarticulate people already enfeebled by inflationary pressures, pay more. It is good the Indira Gandhi Government sized up the inwardness and economically far-reaching character of this demand and declined to concede it.

A year ago, the Central Cabinet disregarded the recommendations of the Bonus Commission that a minimum bonus of 6% be paid by the corporate private sector of industry and enhanced it to 8½% which meant thirteen months salary for twelve months of service irrespective of whether an industry was making losses or profits. This had encouraged organised labour to believe that Central Government could be trusted to surrender before loudly-articulated demands. Industrial companies in their turn, can do

little but pass on such burdens as bonus to consumers and the common man contributes through consumption to uncommon wages and later complains of price hikes. It is just as well that Central Government had an opportunity of drawing the line at demands that took little account of the country's affordability. It is my hope that sharp economic imbalances between organised sectors of employment and the vaster unorganised sectors of employment and the vaster unorganised sectors will not become an embarrassing substitute for the feudalism that we have been seeking to abolish through multiple legislative enactments.

I wish to congratulate the Government of Tamil Nadu on its numerous achievements in a year of difficulty on many fronts. The Housing Board and the Slum Clearance Board have between them done a conspicuously fine job, providing houses and flats for the middle-income and low-income groups and by providing solid brick-and-mortar flats to the slum dwellers, who were long used to ill-ventilated thatched houses that carried fire hazards. Tamil Nadu has drawn the rest of India's attention to what can be done by determined effort and avoidance of bureaucratic delays. The manner in which the backward districts of Dharmapuri, North Arcot and Ramanathapuram are being industrially developed, through incentives and financial assistance programmes, has brought unstinted praise to the Government and its Chief and Industries' Ministers. The many welfare programmes and humanitarian measures that our Chief Minister has personally initiated in the last few years, to help the less fortunate, have brought you just tributes, in which we gladly join. May we wish greater to elbow, in all the onerous and beneficent tasks you are undertaking.

Excerpts from the speech of Thiru S. Narayanaswamy at the 64th Annual General meeting held on 10—7—74.

THE TAMIL NADU CO-OPERATIVE HOUSING SOCIETY LIMITED, NO. X-406. MADRAS-7.

"Venkataswamy Vagheesam Nilayam"

No. 14, Ritherdon Road, Vepery, MADRAS-600007.

Telegrams: "HOUSEBANK" Post Box No. 486 Telephone No. 30800

President :

THIRU PALANIVEL RAJAN, B.Sc., B.L., M.L.A.

Vice-President :

THIRU P. KASTHURI PILLAI

Treasurer :

THIRU S. PALANISWAMY, M.A.,

—oOo—

Authorised Share Capital	—	Rs. 2.5 crores
Paid up Share Capital	—	Rs. 2,09,07,300
Loan outstanding against Primary House Mortgage Societies and Building Societies		Rs. 12,40,07,729

Long term Loans for Construction of new houses, additions and improvements etc., repayable in twenty years are granted to individuals through the Primary House Mortgage Societies and the various types of Building Societies in Tamil Nadu for the following purposes.

	MAXIMUM INDIVIDUAL LOAN
1. Construction of new houses	— Rs. 25,000
2. Improvements, additions and alterations to the existing houses	} Rs. 10,000
3. For minor repairs	— Rs. 1,000

P. K. PATHMANATHAN, B.A., H.D.C.,
Joint Registrar and Secretary.

THE UBIQUITOUS TAMARIND

The tamarind is a common unarmed evergreen tree found all over the tropics. It is known as the Indian date. It is one of the most beautiful trees grown in many parts of the central and southern regions of our country from pre-historic times. The trees grown in the forest reach huge stature. Every part of it is useful and hence it is no surprise that it is grown in the home-steads for its beauty and utility. Grown as one of the most popular avenue trees, it has made our roads more enchanting by day and less hazardous by night. The changing hues of its tender feathery foliage followed by profuse flowering season after season, charms young and old. It litters the ground with a mat of pink, yellow striped, small petals to give way to the developing clusters of artistic tender fruits. When matured, the trees are laden abundantly with the kakhi coloured fruits turning greyish brown on ripening.

Tamarind trees are found as far as Jhelem but the fruits do not ripen west of Ambala. The trees are found naturalised among the granite rocks and poor soils in the dry waste lands. But it revels in deep alluvial soil and abundant rain fall. The largest specimens are found in the tropical regions blessed with deep rich soil and good rainfall. It withstands the heat of the tropics as well as temperatures as low as 28 to 30 F without injury. With its deep root system providing strong anchorage, it is popularly grown as a wind break in view of its ability to withstand heavy wind. Though a rank evergreen tree, it changes its foliage in March-April.

Varieties

The tamarind is mostly grown self sown or from seeds resulting in a wide variety of types. Firminger mentions that three varieties are grown in India but is not sure whether those are reproducible true to type from seeds.

Bailey has stated about the two types of tamarind trees i.e. the East Indian variety and the West Indian variety. Accordingly, the former variety has long pods with 6-12 seeds whereas the latter has short pods and has 1-4 seeds.

Only Kanyakumari District in Tamil Nadu boasts of all three types of tamarind viz., sweet, acid and the valakatchi.

Sweet Tamarind :—The fruits are much liked by people to eat raw as it has sweetness coupled with less acidity. It is not much popular. It is found rarely.

Acid Tamarind :—Most trees are highly acidic and are popular for the market.

Valakatchi :—It is a type with long pods with a rectangular cross section as against some of the types producing short cylindrical pods.

A small seeded red Guzerat tamarind and the common reddish brown tamarind also have been recognized.

D. PAULAS, M.Sc., (Ag.)
Department of Horticulture,
Tamil Nadu Agricultural University,
Coimbatore.

PROPAGATION

Trees are commonly found self sown or popularly grown from seeds. The seed retains its viability, if kept dry. The seed can be sown *in situ* or seedlings easily transplanted. The seedlings are raised by sowings seeds 1.0 cm deep in the nursery beds formed with light sandy loam. Germination is epigeal and the two thick light green cotyledons obviously have a good storage of nutrients. The seedlings are rather delicate and the young seedlings should be handled carefully to prevent damping off. Young seedlings are then transplanted in the desired position. The young seedlings are slow-growing and tender, requiring staking and protection from being grazed. The side growths are removed and trained to a single stem until it grows to a height of about two meters and then it forms a round crown. The seedling progenies may be the main cause for the quantitative and qualitative variations common in the pods.

In order to protect the desirable economical characters, vegetative propagation may be resorted to.

Firminger recommends that seedlings which produce usually choice fruit be propagated by goodteeing. **Wester** and **Bailey** have reported that the tree can be shield budded. **Chamolter** states that budding on young seedlings is possible. And **Morory** and **Toy** have preferred shield budding of desirable fruit sorts on small stock plants of the same species.

Planting and aftercare

The tamarind is mostly grown as single trees in the home-steads, avenues on road sides or as wind breaker. In the house compounds raising trees by sowing seeds *in situ* and caring for it by timely watering is not difficult. But it is preferred to raise it in the nursery in polythene bags or small containers filled with grass or bamboo filled with pot mixture. Two seeds may be sown and the more vigorous seedling retained. With the onset of monsoon those seedlings can be planted with the baskets in pits and manured; it is necessary to water these plants during dry periods. The young plants have to be propped and protected from stray cattle.

With its deep and well developed root system, the tamarind grows very well after a slow start in the early stages. The young plants are trained to single stem till they reach a height of about two meters and then allowed to branch freely. No further training, pruning irrigation or manuring is practised. As there will be dense shade and the fallen leaves suppress any vegetation under the tree, weeds are seldom a problem. A ploughing or two after the cessation of monsoon enables to incorporate the litter and conserve the moisture.

The tree flowers in April to June and also in October. The fruits are harvested in December to April.

The pods which are green and full turn brownish and the flesh shrinks and is loosened from the epicarp which is thin and brittle.

The flesh turns from green to brown. The pods are harvested by shaking the branches and then collected from the ground. But certain varieties are strongly attached and the pods are removed by severing with knife. The variety is rare and harvesting costly.

The yield varies with the kind and size of the tree. A tree may yield 175 kg of fruits per annum providing a net return of Rs. 5,000/- per year per acre.

Insect, pest and diseases

The tamarind tree is resistant to the attack of any fungus or insect pest. However the following pests are noted in India.

Bettle (*Caryoborus gonzgra*).

It is a grey brown chrysomelid beetle found attacking the seeds.

Marketing :—In the forest and highways the crop is disposed off when it is still in the tree by auction sale. Some growers collect the pods and sell it as such by volume.

In Jamaica fruits are prepared for shipments by removing the outer shell. It is packed in cases with alternative layers of course sugar when the cask is nearly full boiling syrup is poured over and headed up.

In the orient the pulps containing seeds is pressed into large cakes which are packed in mats of palm leaves. Large quantities are shipped to Arabia.

The tamarind is prepared for European countries by removing the shell, seed and other impurities. The cleaned pulp is packed layer upon layer with salt or sugar in between and the package is closed with a coating of boiling syrup. West Indies is the main supplier of tamarind to the United Kingdom.

Careful house keepers prepare their own pulp from ripe tamarind pods free from shell, seeds, and impurities cured by exposing it to sunlight and dew for about a week. It is salted and stuffed into earthen

containers whose mouth is secured with cloth and covered by lid.

Its multi-purpose uses

Every part of the tree is used. The pulp of the ripe pod is a favourite ingredient in curries chutneys etc. and valued in pickling of fish. It is also used in the preparation of a syrup employed in sweet meats and a pleasant cooling drink or sherbet with sugar and water. It is used in flavouring preserves and gives zest to meat sauces. Children are fond of this fruit in all stages and pluck it directly from the tree. A strong infusion of the fruit mixed with sea-salt is used by silver smiths in preparing a mixture for cleaning and brightening silver. Cheap quality tamarind is used with or without salt to clean brass, bronze or copper household utensils. The wood is extremely durable and used for making wheels, mallets, furniture, rice-pounders, oil and sugar mills. It is excellent for turning purposes and one of the wood preferred for gunpowder. More commonly its stems are burnt for charcoal. Tamarind charcoal is a prized commodity of its kind.

The seeds are coarsely bruised, soaked in water over night and given to pigs for fattening. The outer skin of the seed is removed by roasting and soaking. They are then fried and eaten or boiled and fed to cattle. Dried and ground Tamarind flour is used for making edibles.

The leaves, flowers and fruits contain a large proportion of acid and are much employed as auxiliaries in dyeing especially along with saflower seeds. Seeds contain 20% of a thickly fluid oil of an amber colour free from smell and sweet to the taste. The oil is prepared by expression. It is fit for culinary purposes and for preparation of a varnishes and paints as well as for burning in lamps. Pulverised seed boiled into a paste with glue forms one of the strongest wood cements.

The seedlings or tender plants when about a foot high is used as a vegetable. The leaves are employed to make curries and the flowers made into dish called 'chingar' chutney made with tender leaves and flowers will be delicious.

Medicinal Properties

The tamarind fruit is considered as refrigerant, digestive, carminative and laxative and useful in diseases supposed to be caused by deranged bile such as burning of the body, costiveness, intoxication from spirituous liqueurs or *Datura*. The pulp of the ripe fruit as well as the poultice of the leaves is recommended to be applied to inflammatory swellings.

A gargle of tamarind water is recommended for sore-throat. The seeds are used as poultice to boils. A decoction of the leaves used as a wash for indolent ulcers promotes healthy action. The red seed coat is a soothing and mild astringent very useful in chronic dysentery.

Analysis shows that seeds constitute 13.9% of the weight of the fruit. The pulp free from seeds contain—

water	..	27%
Insoluble matter	..	16.2%
Pottassium bicarbonate.		5.27%
Tartatic acid	..	6.63%
Citric acid	..	2.20%
Malic acid	..	small quantities.

Nutritional Value :—Tamarind fruit taste strongly acidic though it contains more than 20% sugar. It also contains 3.3% of protein and is an excellent source of Vitamin B and high in mineral contents.

Fresh and dry fruits and whole and powdered seeds of tamarind are exported to United States of America, United Kingdom, Canada and to several countries of the Middle East. Thus our country gets a foreign exchange of Rs. 4.7 lakhs.

In view of its wide distribution adaptability to lands often rejected for cultivating most crops, its freedom from menace of the pests and diseases, the ease of cultivation, its negligible demands of inputs and attention and its importance for local consumption and foreign trade, growing of tamarind deserves greater importance.

Ways And Means To

Over weight is a health problem. Every one should check his weight occasionally to know whether he is maintaining normal weight for his height. It is advisable to carry no more weight in the years after 40 (weights with corresponding heights are given at the end in the Table I).

It is said that "for every inch by which a man's waist measure exceeds in chest measure subtract two years from his life." People who eat gluttonously should be ashamed of it, but seldom in fact, they will admit it. They will take to any "alibi" to justify themselves, such as "it is in the family to be stout", or "something must be the matter with my glands" or "no matter how little I eat, I do not lose weight."

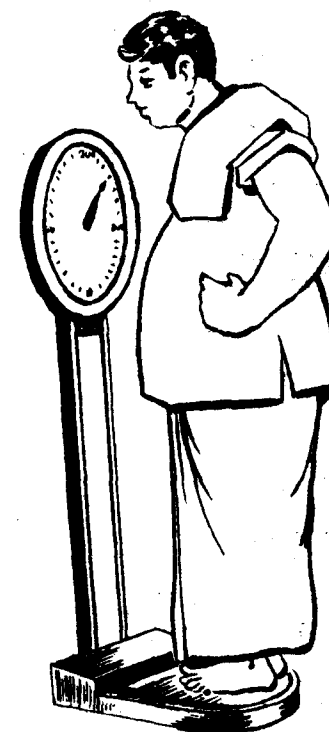
In most cases, an easy going and inactive temperament, combined with food habits such as preference for sweets and fatty foods or an acquired habit of not feeling satisfied unless the stomach is unduly full, are the main reasons for putting on fat or adding weight.

Surplus of Calories—The causes of Over Weight :—

Food consumed in excess of body requirements is converted into fat. It is caused by :—

- Over eating.....
- Lack of Physical exercise....
- Changes in hormonal activity.....

Intake of 100 calories per day over the daily energy needs can cause an increase of 10 lbs. of body fat in a year. This is caused chiefly by consumption of foods in fat and sugar over and above the energy needs. With the increasing transport facilities, a majority of people do very little physical work and consequently their calorie needs become less. As one becomes older there is a tendency for both the basal metabolism (energy for internal work) and physical activity to be



Reduce Over Weight

lessened. If one carries over into later life the food habits of younger years, the weight is almost certain to increase undesirably.

Disadvantages of Over Weight :—

The disadvantages of over weight are :—

- Inconvenience—difficulty in getting about heaviness on feet;
- Disfigurement—embarrassment, sensitiveness to ridicule;
- Inefficiency—lessened muscular activity, lack of ambition sometimes mental sluggishness;

Table I
HEIGHT—WEIGHT TABLE
Required Weight

Height 'Feet-inches'	Man		Woman	
	Kilograms	Pounds	Kilograms	Pounds
5' 0"	—	—	50.8—54.4	112—120
5' 1"	—	—	51.7—55.3	114—122
5' 2"	56.3—60.3	124—133	53.1—56.7	117—125
5' 3"	57.6—61.7	127—136	54.4—58.1	120—128
5' 4"	58.9—63.5	130—140	56.3—59.9	124—132
5' 5"	60.8—65.3	134—144	57.6—61.2	127—135
5' 6"	62.2—66.7	137—147	58.9—63.5	130—140
5' 7"	64.0—68.5	141—151	60.8—65.3	134—144
5' 8"	65.8—70.8	145—156	62.2—66.7	137—147
5' 9"	67.6—72.6	149—160	64.0—68.5	141—151
5' 10"	69.4—74.4	153—164	65.8—70.3	145—155
5' 11"	71.2—76.2	157—168	67.1—71.7	148—158
6' 0"	73.0—78.5	161—173	68.5—73.9	151—163
6' 3"	79.8—85.7	176—189	—	—

- Up to the age of 30 .. You may be 10% over the required weight.
Between 30 and 35 .. You should be the required weight.
Above the age of 35 .. You should be 10% less than the required weight.

SAMPLE REDUCING DIET

Requirements : 1000 Calories 170 g. Carbohydrate 20 g. Fat

(iv) More prone to diseases of the heart, high blood pressure, diabetes, etc. and

(v) Lessened expectancy of life due to predisposition of functional diseases and also due to the fact that they have poor chances of recovery after operation and in serious illness.

Over weight is prone to develop at 35-45 years of life and is especially disadvantages after 50 years of age.

Planning the reducing diet :-

For ordinary over weight individual by far the most satisfactory way to effect weight reduction is simply to cut down sharply on the concentrated fuel foods like sugars, starchy and fatty foods. A reducing diet should be planned taking into consideration the following :-

- Low calorie content;
- Atleast adequate protein;
- Atleast fairly low carbohydrate and fat;
- Plenty of minerals and vitamins and
- Good satiety value.

One should have an estimate of the normal daily need for energy and plan the diet to furnish from 500 to 1000 calories less than needed. This should effect a weight loss of about 3 to 6 pounds a month.

How to Reduce

A person's weight can be reduced by forcing him to lose his own fat without utilising his body protein by :-

- Curtailment of intake of food;
- Increased exercise;
- Guard against protein loss, mineral and vitamin deficiency;
- Reduction should be slow : 1 lb./week, 5 to 6 lbs. a month and

- Observance of one day fast once in a week.

Our motto should be

To eat less
to eat less often
to stay on the diet
to be more active
and above all to have will power

REDUCING DIETS AND WEIGHT MAINTENANCE DIETS FOR ADULTS (OUNCES/DAY/ADULT)

Food stuffs (1)	Reducing diets				Weight maintenance			
	Diet I (1000 Calories) (2)	Diet II (1300 Calories) (3)	Diet III (1600 Calories) (4)	Diet IV (2000 Calories) (5)	(6)	(7)	(8)	(9)
Cereals (rice, wheat and millets)	3	4	4	5	5	9	9	
Pulses	1	2	2	2	2	2	2	
Skim milk powder	3	3	1	3	1	3	1	
Milk—Cow's	5	10	10	10	10	10	10	
Eggs	—	1	1	—	1	—	1	
Meat and fish	—	4	4	—	4	—	4	
Green leafy vegetables	4	4	4	4	4	4	4	
Roots and tubers	3	3	3	3	3	3	3	
Other vegetables	8	6	6	4	4	4	4	
Fruit	3	3	3	3	3	3	3	
Oils and fats	0.25	0.25	0.25	0.5	0.5	0.5	0.5	
Cane Sugar	0.5	0.5	0.5	1.0	1.0	1.0	1.0	

Approximate Nutritive value of some ready-to serve preparations (per serving).

Food Preparations (1)	Approximate Quantity (per serving) (2)	Approximate wt. (g.) (3)	Calories (4)	Protein (g) (5)	Fat (g) (6)	Carbohydrate (g) (7)
Baked Products:						
Bread, toasted	2 slices	46	120	4.0	1.0	23.6
Bun	1 No.	31	100	2.3	2.3	17.5
Biscuits	2 Nos.	16	64	1.6	2.0	9.9
Cake, plain	1 No.	55	180	3.4	4.5	31.4
Pulse Preparations :						
Bengal gram puffed	—	1 oz.	106	6.4	1.5	16.7
Peas, puffed	—	1 oz.	102	6.5	0.4	18.0
Fruits :						
Apple	1 med. size	66	42	0.2	0.3	9.9
Banana	1 lar. size	100	99	1.2	0.2	23.0
Dates, dried	1 oz.	80	80	0.9	0.1	19.1
Figs, dried	6 Bos.	30	450	2.0	0.6	34.2
Grapes	1 bunch	140	44	0.8	—	10.2
Guava	1 med. size	100	66	1.5	0.2	14.5
Mango	1 med. size	100	39	0.6	0.1	8.8
Orange	1 med. size	100	54	1.0	0.2	12.1
Pineapple	2 slices	168	98	0.6	0.4	23.0
Raisins dried	2 table spoon	20	52	0.4	—	14.2
Tomato ripe	1 med. size	150	30	1.5	0.4	6.0
Dairy Products:						
Butter	1 table spoon	oz.	103	0.1	11.3	0.1
Cheese	1 cube	1 oz.	112	7.1	9.1	0.6
Cream	1 tablespoon	oz.	30	0.3	5.2	0.3
Ghee	1 Do	oz.	127	—	14.2	—
Carbohydrate foods:						
Honey	1 Do.	20	67	0.1	—	16.7
Jaggery	1 oz.	—	108	0.1	—	27.0
Sugar	1 oz.	—	114	—	—	28.4
Cereal and Millet Preparations:						

EXCERPTS FROM THE SPEECH OF TAMIL NADU GOVERNOR, THIRU K. K. SHAH, WHILE INAUGURATING THE ANNUAL CONFERENCE OF COLLECTORS AT RAJAJI HALL ON 27TH JULY 1974, IS GIVEN BELOW

I am happy that the administration in tune with the declared policy of democratic socialism, is capable of maintaining healthy standards and giving a lead to other States in recognising the common man as the real master. The efficient execution of Manu Neethi Thittam, the provision of house-sites, the ameliorative measures like campaign against blindness, the anxiety to make beggars useful members of society, the efforts to replace hand-rickshaws by cycle-rickshaws, etc., cement the rapport of the masses with the administration and reduce the gap which we otherwise notice between the sources of power and those who are far away from them.

Several measures initiated by Government for the uplift of Harijans and Backward Classes, have no doubt, will receive the same dedicated attention by all of you and will go a long way in improving their conditions, but unless the Gandhian method of planning at village level and village reconstruction is fully adopted, efforts to fight poverty will be hampered. I therefore welcome the formation of planning cells for each of the 13 revenue districts, headed by the Collector and assisted by a District Planning Officer with the orientation of techno-economic approach.

HARIJAN HOUSING CORPORATION—A WELCOME FEATURE.

The formation of the Tamil Nadu Harijan Housing and Development Corporation has been one of the welcome features of this year. In fact, our housing and slum clearance programme has been acclaimed by the planners and the administrators. I have no doubt that Harijan Housing and Development Corporation will not lag behind in scoring the same success and will reach the target of 10,000 houses by September this year.

In Land Reforms also, Tamil Nadu has registered good progress, and I am confident that we shall

soon see the disappearance of the last vestiges of feudalism. Started in 1968-69, the special drive for assignment of cultivable waste lands to landless poor has resulted in the grant of 344,230 pattas covering over 6.75 lakh acres till 1973-74, while during the period 1967-74 (March) over 3.67 lakhs house site pattas have been given. The rapid implementation of the three year crash scheme for the formation of roads to villages—habitations with a population of less than 1,500, and of the scheme to provide water-supply to villages for which provision has been made under Village Works Grant, requires your urgent attention. It is such schemes which can accelerate the prosperity of rural area and strengthen rural economy.

INTUNE WITH POLICY OF DEMOCRATIC SOCIALISM GOVERNOR'S TRIBUTE TO ADMINISTRATIVE MACHINERY

We are doing our best to promote agriculture, and to help agriculturists with supply of high yielding varieties of seeds, fertilizers, credit facilities, etc. Even power cut has not been allowed to interfere with agricultural production, as agricultural loads are exempted from power cut, barring the inconvenience of grouping restrictions which they should not grudge. The anti-inflationary measures recently taken emphasise the necessity of stepping up agricultural production so that shortage cannot be exploited and sometimes man-made shortages can be avoided. The disquieting feature, however, that I notice is while, on the one hand, the functioning of the nationalised banks is sought to be toned up and to be made effective to meet requirements of agriculture, the repayment of loans, on the other hand, taken from nationalised banks by agriculturists and guaranteed by the Government, is very tardy and the arrears as on date almost amount to Rs. 232.65 lakhs which are two-thirds of the loans. Equally worrying is the fact that there is no appreciable progress in the recovery of aerial spraying charges which

amount to Rs. 1.17 crores almost three-fourths of the demand. The beneficiaries of credit facilities should be persuaded not to make the position so difficult.

We have adopted different systems of levy on different occasions in the past to meet the peculiar circumstances of different situations. We have now enough experience and developed some expertise. It is time we draw up a definite scheme of procurement. Your suggestions for maximising procurement and ensuring equitable distribution of essential commodities will be very helpful to Government in formulating policies.

WORK OF FOOD CELL PRAISED

So far as the Police Department is concerned, I am aware of the law and order problems our State is confronted with. You have had a trying time during the railway strike and I must congratulate the officers and men who have done a splendid job. The efficient functioning of the Food Cell in preventing smuggling of foodgrains across border areas and in seizing essential commodities worth more than Rs. 71 lakhs in 6 months as against Rs. 62.25 lakhs in the whole of 1973 or Rs. 36 lakhs in 1972 is praiseworthy.

The Government have recently announced a scheme of cash awards to the private individuals who give information about food offences. Any delay in payment on account of complicated procedure will defeat the purpose of the award which has given excellent results. I have no doubt every effort will be made to straighten out the procedure.

I am glad that there is a proposal for considering increase in the effective strength of police stations. We have succeeded considerably in solving housing problem but construction of houses on a large scale has created problem of policing in new localities. If police stations are strengthened, petty thefts in the newly constructed housing localities, not only in Madras but in Madurai, Coimbatore, Tiruchirapalli, Thanjavur, etc., will then be no longer a problem.

The Government will undoubtedly welcome your suggestions and give earnest thought to them. Now that Prohibition is to be reintroduced from 1st September 1974, you will be called upon to deal with illicit distillation and bootleggers and I am sure you will rise equal to the occasion.

HOUSING PLANTATION WORKERS

Constitutional mandate fulfilled cent percent.

In the matter of providing houses for plantation labour, Tamil Nadu is approaching cent per cent coverage. As on date, about 97 per cent of workers resident in plantations have been provided with housing.

The total number of workers employed in the Tamil Nadu Plantations is 1,23,330, out of whom approximately 1,19,900 workers have already been provided with suitable housing facilities. The number of workers yet to be provided with housing is about 4,300 and the Central assistance required is approximately Rs. 27 lakhs.

Article I of Convention 110, adopted by the International Labour Organisation at the 42nd Session of its General Conference in 1958, defines "Plantation" as including any agricultural undertaking regularly employing hired workers which is situated in the tropical or sub-tropical regions and which is mainly concerned with the cultivation or production for commercial purposes of coffee, tea, sugar cane, rubber, banana, cocoa, coconuts, groundnuts cotton, tobacco, fibres (sisal, jute and hemp) citrus, palm oil, cinchona or pineapple; it does not include family or small-scale holdings producing for local consumption and not regularly employing hired workers.

The working and living conditions of workers in plantations in India were very unsatisfactory before Independence. With the dawn of freedom, the Government were seized of the need to improve the conditions of plantation workers and the Plantations Labour Act was enacted in 1951. This Act was amended in 1960 and is designed to increase workers' welfare and to regulate conditions of employment in tea, coffee, rubber, cardamon and cinchona plantations with a surface area of not less than 10.117 hectares (about 55 acres) which employ or have employed on any day in the previous 12 months not less than 30 workers. Section 15 of this Act requires that every employer in a

plantation should provide and maintain for every worker and his family residing in the plantation necessary housing accommodation. Rules framed under this Act require that one house should be provided for one family or for four single workers one house free of rent, the workers so covered being workers residing in the plantations. The rules prescribe that 8% of the houses required for resident workers, should be provided every year. Planters were given loans to help in constructing houses for workers. The response was initially rather poor. Accepting a recommendation of a Working Group on Plantation Labour Housing, the Government of India converted this scheme into a subsidised scheme. The Working Group of the Government of India had indicated in 1964 that an outlay of Rs. 88 crores would be required to wipe out completely the shortfall of about 2,11,000 houses required for resident workers in plantations in the

There has been near cent percent fulfilment in providing houses for plantation labours in Tamil Nadu.

whole country. Under this Scheme, assistance was given in the shape of loan subsidy. Based on the ceiling cost of Rs. 3,200, 50% is disbursed when the construction reaches plinth level and the balance amount when the construction reaches roof level. Fifty per cent of the subsidy is to be disbursed when the construction reaches roof level, 30% when the construction is completed to the satisfaction of the State Government and the remaining 20% of the subsidy will be disbursed when the State Government receives and accepts as correct, complete and detailed accounts of expenditure by the beneficiary duly audited and certified by a Chartered Accountant.

Assistance is available to the following categories of planters :-

- (1) Employers as defined in Section 2 (a) of the Plantation Labour Act 1951 ;
- (2) Housing-Co-operative Societies of Plantation workers and

(3) Government-owned plantations that are paying income-tax.

The Scheme is implemented by the Commissioner of Labour of Government of Tamil Nadu.

An employer who desires to avail himself of the Scheme has to send his application together with the prescribed documents to the Commissioner of Labour and after approval by Government, the loan and subsidy assistance will be given.

The documents to be produced are as following :-

- (1) Application for loans and subsidy in triplicate;
- (2) Building plan in triplicate;
- (3) Site plan in triplicate;
- (4) Lay-out plan in triplicate;
- (5) Detailed specifications;
- (6) Title deed or lease deed in respect of the land to be mortgaged;
- (7) Encumbrance certificate for the property to be mortgaged with Government;
- (8) Income-tax certificate and
- (9) Opinion of the Government Pleader.

In case an employer desires to send bank guarantee, he has to send the bank guarantee from a Scheduled Bank in the prescribed form and also to execute an Agreement. The employer has to execute the Mortgage deed and an agreement in case the property is mortgaged.

The loan is repayable in 20 equated annual instalments together with interest at the rate fixed by the Government from time to time.

During the period of construction the employer will be required to submit quarterly reports to this Department showing the progress of construction. The accommodation will consist of a verandah, living room, kitchen and a bath-room covering about 260 sq. ft.

General Instruction :-

Take only prescribed amount. Take salts sparingly.

Avoid sweets, chocolate, Jaggery, Jams, Honey, Cakes, Ice-cream butter, fried foods, etc.

Take leafy vegetables—Carrott, onions, Brinjal—Chow-chow, Drumstick, Tomato, Pumpkin, Cauliflower, Ladies fingers, etc.

Drink no water at your meals—water should be taken one hour before and after meals.

It is important that the reducing diet providing enough protein at least for the maintenance and upkeep of body tissues and that the mixture of proteins taken should provide all essential amino acids. For the recommended allowance, an adult should have 1 gram of protein per kilogram (2.2 lbs.) of body weight, and the intake of protein should be at least 50 grams daily for the diet to be adequate. Children will need a more liberal protein allowance. Naturally if one cuts down on the foods that are high in carbohydrates and fats, a greater proportion of the calories will tend to be taken as protein. In addition, the proteins have a stimulating effect on basal metabolism so that a protein-rich diet will cause a greater "burning" of fuel in body tissues. Hence one would lose weight faster on a diet furnishing an inadequate number of calories but liberal protein than he would on the same number of calories when carbohydrates or fats were the chief sources of fuel.

A dieter must live his life a little on the hungry side. However, the burden can be eased. Many reducers make the mistake of saving almost their entire allowance of calories for the evening meal when their activities are at all time low and consequently when many of these calories will be stored as body fat and not burned.

Instead, the intake of food calories should be spread more equally throughout the day to match calories used in their daily activities. By doing this all the calories you eat will be burned by your job and recreation and will not be stored.

As a matter of fact, if you are going to reduce, forget the three meals a day routine—you will be better as a nibbler than as a gobbler.

Approximate Nutritive Value of some ready to serve preparations (per serving) cont.

Food Preparations (1)	Approximate quantity (per serving) (2)	Approximate wt. (g) (3)	Calories (4)	Protein (g) (5)	Fat (g) (6)	Carbohydrate (g) (7)
Rice Preparations:						
Plain rice	3 plates	504	595	11.9	0.9	34.8
Sambar Bath	1 plate	485	405	13.5	5.1	76.2
Curd Bath	1 plate	253	221	6.0	7.0	33.3
Sweet Rice	1 plate	177	432	3.6	12.0	77.4
Iddli	2 Nos.	136	130	4.6	0.2	27.6
Plain Dosai	2 Nos.	100	216	4.1	9.7	28.2
Masala Dosai	1 No.	101	212	4.6	8.4	29.4
Pongal (hot)	1 plate	148	200	5.5	6.0	30.5
Adai (hot)	1 No.	96	195	6.6	4.4	31.8
Wheat Preparations:						
Wheat Uppuma	1 plate	128	163	3.8	5.4	24.7
Chapatis	2 Nos.	57	193	5.0	5.5	30.8
Puris	2 Nos.	32	136	2.2	8.4	13.0
Plain Parathas	1 No.	66	304	4.5	19.6	27.3
Ravai Iddli	2 Nos.	114	212	5.0	8.5	28.7
Kesari Bath	1 plate	90	282	2.0	14.6	33.3
Luchchi	2 Nos.	71	646	4.0	24.0	28.0
Millet Preparations:						
Ragi balls	1 No.	335	446	8.0	7.6	86.8
Ragi roti	3 Nos.	185	460	8.0	9.0	87.0
Maize roti	2 Nos.	142	314	9.6	5.5	56.4
Jowar roti	2 Nos.	150	252	7.5	1.3	52.5
Pulse Preparations:						
Bengal gram dhal	1 cup	151	284	9.0	16.4	25.2
Green gram dhal	1 cup	142	171	7.0	7.7	18.4
Red gram dhal	1 cup	96	110	6.4	2.0	16.4
Dhal Rasam	1.5 cup	196	29	1.5	0.9	3.8
Amaranth Sambar	1.5 cup	140	97	5.1	2.7	13.0
Radish Sambar	1.5 cup	196	101	4.1	3.6	13.1
Green gram dhal sundal	1 plate	142	259	13.1	9.2	30.9
Bengal gram sundal	1 plate	142	272	9.7	11.1	33.2
Cowpea sundal	1 plate	142	255	13.5	8.8	30.4
Vegetable Preparations:						
Amaranth curry	plate	28	47	2.4	2.3	4.1
Brinjal curry	plate	45	122	1.4	10.7	4.9
Amaranth Maseel	plate	42	46	2.2	2.6	3.4
Cabbage and Carrot curry	plate	56	81	1.5	5.6	6.1
Preparations containing Milk:						
Coffee	1 cup	7 oz.	78	1.9	1.7	13.8
Tea	1 cup	7 oz.	64	0.7	0.8	13.5
Cocoa	1 cup	7 oz.	174	7.5	7.0	20.2
Suji Payasam	1 cup	154	178	3.4	4.3	31.5
Rice Payasam	1 cup	154	178	3.2	4.2	31.7
Bengal gramdhal Payasam	1 cup	140	221	7.7	5.1	35.9
Sago Porridge	1 cup	266	227	3.7	4.0	44.0
Wheat suji porridge	1 cup	266	263	7.6	6.2	44.3
Rice Porridge	1 cup	193	217	6.9	6.3	52.7
Ragi Porridge	1 cup	280	263	6.9	6.3	44.7
Milk (Cow's)	1 cup	7 oz.	218	7.2	8.0	29.2
Buffalo milk	1 cup	7 oz.	300	9.0	16.0	29.2
Butter milk (curd from cow's milk 1:3)	1 cup	7 oz.	36	1.8	2.0	2.8
Butter milk (curd from buffalo milk 1:3)	1 cup	7 oz.	66	2.4	5.0	2.8
Egg fish and meat preparations:						
Omelette	1 No.	39	77	5.8	5.7	5.0
Minced meat with onion	3 Nos.	128	220	11.6	18.0	2.7
Meat fry	1 Plate	142	339	21.8	26.0	4.5
Fish fry	1 Plate	100	245	23.4	16.2	1.5
Rice-Mutton Pulav	1 late	341	686	20.4	39.0	63.6

Vira Pandya Kattabomman, a Nayak chieftain, who ruled with Panchalankurichi as his capital towards the end of the 18th century is celebrated for his valour and heroism. While agreeing to come to an honourable settlement, he refused to accept the supremacy of the British and to pay any taxes to them. The British decided to capture Panchalankurichi. An army under Allan failed miserably to capture the palace. Jackson, the District Collector of Thirunelveli, subsequently tried to arrest Kattabomman by dubious means, but paid the penalty. In 1799, a powerful contingent under Colonel Bannerman besieged the fort of Panchalankurichi. A number of British soldiers lost their lives in the battle. A place in Ottapidaram, containing a number of tombs of those who fell in the battle, bears witness to this battle. Kattabomman was induced to abandon the fort. He was treacherously arrested and handed over to the British. Colonel Bannerman, after a mock trial, hanged Kattabomman at Kayattaru.

Within a year, Kattabomman's younger brother, familiarly known as the dumb Master of Panchalankurichi, repaired the Panchalankurichi fort and assumed the leadership. The British, in 1801, again invaded Panchalankurichi. Umaidurai inflicted heavy casualties on them. A place in Panchalankurichi contains the tombs of over 45 British soldiers who lost their lives in the battle. However, the fort fell and nothing more was heard of Umaidurai. The British this time destroyed the fort and the palace. The fort area, measuring over 35

BRAVERY THAT WAS PANCHALAM KURICHI

RELICS OF HEROIC DEEDS

By
R. NAGASWAMY,
Director of Archaeology,
Government of Tamil Nadu.

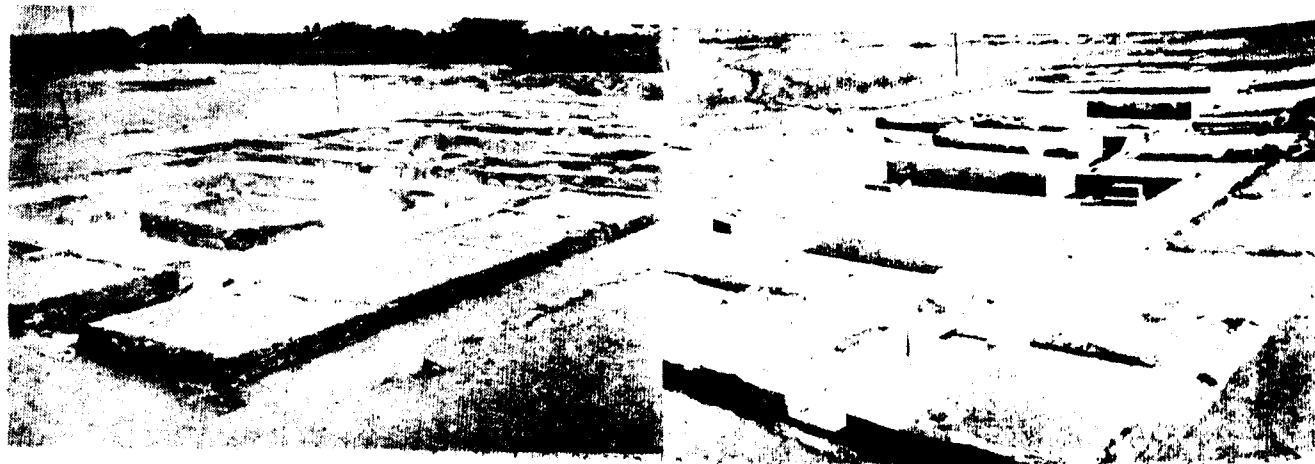
acres, remained as a mound. The valuables and furniture were probably pilfered when the fort fell. The entire area, field No. 70 of village No. 259 Panchalankurichi, became Government poramboke. In recent years, a temple to Goddess Jakkammal, the family deity of Kattabomman, was built by a few devotees. At a few places remains of brick structures were visible, but a major part of the mound was covered

with thick thorny bushes. An ancient well in the south west of the mound was desilted and was brought under use a few years back. A part of the mound had been encroached upon. The nearby villagers were digging the mound here and there for earth.

The entire area was cleared of bushes. The debris was removed by excavating a part of the mound near the Jakkammal temple. Immediately, it was recognised that the remains of the main palace, with its adjoining rooms, could be laid bare by careful clearance.

The excavation revealed that the main palace had its entrance facing east at the southern end. The entrance was flanked by six rooms, three on each side. There was a square pit about one and a half metres in depth lined with lime plaster, probably intended for storing grain. A passage with a slope to the north led the visitor to the audience hall, which is the most impressive part of the structure. It had a raised platform at the western end, built of brick. The eastern part of the platform was decorated with ornamental mouldings and a row of sockets for lamps. It also had stone steps. The upper part of the platform was paved with small sized square bricks and plastered with fine lime mortar. All around the platform there was a passage. At the east end of the platform were found two stone bases, obviously intended to hold wooden pillars. In front of the platform there was a passage also paved with fine lime mortar. At the corners of the hall are platforms,

Relics of Panchalamkurichi Fort Before and After Conservation



Welfare of Backward Classes

Free Education up to P.U.C.

Legal Distribution of Land to the Poor

Slum Clearance

Rapid Green Revolution

CAN YOU NOT HELP THE STATE?

*Despite these achievements
Rising Population Raises Problems*

**SURELY YOU CAN
BY PLANNING YOUR FAMILY**

DEPARTMENT OF HEALTH SERVICES AND FAMILY PLANNING

VISIT Poompuhar

FOR A REAL
INSIGHT INTO

Tamil Culture

Kaveripoompattinam, known as Poompuhar in its more fortunate days was a well laid out port town which boasted of a separate settlement for the foreigners. Much of the archaeological remains still are there for us to see.

In addition, the recently constructed art gallery is the first attempt, after many centuries, at group-sculpture for which Tamil Nadu is justly famous. In the form of group-sculpture and also in individual figures a remarkable edifice to recreate the life and times of the Tamil classic "Silappathikaram" Story of the Anklet has come up at Kaveripoompattinam in its art gallery.

FOR FURTHER DETAILS
CONTACT:
RECEPTION OFFICER,
Poompuhar Art Gallery
(VIA) Sirkali, THANJAVUR DIST.



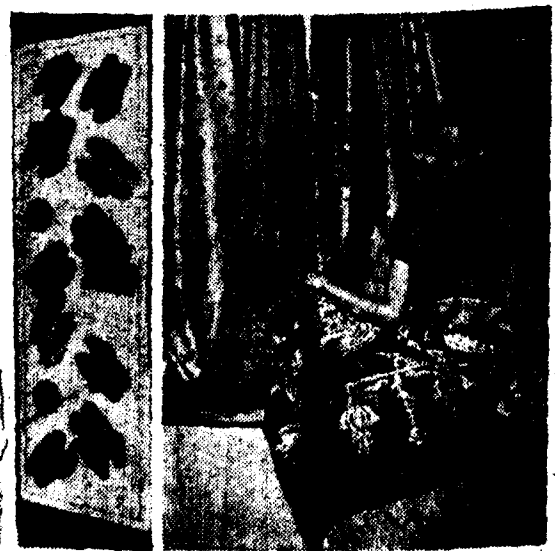
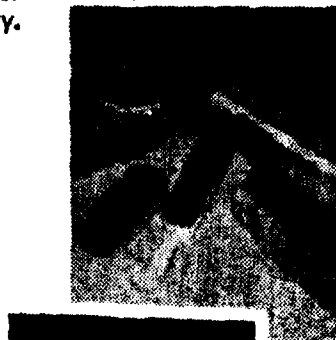
SEPTEMBER 1974

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LET ALL SMELL THE FRAGRANCE OF FREEDOM

Hoisting of the National Flag to the sky-high Flag Mast of Fort. St. George on India's 28th Independence Day, 15th August 1974 was brought home to the people as the people's representative, the elected Chief Minister rather than the Governor it was who unfurled it. To Dr. M. Karunanidhi, Chief Minister of Tamil Nadu, it was a heartwarming occasion, to give full vent to his profound respect for the great and the brave martyrs of Freedom Struggle and to those who had stood firm in their resolve to win freedom for the country and suffered for the courage of their convictions. Of course he did not, at the same time, fail to express his sense of gratitude to the Prime Minister and to the Government of India who so readily saw the logic behind his demand for this right and gracefully acceded to it. He emphasised that the Government of Tamil Nadu is imbued with the principle that though articulate about one's rights, the hand must remain outstretched for the sake of kinship.

The Chief Minister reminded the enthusiastic audience which had gathered near the ramparts of Fort St. George on 15-8-1974 that the aims of the Freedom Movement would not be fulfilled by the mere fact of removal of the White Man's rule from our country, but that there should be an equal determination to secure for the people a decent living standard.

He said : "We have not only re-introduced Prohibition but also put an end to the gamble known as Horse Racing. The hoisted National Flag remains as a symbol of national integrity and unity. To establish and to get the real feeling of national unity, the Union Government should find ways and means of bringing in force at all India level the good decisions taken by Tamil Nadu.

"On this auspicious day I can not but fail to issue a stern warning to those who indulge in social crimes that they would be trapped like rats and dealt with severely by stern legal action.

"Independence is for all and not for the welfare of a few at the cost of many. The Independence that does not benefit the hewers of wood and the drawers of water, nor those who dive deep into the fathomless seas to bring out the oysters and the pearls therein, is much like the blossom that wastes its fragrance in the desert air.

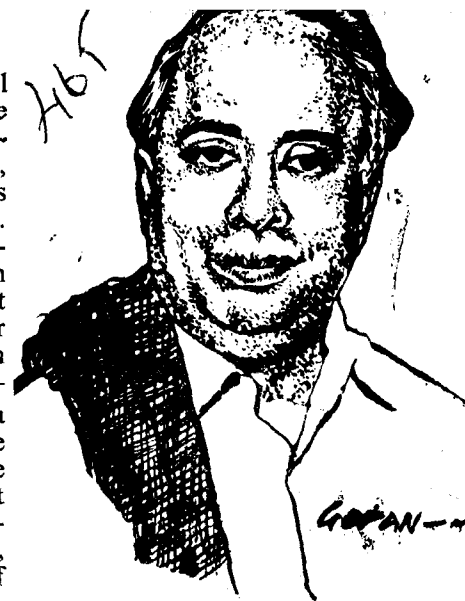
"On this august and all-important day, let us take the oath to see that fragrance of freedom is wafted in the direction of the many who can savour it to the full.

On 15th September, Tamils all over the world are to celebrate the 66th birthday of Dr. Anna. Wielding a powerful pen and tongue, Dr. Anna also excelled in the fields of play-writing, stage acting, etc. with exemplary distinction and proved himself a wise statesman, an able administrator and a great leader. In short he was a leader of the type envisaged by French critic Henri Peyra. In his words :—

"Leadership can be but a broad ideal proposed by the culture of a country, instilled into the young through the schools, but also through the family, the intellectual atmosphere, the literature, the history, the ethical teaching of that country. Will Power, sensitivity to the age, clear thinking rather than profound thinking, the ability to experience the emotions of a group and to voice their aspirations, joined with control over those emotions in oneself, a sense of the dramatic are among the ingredients of the power to lead men."

Dr. Anna was an embodiment of all the noble faculties personified. All along his public career, he carried "on the crusade against caste which cannot coexist with democracy, against superstition, which cannot coexist with science and against tyranny of various dimensions, which cannot coexist with liberty, equality and fraternity." Through his unparalleled and powerful pen and tongue he recalled to the Tamil the forgotten memory of their glorious past and rediscovered for them the time-ravaged art and architecture and literature which are fine specimens of human intelligence. He used Tamil language, an instrument of precise and subtle thoughts, to revive and rebuild Tamil cultural heritage and literary superiority in the modern light with little damage to their past pristine purity. So Anna may rightly be called the rebuilder of Tamils. For this service alone, if not for his multifaceted services and sacrifices for the society at large, the Tamils all over the world will bow in reverence cherishing the memory of a great leader.

Anna always stood for the great trinity : **Duty, Dignity and Discipline.** He visualised a classless and casteless world where the welfare of every one is the ideal of everyone else and the society itself. In this respect he combined in himself Abraham Lincoln's love of liberty with Lenin's radical and revolutionary urge for equality. But



THE GREAT LEADER.

at the same he was a Gandhite to the core inasmuch as he adopted non-violence as a powerful political armour to withstand and undo the irresponsible and irrepressible atrocities and arrogances of the power-that-be before he was elected to Office in 1967.

Dr. Anna was annoyed at the injustices and imbalances in our social set-up. He tried his utmost to root out this element of insecurity among the mass of people, it being the root cause for the struggle in existence, for competition for power and for suppression and exploitation of man by man, community by community, race by race, nation by nation and what not. So he always linked the political struggle with economic advancement, social reform and cultural renaissance.

Dr. Anna was credited with the high level of moral character, intellectual acumen, clear foresight, high persuasive capacity and ability to touch feelings and move people emotionally. Besides these, he had the right type of leading genius providing for the well-being of the led with a compact and effective social organisation with a set of rightful beliefs and purposes. As

such he embodied in himself all characteristic traits and talents of a great leader. It was these great qualities of him that made people have great confidence and faith in him. Anna was a great leader who exhibited so much faith and confidence in his erstwhile followers as his followers had them in his words and deeds. This two way channel of reciprocity of the faiths between the leader and the led made Anna a great leader of his age.

—R. N.

History of enforcement of Prohibition in Tamil Nadu

Coinciding with the month reminding us of Anna whose Birthday falls on 15-9-1974, Prohibition has been re-introduced in Tamil Nadu with effect from 1-9-1974. For he had stood out solidly in favour of prohibition, as Mr. Justice Tek Chand in his book 'Liquor Menace in India' remembers Anna as one who "swore by principles, which his Congress counterparts, who propounded them originally, now seem to avoid."

Tamil Nadu has the distinction of being the earliest pioneer of Prohibition as a measure of social reformation.

In 1924 as an experiment in the prohibition of arrack in areas where large quantities of toddy were sold, the sale of arrack was prohibited in Sirkali, Tiruturaipoondi, Thiruvadanai, Tenkasi and Attur. In 1928 the Madras Legislative Council considered a resolution recommending Prohibition in five years. An amendment fixing the time limit "within 20 years" was accepted and passed.

An important step was taken in 1929-30 in closing 11 arrack and 22 toddy shops in Tiruchengodu, Rasipuram and Namakkal taluks of Salem district as an experiment in total prohibition. In 1937 prohibition was introduced in Salem District on October 1. The entire State went dry in October, 1949.

The Prohibition was suspended in August 71, on account of rampant illicit distillation and the mounting spiral of Dry Law offences running to more than 3 lakh cases every year. Though the re-introduction of Prohibition costs us Rs. 56 crores of excise revenue per year the Chief Minister claims that he feels as though a thorn pricking his vitals has been removed.

Tamil Nadu Goes Dry

A Thorn in our Flesh Removed

To-day to our Relief

The Tamil Nadu Assembly on 22nd September, 1974 unanimously adopted the Prohibition (Removal of Operation and Amendment) Bill which once again brings in force from 1st September, 1974 the suspended Prohibition in Tamil Nadu. Winding up the debate on the Bill, Dr. M. Karunanidhi, Chief Minister, replied in the following terms:

"At the time when the legislation for the suspension of Prohibition was introduced and put through this House, strong and stringent objections were raised on behalf of the parties in opposition. The D.M.K.'s alliance parties such as the Forward Bloc, the Muslim League and the Tamil Arasu Kazhagam, took strong exception to it indicting the Government in no uncertain terms. Their strictures at that time were in tune with Valluvar's dictum: "that good friendship does not end with putting on smiling faces, but it also involves mending the erring friend's ways with sound advice when he transcends the bound of probity."

"Notwithstanding all these opposition and indictment, I, with heavy heart and mind, advanced the argument that the Government could not help passing the legislation authorising suspension of prohibition in the critical context of heavy odds the State was in at that time. If we look into the proceedings of the House at that time it would indicate that we in great pain went ahead with the legislation only out of force of circumstances though we respected much the feelings of the opposition in the House.

A THORN IN THE CHEST

"In the matter of suspension of Prohibition, all along this period from the date of suspension to date, the Government set up by Dr. Anna and wedded to the precepts

of Mahatma Gandhi, felt it like a thorn pricking our flesh. To-day we are all submerged into the sea of exuberance and exaltation in the belief that the thorn in our flesh has been removed once and for all to our relief.

"The D.M.K. puts forth its argument that the principle of Prohibition should be given effect to at the all-India level. The same principle is advanced by the Congress (O) as well as the other parties. But the Congress (R) which is in a position of responsibility to implement it at all-India level is represented by none of its members when this Bill is passed in this House. Though we are in the saddle of power in the State, our plea would have been conveyed to the powers-that-be at New Delhi by the members of Congress (R) if they are present here. I feel sorry that we have lost that golden opportunity. If they have lent their support to the passage of this Bill by their presence to-day in the House I would have felt great joy and ecstasy. It is in fact a matter of intense sorrow for us that they have not participated and given voice to their views in the debate.

SUIT AGAINST GOOD THINGS?

"The CPI member Thiru Palanisamy, in the course of his speech, said that the matter would be taken to a court of law. For that, Minister Sadiq Pasha replied in an emphatic negative that they could not win the case in the court of law. Suppose for argument sake, let us take it for granted that they win the case. In that case I wish and am bound to say that if they proclaim that they have won and stalled the implementation of a socially beneficial scheme by taking advantage of the loopholes in the laws, such act would not amount to their rendering service to the society at large. The society would

know them for what they are. The country would be taking serious note of the motives of all those who take the matter to a court of law.

"I am not against going to a Court of law for sound purposes. But when suits are filed against good social objectives, the litigants, even if they win their case in a court of law, would only stand in the way of execution of socially good schemes, whether it be the enforcement of prohibition or abolition of horse racing, and thus lose the esteem of people at large."

"As all the parties in this House, irrespective of their political colour and principle, have cooperated with singlemindedness to adopt this Bill unanimously I wish they must also extend their cooperation to the successful implementation of the scheme in such a way as to pave the way for other States in this respect.

"The Congress (O) should not tend to think that it belongs to Tamil Nadu only as we still prefer to call Kamaraj as a great leader of Bharath. So Kamaraj may speak about and argue this principle in the Parliament. And all the all-India parties should come forward to spread this principle all over India. We pass this Bill with contented heart to pave the path for India to go dry.

"Though in the meanwhile certain circumstance prevailed in the State making us unable to implement the ideology of Anna, to-day we have removed that piercing thorn in our flesh for good. Let us adopt this Bill with a joyful heart sitting in front of the photos of Anna, Mahatma Gandhi, Tiruvalluvar and Rajaji who had stood for this principle all along and place it at their feet as a mark of respect to them."

IN POWER GENERATION AND DISTRIBUTION

TAMIL NADU STANDS IN THE FOREFRONT

ELECTRICITY MINISTER OUTLINES POWER SCHEMES OF TAMIL NADU

Presenting the Annual Financial Statement of T.N.E.B. for 74-75 in the Assembly on 22-8-74, the State Electricity Minister, Thiru O.P. Raman said :

Tamil Nadu has made rapid strides in the field of Power Development generally during the post independent years of the country and particularly during the last 7 or 8 years. Tamil Nadu Grid is served by 17 hydro stations with an installed capacity of 1,224 Mega Watts, 3 thermal stations with a capacity of 1,030 M.W. including 600 M.W. of Neyveli under Central Sector. It has nearly 2.75 lakh kilometres length of Transmission and Distribution lines. Out of a total number of 62,487 villages and hamlets, 61,138 representing 98 per cent have been electrified. Similarly out of a total number of 24,799 Harijan Colonies, 23,800 representing 96 per cent have been electrified. About 7 lakhs pumpsets have been energised. This represents one third of the total number of 24 lakhs pumpsets operating in all the States together.

SEVERAL FIRSTS

At present Tamil Nadu has a total installed capacity of 2,254 M.W. We have generated and purchased 7,105 million units of energy during last year 1973-74. The length of transmission and distribution lines in this State alone is about 20 per cent of the length of lines in the country. This State is catering to well over 27 lakhs of consumers. This State ranks first in installed capacity, total length of lines, villages electrified and number of pumpsets connected.

In southern region, Tamil Nadu stands first in installed capacity, peak demand, power generation, energy sales, per capita consumption, length of lines, pumpsets connected and villages electrified.

In spite of such a development, Tamil Nadu is now facing power shortage. It had again gone through another year of gruelling power crisis during the year 1973-74.

Two numbers 50 M.W. machines at Neyveli Thermal Station were converted to oil firing as originally programmed. Messrs. Neyveli Lignite Corporation indicated earlier that an additional relief of 500 m.v. will be available to Tamil Nadu Grid out of oil firing in addition to 1,700 m.u. from conventional lignite firing during the year 1974-75.

As in the previous year, limited energy relief from neighbouring States was availed during 1973-74 and beyond on barter deal in the interests of national economy.

The impact of south-west monsoon during this year in the catchment areas has been less during June and also in July. On account of weak monsoon, the inflow till now is very meagre compared to the last year.

The storage equivalent as on 1st August, 1974 was 685 m.u. against 1,465 m.u. on 1st August, 1973 and 751 m.u. on 1st August, 1972.

In view of the unsatisfactory hydel storages, the neighbouring States, viz., Karnataka and Kerala are also not in a position to help us. Kerala has not been able to continue power supply beyond 12th June 1974 due to depletion in its reservoirs. Under the circumstances the Government were constrained to keep the power cut at the 60 per cent level till 5th August 1974. The cut was reduced to 40 per cent and again to 30 per cent at present.

A review of the power position all over the country indicates that many other States are still not out of the woods. This clearly points out the need for investment of more

funds on more power generation schemes, which should be executed almost on a war-footing.

The peak demand at the end of the Fifth Plan (1978-79) is expected to reach 3,020 M.W. To meet this demand the effective capacity required would be 3,620 M.W. The draft Fifth Plan for power contemplates an addition of 925 M.W. as follows :-

Scheme	Installed capacity M.W.	Year of commissioning
Ennore Extension (1x110)	110	1975-76
Kundah Fourth Stage (60+50)	110	1976-77
Suruliyar (1x35)	35	1978-79
Kalpakkam (2x235)	235	1976-77
	235	1978-79
Tuticorin (2x200)	200	1978-79
Total	925	

Though the additional installed capacity is 925 M.W., the effective capacity would be about 724 M.W. only. The deficits would be 1,465 M.W. at the end of Fifth Plan. Similarly the energy requirements have been assessed at 15,490 m.u. by 1978-79. The net deficit taking into account the schemes under construction would be about 5,183 m.u. by 1978-79.

Tamil Nadu will therefore continue to have power shortage for next decade unless additional power schemes such as Neyveli second mine cut, second nuclear station and Kalpakkam extension are taken up quickly for execution. Hon'ble Members would also remember the unanimous resolution passed in the Assembly last year urging the Centre

to take immediate action regarding Neyveli second mine cut. I have to recall various occasions on which our Hon'ble Chief Minister and myself have personally represented the need for the Neyveli second mine cut. All these efforts both at the official and personal level taken up with the powers—that we, have not borne any fruitful result so far. It is regretted that no decision has been taken so far on the question of establishment of second mine cut and second thermal station which is inextricably tied with the needs and interests of this State. Even in this hour when we are facing a difficult future with intermittent power crisis threatening us we expect that the Centre will take up at least now the Neyveli second mine cut scheme which has ready potential for exploitation to the immediate benefits of Tamil Nadu.

In this connection I would like to bring to the notice of the House about two important conferences held recently in New Delhi, viz., the 8th Conference of Chairmen of State Electricity Boards and the 8th Conference of State Ministers of Irrigation and Power. They discussed various problems facing the power industry and the State Electricity Boards and the following decisions were arrived at :—

(i) The State Electricity Boards are to maximise power generation at their existing thermal stations ;

(ii) The time limit for completion of power projects has been indicated as 3.5 years for thermal stations and 5 years for hydro stations ;

(iii) All efforts are to be taken to reduce transmission losses in a phased programme ;

(iv) Mobilisation of internal resources by an upward revision of electricity tariffs and institute specific drives for liquidating arrears ; and

(v) Life Insurance Corporation will no longer give block loans to State Electricity Boards. Only specific projects will be eligible for loans from Life Insurance Corporation hereafter.

The Government had appointed a Special Officer in connection with the formation of Power Corporation in Tamil Nadu. The Special Officer has also submitted his report. After examining the reports, orders have

been issued by the Government for the formation of the Power Corporation.

I would like to briefly narrate the capital programme for the year 1974—75.

GENERATION SCHEMES

I. CONTINUING SCHEMES—

(a) The works on the third 110 M.W. unit at Ennore are progressing well and the Unit is expected to be commissioned during 1975—76 ;

(b) Under the Kundah Hydro Electric Scheme Fourth stage, the generating machines are being supplied from Canada. The works are under progress and the two units included in the scheme are programmed to be commissioned in 1976—77 ;

(c) Naduvattam Diversion Scheme, which envisages additional generation of 69 m.u. per annum at Pykara and Moyar Power Houses is nearing completion and is expected to yield benefits in 1975—76.

II. NEW SCHEMES—

(a) A letter of intent has recently been issued to an Austrian Manufacturing Company for the supply of generating machinery for the Suruliyar Hydro Electric Project. Preliminary civil works like excavation for dams, camp formation works, etc., have been taken up and are under progress. The project is targetted to be commissioned in 1978—79.

(b) The civil works under Tuticorin Thermal Project have already been taken up and one unit of 200 MW is expected to be commissioned in 1978—79.

(c) The Kadamparai Pumped Storage Scheme, of total capacity of 400 MW is in progress ;

(d) The Government of India have since sanctioned the Nellithorai and Servalar Hydro Electric Schemes in June and July 1974 and civil works for these schemes have already been commenced. The schemes are expected to be completed early during VI Plan.

(e) As far as the Pandiar—Punampuzha Hydro Electric Scheme is concerned, it has been decided to go ahead with the original scheme.

In addition to the above schemes which will be under execution during V Plan, to meet the ever growing power shortage, the Government of Tamil Nadu keeps on pressing the Government of India to accord sanction for the following Hydro and Thermal projects as detailed in Table I. (Ref 10th page)

Though most of the hydro schemes are peaking plants they will also go to meet the shortage of energy to considerable extent.

TRANSMISSION AND DISTRIBUTION SCHEMES

The State Electricity Board owns a huge network of transmission and distribution system comprising 66,364 kms. of E.H.T. and H.T. lines and 1,89,094 kms L.T. lines as on 31st March 1974. Out of this, 3,036 kms. of E.H.T. and H.T. lines and 10,489 kms. of L.T. lines were added during 1973—74. There are 275 numbers of E.H.T. and H.T. sub-stations in the grid at the end of 1973—74.

The Board continues to pay attention to the transmission and distribution systems. The transmission and distribution project at a cost of Rs. 12 crores for the year 1974—75 will result in construction of nearly 600 kms. of 230 KV, 110 KV and 66 KV transmission lines, 21 numbers sub-stations in addition to distribution lines, and other improvement works, etc., in the system.

The Board is already taking steps to reduce line losses and improve voltage conditions. To this end ;

The Board has also decided to install 25 MVAR synchronous condensers, one each at Salem and Tiruvallam in North Arcot District and efforts are being made to import them with IDA loan. For ensuring installation of L.T. capacitors in agricultural and L.T. Industrial services, the terms and conditions of supply have been amended to make it compulsory in respect of new services.

Rural Electrification

Electricity was extended to 747 villages and hamlets during 1973—74, bringing the total number of towns, villages and hamlets electrified to 61,072. During 1973—74, 32,017 agricultural pumpsets were energised. Based on top priority being given for electrification of Harijan colonies adjoining the villages, 418 Harijan colonies have been electrified.

State's Search For Additional Resources Will Pinch Only The Rich

Speech of Dr. M. Karunanidhi, Chief Minister, presenting the first supplementary estimates for the year 1974-75 to Tamil Nadu Legislature on 14th August, 1974.

The Supplementary demands for the year 1974-75 placed before the House, are in all for a sum of Rs. 6.06 crores, of which a sum of Rs. 3.47 crores is in the Revenue Account, the balance being in the Capital and Loan Accounts.

I shall touch upon the important plan schemes and other programmes which find place in these demands for grants.

Social Welfare Schemes

The estimates include provision for changing the setup of having a single District Welfare Officer for Harijans and Backward Classes in each district and having instead separate District Welfare Officers for Harijans and for Backward Classes.

The income limits for scholarships have been raised from Rs. 2,500 to Rs. 3,000 for Harijan students and from Rs. 2,000 to Rs. 2,500 for students from Backward Classes. It has been decided to construct 100 hostels for Harijan students through the newly formed Harijan Housing Corporation. 50 hostels for students of Backward Classes will also be built. A provision of Rs. 25 lakhs as loans for this purpose has been included in the estimates.

An additional provision of Rs. 1 crore over and above the existing provision of Rs. 1.77 crores has been made for rural water supply schemes. Grants to a total extent of Rs. 27 lakhs have been sanctioned for deepening of drinking water wells in Chingleput, North Arcot, Tiruchirappalli, Salem, Dharmapuri and Coimbatore districts. A total provision of Rs. 32.25 lakhs under grants and loans has been made to the Corporation of Madras for taking various measures to tide over the depleted water storage position in the City.

More Development Schemes

Members of the House are aware of the implementation of the Special Rural Roads Scheme for providing link roads to villages having a popu-

lation of not less than 1,500. The estimates include a provision of Rs. 6.6 lakhs for the staff employed in the current year on this scheme. A special scheme at a cost of Rs. 12 crores, for providing link roads to villages having a population of less than 1,500 has also been started.

A total provision of Rs. 71.50 lakhs has been made in these estimates for setting up a Transport Development Finance Corporation for the provision of additional share capital to the Pallavan Transport Corporation and for the provision of an Express Bus Terminal in the city.

Government have sanctioned 12 new special minor irrigation schemes at a total cost of Rs. 1.52 crores. The expenditure for these 12 schemes will be met from the grants already voted by this House. Token provision has been shown in these supplementary estimates in order to get the approval of the House for these schemes.

The demands include provision for a share capital contribution of Rs. 30 lakhs for new co-operative sugar mills.

We have taken a decision to establish, in the current year, 26 fire stations, including those stations which have already been sanctioned. A provision of Rs. 7.22 lakhs has been made in the supplementary estimates for the expenditure on the first stage of this scheme.

Government have decided to sanction a monthly pension to those who actively took part in the anti-Hindi agitations from 1937 onwards, and in the agitations held for the merger of Kanyakumari and Tirutani with Tamil Nadu. A sum of Rs. 3.57 lakhs is included for this purpose in the demands for grants.

The provisions for various schemes that I have referred to will indicate our Government's deep commitment to development activities and welfare schemes in the widest measure. In 1973-74, we had implemented a plan of Rs. 129 crores.

We had also undertaken a number of development schemes which did not come under the Plan. It is our firm resolve to implement a plan of Rs. 151 crores in 1974-75 although the approved outlay fixed by the Planning Commission is only Rs. 112 crores. We are also vigorously implementing a number of development programmes and special schemes which do not come under the Plan. I seek the approval of the legislature for the supplementary estimates which will enable us to implement these Plan schemes and other programmes.

Total Prohibition Reintroduced

Apart from these supplementary estimates, I wish to bring to the notice of the House certain policy decisions that we have taken as also some measures to mobilise additional resources. It became necessary to suspend prohibition in our State in 1971, because the Centre was not willing to compensate even a portion of the loss in implementing this policy and because of the difficulties experienced by our State in the absence of an all-India approach to prohibition and in view of the financial difficulties prevailing at that time. This decision to suspend prohibition was taken with deep anguish. Whatever be its logic, the decision to suspend prohibition was a thorn in our flesh, firmly committed as we are to the ideals of Gandhi and Anna. I had mentioned this in the Legislature even on the occasion of suspending prohibition. At that time itself I had pointed out that suspension of prohibition implied its possible re-introduction in the future. I am now happy to announce that total prohibition will be reintroduced throughout Tamil Nadu from the 1st of September, which is the month of Arignar Anna's birth. Due to the closure of toddy shops as the first phase and on account of the re-introduction of total prohibition as the second and final phase, this Government will have to bear a loss of revenue of Rs. 56 crores.

Horse Race Abolished

In addition to the reintroduction of prohibition, I wish to bring to the notice of the House another welcome announcement. I am sure that this news will be heartily greeted by many poor and middle class families. In deference to the long

standing plea of many men of goodwill and in accordance with the election manifestoes of the ruling party, Dravida Munnetra Kazhagam, this Government have decided to totally abolish horse racing. This decision will take effect from the 1st of November, 1974. The loss on account of this decision will be over Rs. 2 crores in a full year.

Additional Taxes To offset the Revenue Loss

It becomes inevitable for us to raise additional taxes in order to make good the loss of revenue consequent on such measures of social reform without jeopardy to our plan and other development programmes and in order to maintain the finances of our State in a sound and healthy position. We realise that in the current inflationary situation, care should be taken to levy taxes in such a manner that they do not lead to an increase in the prices of the necessities of life for our common people. Our proposals to mobilize resources are based on such a policy. We estimate that in a full year we will be able to raise about Rs. 14 crores through these measures

We propose to increase the existing multi-point tax rate of 3.5 per cent to 4 per cent. This is the rate being levied in the neighbouring States of Kerala and Andhra. Consequently the single point tax rate on those commodities for which the existing rate is 7 per cent, will be raised to 8 per cent. Further, the purchase tax rate on sugarcane will be raised from 7 per cent to 12 per cent.

In Tamil Nadu the sales tax on motor spirit is significantly lower than it is in the neighbouring States. While the tax per kilo litre at present on the sale of petrol is Rs. 420 in Kerala, Rs. 365 in Andhra, Rs. 352 in Karnataka, and Rs. 308 in Maharashtra, the sales tax being levied in our State is only Rs. 150 per kilo litre. It has therefore been decided to increase the tax Rs. 150 to Rs. 210 per kilo litre of petrol, which is normally consumed by the more affluent sections. In this context, it is worth mentioning that even with this increase the rate will be lower than the rates in neighbouring States. An increase of 2 paise in the sales tax per litre of diesel is also proposed, so that the differential between the prices of petrol and diesel is not unduly wide.

Show Tax increased

We have proposed to increase the rates of show tax on cinematographic exhibitions as follows:—

<i>Permanent and Semi-permanent Theatres</i>	<i>Tax rate per show Rs.</i>
Madras—	
air-conditioned ..	150
non-air-conditioned ..	100
Bigger towns—	
Madurai, Coimbatore, Tiruchi, Salem	
air-conditioned ..	100
non-air-conditioned ..	75
Municipalities—	
air-conditioned ..	75
non-air-conditioned ..	50
Other towns—	
air-conditioned ..	50
non-air-conditioned ..	40
Touring Theatres—	Rs
Municipalities ..	40
Other places ..	25

The surcharge on show tax levied hitherto by the local bodies will be abolished and the local bodies will be compensated to the extent of the receipts they obtained in 1973-74. The tax measures referred to above will take effect from tomorrow.

Rationalisation of Motor Vehicle Tax

We also propose to rationalise Motor Vehicles Taxes by rounding off the quarterly rates inclusive of the surcharge to the next higher round figure in tens of rupees so as to facilitate collection and accounting. The surcharge will be abolished in the process with suitable compensation being made to the Rural Road Development Fund from the total proceeds. This measure will take effect from 1st October 1974, the beginning of the next quarter.

In order to keep up the pace of implementation of several developmental and welfare schemes and, at the same time, to compensate for the loss arising from the abolition of drink and horse racing, I would appeal to this House to fully support these few measures of taxation and thereby co-operate with the Government in its efforts for prudent financial management.

Ferro-Cement Fishing Vessels

INNOVATION IN TAMIL NADU

Mr. James Hornell had remarked early in 1921 that "the leap from the catamaran and the canoe to the engine for the wholesale capture of fish is too great and too sudden for Madras", when Fisheries Directorate of Madras was in its second decade of organisation. Much water had flown under the boat after this as it can be seen from the development of fishing boat building industry during last fifty years. From the medieval times man had been struggling to find means to keep himself afloat and the desire had its leap the time man went in search of fish in the sea. The traditional craft of South India still exists but the local fishermen have been accepting revolutionary changes that have been taking place in the fishing boat building industry during the last fifty years. Many a change has taken place but the latest technique of building fishing boats with Ferro-Cement as the material is the new challenge also with the customary aplomb.

The Fisheries Department of Tamil Nadu was undertaking building mechanised fishing boats for the fishermen from the year 1955. Hundreds of mechanised fishing boats had been built and given on loan and subsidy to the fishermen till date. The fishing boat of any size is a long term investment to fishermen. The cost of the fishing boat was going up considerably during the last ten years due to the scarcity of the boat building timber



Mr. Rathod Karnataka Minister for Fisheries evinces a keen interest in the new boat.

and due to the rising cost of labour. This was not a unique problem for Tamil Nadu alone. The rising cost of fishing boat was a problem for every developing nation throughout the world. Every nation was tackling the problem in its own way. The Fisheries Department of Tamil Nadu stepped in at the right time in 1970 to take up the issue of bringing down the cost of construction of fishing boats. After careful consideration it was decided to accept the Ferro Cement as the right material for fishing boats in Tamil Nadu.

FERRO-CEMENT

Ferro-Cement is made of highly reinforced mortar. It is a dense mortar made up from common portland cement, fine sand, and pozzolana trowelled in and sandwiched between steel rods and chicken wire mesh. This material is not new but had been around for over hundred years. The French Mr. Joseph Louis Lamboat takes the credit of building a boat of concrete in the year 1848. It can still be seen at Brignoles museum. Others followed, the next boat built in 1887 is still in regular use at Amsterdam Zoo. The credit for the present day development and refinement of the Ferro-Cement goes to Professor P. Luigi Nervi, an Italian. It was he who developed Ferro-Cement for building boats lighter than steel in the year 1940.

Mr. Morley Sutherland of New Zealand gave a fillip to this material Ferro Cement. Amateurs in

New Zealand built a number of small boats in their back yard. Australians were not slow to take up this material. The Ferro-Cement era began with the building of such boats in large numbers in Canada, United Kingdom and suprisingly enough in China also. World tonnage of Ferro-Cement boats is growing rapidly day by day. With the first biggest Ferro-Cement fishing trawler of 38' in India built in Madras and launched in the year 1972, Tamil Nadu has taken an enviable lead in this matter as in so many other fields.

CONSTRUCTION METHOD

Suitable jigs to support the keel was prepared to take the entire weight of Ferro-Cement boat hull when plastered. M.S. Channel of size 150 mm x 75 mm (6" x 3") was chosen for the keel even though an ordinary pipe or M.S. Rod is more than sufficient. The stem was made of M.S. Rod of 25 mm. (1") which was welded to the keel. The transom, like the frames, was made of galvanised water pipe having an inside diameter of 25 mm. (11"). The galvanised pipes were bent to boat shape from the design imported from Canada. The shaped pipe frames were kept over the keel in position and spotwelded. They formed the sections. The stern post, shaft log, horn timber were made of 18 mm. (3/4") M.S. Rods. The keel, stem, stern and sections were braced in to position. M.S. rods of 10 mm. (3/8") were bent to shape and kept in between

the pipe frames sections to give the needed reinforcement to the frame work. These are called vertical rods. M.S. Rods of the same size were used as longitudinals which further bend to strengthen the hull. The verticals and longitudinals were fixed with 75 mm. (3") centres and tied with 20 gauge galvanised wires. The boat shape is faired. 22 gauge hexagonal chicken wire mesh of size 12 mm (1/2") was used to cover the boats steel structure both inside and outside. Four layers of the hexagonal chicken mesh was used both inside and outside. The latest technique is to use welded mesh which is easy to work but it is not available in our country for the present. The entire mesh was kept in position by tightly binding it with 20 gauge galvanised wire. With the complete covering of the hull with the chicken mesh the frame work is ready for plastering.

River sand dried, sieved in No. 8 sieve was weighed and kept ready. The cement used was obtained from a cement factory in Tamil Nadu. This cement is called Pozzolana Cement. Sufficient quantity of fresh drinking water was stored for the mortaring operation. Ordinary mortar mixture was hired for making up the mix. The proportion of mix was decided earlier. It was based on the slabs already made by the department and tested by the Highways Research Station, Guindy, Madras.

The entire mortaring was done continuously and it went on for 36 hours. The entire hull was allowed to set for twenty four hours. The plastered hull was covered with jute

cloth and tied properly. The hull was cured for 21 days, by keeping the hull wet by pouring water over the Jute cloth continuously. After the curing, the hull was made smooth by using the portable sandering machine using the fine carborandum disc. Painting was done to give a nice look to the hull. Wooden deck and wheel house was decided for the boat to keep down the weight of boat. Engine installation and deck arrangements were made as is done in any other wooden boat. The boat was launched in Madras Harbour with the help of a crane. It was found that the hull was perfect and to the expectations. There was no seepage which is a great advantage to a fishing boat. The advantages of Ferro-Cement fishing hull are many.

ADVANTAGES

The advantages are :—

1. No leaks,
2. No seam,
3. No normal fastening,
4. No rot,
5. Longer life,
6. High strength,
7. Low thermal conductivity,
8. Resistance to impact, erosion and worms,
9. Absence of flexing problems in the hull,
10. Absolute Minimum maintenance,
11. Complete in combustibility,
12. Continued elasticity,
13. Easy temporary repairs at sea even below water lines,
14. Negligible depreciation and
15. Lower capital cost, quicker to build.

More spacious inside when compared to hull made of wood, steel, fibre-glass etc.

The biggest advantages are

The Ferro-Cement boat is lighter than a boat built with steel and normally planked wooden boat. Regarding the cost, the Ferro-Cement hull is the cheapest. The cost of Ferro-Cement hull when compared to wood is 40% less.

It is hoped with the developing techniques on Ferro-Cement in advanced countries, the Ferro-Cement will be the boat building material for a long time till a cheap substitute is found. The Food and Agricultural Organisation of the United Nations conducted a Seminar on 'The Design and Construction of Ferro-Cement Fishing Vessels' in Wellington, Newzealand in October 1972. Representatives of twenty different countries numbering nearly hundred took part in the discussion. Various developments on Ferro-Cement that had taken place in different countries was openly discussed in the Seminar. Valuable information gathered during the discussion in the Seminar will be profitably used for the development of Ferro-Cement Fishing Vessels in Tamil Nadu. Ferro-Cement can also be used for building low cost housing, grain bin, leak proof water tanks, drainage pipes, at low cost. The results of the Seminar when compiled and published will be of immense use to developing nations which are going to use Ferro-Cement as the material for boat building.

The Fisheries Department of Tamil Nadu Government have launched a project for Ferro-Cement Fishing Vessels which is located for the present in Marina, Madras-5. It has a programme to construct a number of 38 feet fishing boats. The intention is to popularise this material for boat building industry as it is cheaper and easier to build when compared to other boat building materials.

The Khadi and Village Industries Commission has evinced keen interest in tanks made with ferro-cement for use in gobar gas plants. The efficiency of ferro-cement for making silos and village overhead tanks for protected water supply schemes is also being proved in this yard.

APPRENTICESHIP IN INDUSTRIES

PROMOTES DEVELOPMENTAL SKILLS

The Apprentices Act came into force on 1-3-1962 but the actual implementation took effect from 1-1-1963. So far, 201 industries in the various groups such as Engineering, Textile, Chemical, Printing, Hotel and Catering etc., have been notified under the Act and 61 trades have been designated for apprenticeship training in these industries. More industries and trades will be brought under the purview of the Act as and when necessary to meet the demand for skilled workers in these industries.

Syllabus

Under the provisions of the Act it is a statutory obligation on the part of employers to recruit and train apprentices in designated trades according to certain ratio laid down for each trade, varying from 1:1 to 1:100.

For each trade designated under the Act, a syllabus of training is prepared by a Trade Committee drawn from a cross-section of the employers and finally approved by the Central Government in consultation with the Central Apprenticeship Council. Representatives of Employers in the Public and Private sectors, Central and State Governments as well as persons having special knowledge and experience on matters relating to industry and labour, constitute the Central Apprenticeship Council.

Minimum Age

The minimum age for engagement of apprentices is 14 years, but there is no maximum age prescribed. The educational qualifications prescribed are in most cases "Matric" or "Two standards below Matric". The candidates to be recruited may be either "Freshers" without any trade experience or passed-out trainees of Industrial Training Institutes. Employers are at liberty to select candidates of their own choice. Every apprentice selected or his guardian if the apprentice is a minor, has executed a contract of apprenticeship with the employer.

The Government, the Employer and the apprentice shall carry out their obligations under the contract. Apprentices are generally recruited twice a year, during February/March and August/September.

The duration of training varies from 6 months to 4 years depending on the skills involved in the trade.

The training programme under the Apprentices Act comprises of (1) Basic Training (2) Shop-floor Training or 'On the Job' Training and (3) Related Instruction. The Basic Training is the same as the First year of training in the Industrial Training Institute. All Freshers should first undergo basic training for the specified period which will be followed by shop-floor training for the residuary period. No basic training is necessary for Ex-Industrial Training Institute boys recruited for apprenticeship training and they can undergo shop floor training straightaway in the industry.

The Basic training will be imparted by the Employer if he employs 500 or more workers and by the Government if the employer employs less than 500 workers. The Shop-floor training or on the Job training is the sole responsibility of the Employer.

Cost Sharing

The cost of training, which includes stipend payable to the apprentices, is shareable between the Government and the Employer in the case of employers employing less than 500 workers, if they engage freshers.

Related instruction is imparted to the apprentices throughout the training period at the cost of the Government in the Related Instruction Centres attached to the Industrial Training Institutes to supplement the practical training.

During the period of training, the employer shall pay stipend to the apprentices which may range from Rs. 60/- to 100/- p.m. in the mofussil and Rs. 70/- to 110/- p.m. in Madras City depending on the year of Apprenticeship. This is only a statutory minimum and it is open to the employers to pay more.

On completion of training the apprentices are required to appear for an All India Trade Test conducted by the National Council for training in Vocational Trades. Successful candidates will be awarded the National Apprenticeship Certificates.

Skill Competitions

To promote the quality of skills and also to create a spirit of healthy competition amongst the establishments for improving the standard of training, Skill Competition for apprentices are held at 4 successive levels, namely Local, Centre, Regional and All India levels every six months to judge the Best. At present the skill competitions is confined to six trades (viz) Fitter, Welder, Turner, Machinist (Miller), Moulder and Electrician.

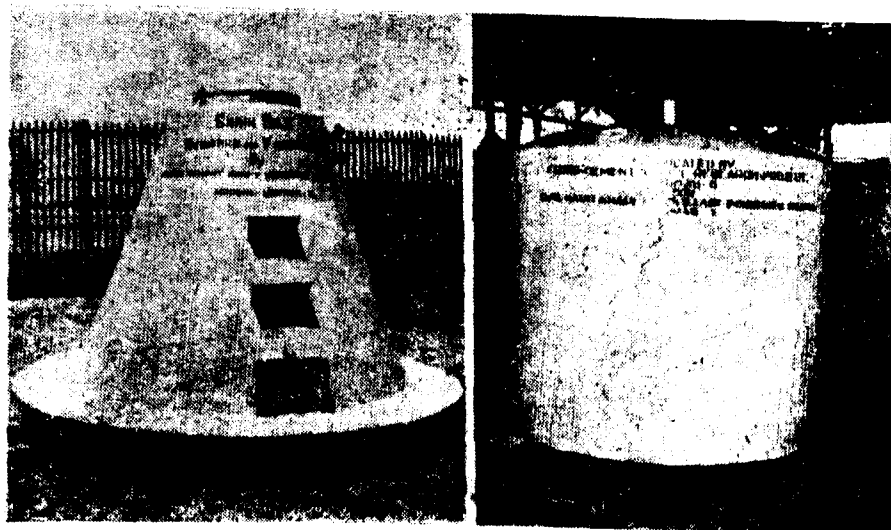
The Best apprentices in the above trades in the Local Centre Competition are awarded Bronze medals. The Best apprentices in the regional competition are awarded Silver Medals. The Best apprentices in the All India competition are awarded the President's Gold Medal and will also receive a cash prize of Rs. 5,000, a tools kit and an All India Industrial Visit.

Tamil Nadu trainees to the Fore

Out of 9 regional competitions so far held apprentices from Tamil Nadu came out successful in 7 competitions. M/s Ashok Leyland has been adjudged as the Best establishment in the third regional competition held in May, 1969 and Tansi Machine Shop, Madras-32 in the 9th Regional competition held in May, 1972.

In the 7th All India Competition held in May, 1971 two apprentices from Tamil Nadu one each in the trade of Electrician and Machinist (Miller) representing Wimco and Ashok Leyland respectively, were declared as the Best apprentices. Wimco Limited, Madras has been adjudged as the Best Establishment at All India level.

Apprenticeship training on a planned basis has to be accepted as a national need for the country. The amount that may have to be spent on Apprenticeship Training by the industry will at best be only a very insignificant portion of the overall pay bill and this should be taken as an investment for the future. Large sums are invested by the industry on new machines and tools and if they are to be used efficiently, they may have to concentrate on proper training. It will not be enough for the industry just to recruit large number of apprentices but active and personal interest should be taken in giving them comprehensive and quality training and also for building up a pool of highly skilled craftsmen for sustaining industrial growth to keep pace with the economic progress.



A silo and a cobar gas tank made of ferro-cement

TAMIL NADU OFFERS NEW RAFFLE CERTIFICATE

TO MOBILISE RESOURCES FOR STATE'S WELFARE PROGRAMMES

The Tamil Nadu Government announced a new Raffle Certificate Scheme, in order to attract more Funds which will be utilised for the development and welfare schemes of the State. Accordingly, a G.O. was also issued viz (G.O. Ms. No. 970 Finance (Raffle) Dept. dated 9-7-1974) which provides the following excerpt.

These rules may be called the Tamil Nadu Raffle Certificate Rules, 1974. They shall apply to the whole of the State of Tamil Nadu. They shall come into force on the 1st October, 1974.

The Tamil Nadu Raffle Certificate (hereinafter referred to as the Raffle Certificate) shall be issued under the authority of, and guaranteed by, the Government of Tamil Nadu (hereinafter referred to as the Government).

The Raffle Certificate Scheme shall be administered by the Director of Small Savings (Raffle), Madras.

The Raffle Certificate under this scheme shall be issued in denominations of Rs. 100/- and Rs. 10/-. The Raffle Certificate shall be issued in distinct and separate series for Rs. 100/- and Rs. 10/- denominations and each series may be distinguished by a distinct alphabetical notation.

The Raffle Certificate for Rs. 100/- denomination will consist of two lakh Raffle Certificates while those for Rs. 10/- denomination will consist of 10 lakh Raffle certificates. The Raffle Certificate for Rs. 100/- denomination shall be numbered consecutively from 000000 to 1,99,999 while for the Rs. 10/- denomination, the number shall be from 000000 to 9,99,999.

The printing of the Raffle Certificates shall be entrusted to the Director of Stationery and Printing, Madras. There will be 6 draws for every four months during the period of two years for each denomination.

The following shall be the prize structure for each draw.

(a) Rs. 100/- denomination

	No. of prizes	Individual prize amount Rs.	Total prize amount Rs.
I Prize	1	1,00,000	1,00,000
II Prize	1	50,000	50,000
III Prize	10	10,000	1,00,000
IV Prize	100	1,000	1,00,000
Total			3,50,000

Special Prize :—Along with the last draw one prize of Rs. 5,00,000/-.

(b) Rs. 10/-denomination.

	No. of prizes	Individual prize amount Rs.	Total Prize amount Rs.
I Prize	1	50,000	50,000
II Prize	1	10,000	10,000
III Prize	20	5,000	1,00,000
IV Prize	200	500	1,00,000
Total			2,60,000

Special Prize :—Along with the last draw one prize of Rs. 2,00,000/-.

Prizes shall be drawn for each denomination separately. The Prize amounts are guaranteed by the Government. The special prizes for both denominations will be awarded along with the last draw. These Raffle Certificates will normally be sold to the public through the Nationalised Banks and Sub-Treasuries and the authorised agents appointed under Tamil Nadu Raffle Scheme.

The sale of Raffle certificates for agents outside the State shall be made by the Director of Small Savings (Raffle), Madras.

The authorised agents or the Nationalised Banks lifting the certificates shall be eligible for a commission of one percent on the face value of the Raffle Certificates. The agents appointed under the

Tamil Nadu Raffle Scheme and the Nationalised Banks which undertake to sell the Raffle Certificates under Tamil Nadu Raffle Certificate Scheme 1974 shall be the authorised agents.

A bonus of 10% of the prize money shall be given to the authorised agents who sell the certificates which will win prizes of Rs. 50,000/- and above as a incentive for boosting up the sale. The authorised agents shall lift the certificates from the Sub-Treasury or the Directorate of Small Savings (Raffle), Madras. The authorised agents except the Nationalised Banks shall lift the certificate on pre-payment of the full cost of the certificates less 1% commission allowable on the face value of the certificates or without pre-payment of the cost of the certificates if they furnish bank guarantee.

The authorised agents or the Sub-Treasuries or the Nationalised Bank selling the certificates shall send to the Director of Small Savings (Raffle), Madras, on the 30th of every month a statement showing the details of tickets sold and unsold. The Raffle Certificate shall be issued to them upto six clear days before the date of the draw.

The date of the draw shall be notified by the Government. The first draw shall be conducted only after all the certificates are sold out. The Government shall have the right to postpone the date of draw. Wide publicity shall however be given to such postponement and to the revised date on which the draw will be held.

The Raffle certificates once sold to the Nationalised Banks and the authorised agents shall, under no circumstances be taken back in the Sub-Treasury.

In the event of a Raffle certificate winning a prize, it shall be surrendered for the prize value within 3 months of the winning of the prize. It shall not be eligible for further prizes except the special prizes.

No Raffle certificate shall be eligible for more than one prize in a draw. In the event of more than one prize being drawn by a particular certificate, the certificate holder shall be eligible to receive the highest of the prizes drawn.

The Raffle certificates for both the denominations shall be issued at par value. If it does not win any prize, it may be surrendered, at

the end of two years from the date of first draw, in exchange for its face value.

The draw shall be conducted in Madras city or in any of the District Headquarters. Due publicity shall be given to the time and place of the draw. The draw shall be held in public and in the presence of one or more committees specially appointed to supervise the draw. The number of such committees to be appointed for each draw shall be decided by the Government. Each such committee shall consist of not less than four members including a Chairman specially appointed by the Government for this purpose. Three members will constitute a quorum for each committee. The Director of Small Savings (Raffle), Madras, shall be the Member-Secretary of the Committee.

A list duly authenticated by the Director of Small Savings (Raffle), Madras, indicating the alphabetical notation of the series issued, and a list of numbers of Raffle certificates sold shall also be drawn up by the Director of Small Savings (Raffle) and furnished to the Committee before the commencement of the draw. The procedure adopted in drawing the Raffle tickets shall be applicable *mutatis mutandis* to this scheme also.

After the draw is over, the connected records shall be kept in the custody of the Director of Small Savings (Raffle), Madras. Wide publicity shall be given to the list of prize winners. The list shall also be published in *Tamil Nadu Government Gazette* and such publication shall constitute the official announcement of the results.

Winners of the prizes of Rs. 10,000/- and above shall claim the prize amounts only from the Director of Small Savings (Raffle), Madras. The other prizes may, however, be claimed at any Sub-Treasury in the State in the prescribed form within three months of the winning of the prize on surrendering the certificate for the prize value.

A Raffle certificate which is forged or torn or disfigured or tampered with or mutilated shall not be considered as a valid certificate for any prize or for repayment of face value. The holder of a prize winning Raffle certificate shall be entitled to claim the prize amount.

The face value of the Raffle Certificate shall normally be claimed (other than prize winning certifi-

cates) within one year after the period of two years from the date of first draw from any-Sub-Treasury or Nationalised Bank. Claims after this period shall be made to the Director of Small Savings (Raffle), Madras. Claims made after a period of six years shall be referred to Government by the Director of Small Savings (Raffle), Madras.

Prize amounts shall normally be claimed within three months from the date of the draw. Where it is not so claimed, it shall, after that date, be claimed only by making a special application to the Director of Small Savings (Raffle) who may authorise the payment of the prize amount, if he is satisfied that the prize winner was, for sufficient reasons, prevented from claiming the prize money within three months from the date of draw. Prize amounts not claimed within six months from the date of draw shall lapse and be automatically forfeited to the Government.

In cases where the holder of the Raffle certificate happens to be a minor, the guardian of the minor may sign the claim forms for the prize money in the event of winning a prize by producing an affidavit taken before a Sub-Magistrate to show that he is the sole guardian of the minor on whose behalf of the claim is made.

The Government reserve the right to alter or modify the terms and conditions governing the Tamil Nadu Raffle Certificate Scheme. Such changes shall, however, be duly notified in the *Tamil Nadu Gazette*. The terms regarding prize amounts and procedure for drawal of prize winning Raffle certificates shall not however be altered in any draw after the commencement of sale of Raffle Certificates.

The Raffle certificates shall be taken as security by Government for deposits and other purposes contemplated in Madras Financial Code. They shall be accepted on their face value and no interest shall be allowed.

Legal jurisdiction of the Raffle certificate shall be the State of Tamil Nadu. In case of any dispute, the decision of the Government shall be final and binding. If any question arises as to the interpretation of these rules or on any other matter not expressly provided for in these rules, the matter shall be referred to the Government and the decision of the Government shall be final.

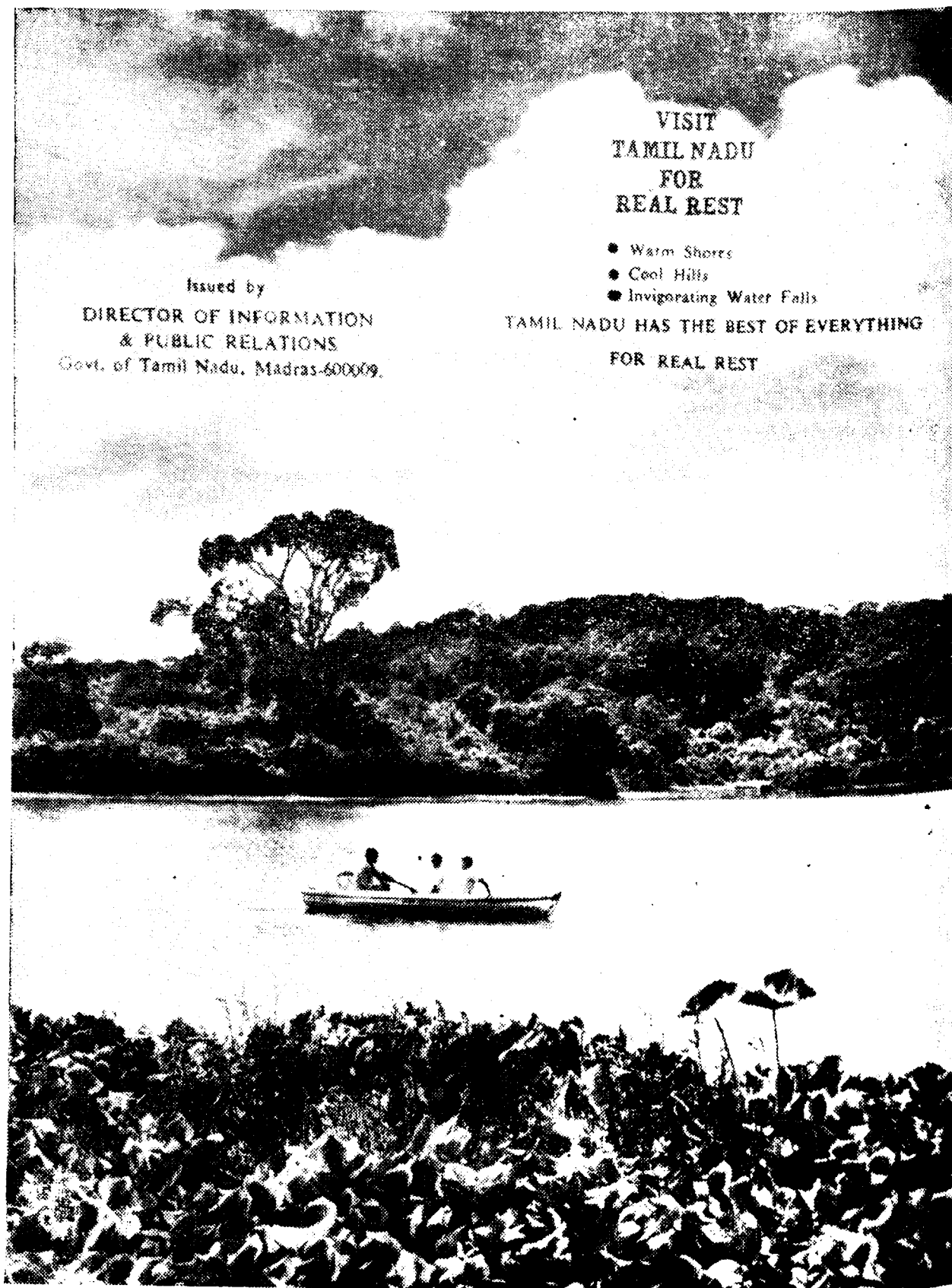
YOUNGER GENERATION IN PUBLIC LIFE

In democratic countries the supreme legislative body is the parliament. In many of them, however, different qualifications have been devised to debar young people from both the parliament and the polling stations. One of such devices is age qualification, which is used to restrict the younger generation's influence on public life.

It was only recently that the voting age was somewhat lowered in such countries as the United States and the Federal Republic of Germany. Americans now have the right to vote at the age of 18 but are not eligible for election until the age of 25 in the case of the House of Representatives and 30 in that of the Senate. The average age of the legislators is well above 50. Young people, as a rule, cannot afford the campaign expenses.

After the reduction of the voting age in the F.R.G., which enabled almost five million young people who had reached the age of 18 to take part in the elections, the Bundestag returned at the end of 1972 proved to be the youngest in the country's history, the deputies' average age dropping from over 50 to 46.5 years. In Austria, the right to be elected is enjoyed by people who have reached the age of 26 and in Belgium and Italy, 25. In the last two countries the minimum age for a senator is 40.

In the Soviet Union and the other socialist countries a considerably larger number of young people take part in the elections. In the Soviet Union all persons who have reached the age of 18 have the right to vote in the elections and all persons of 23 are eligible for election to the U.S.S.R. Supreme Soviet. In Bulgaria and Hungary the minimum age for election to parliament is 18. The average age of legislators in Tamil Nadu works out to 47 years.



Search For Safety? ⁴⁷⁹ —Stave Off Silent Explosion

It is impossible to think of solutions to the major problems confronting the world—economic development, pollution of the environment, improvement in the quality of life, even disarmament—without some reference to population trends. The evidence is all around us.

In the developing countries, with two thirds of the world's people and some of the highest rates of population growth, there are insufficient schools, textbooks and teachers for children reaching school-age; not enough vocational training places; a shortage of jobs for the untrained and unschooled young adults.

The industrialised nations have not been immune to demographic pressures: swollen cities, the drain of talent from regions of low development to centres of affluence, heavy internal migrations, have all left their mark.

The problems of a world population which is growing, and of people on the move, are of infinite complexity. No single solution applies to the region which is unable to provide a decent living for its people and the area whose development requires a rising labour force.

The twenty-fifth General Assembly recognised the international importance of current demographic trends by asking the Secretary-General to proclaim a World Population Year. I take great satisfaction in announcing that 1974 will be so designated. Its highlight will be a World Population Conference, although many subsidiary events will be scheduled.

It is my hope that the World Population Year and Conference will rank in the history of the United Nations among the great events of the seventies and that they will bring us appreciably closer to the day when the world can say that the

demographic problems facing us are understood, and actions to solve them are under way.

Population, development and environment make up an important element in the construction of a new economic and social order which, along with the maintenance of peace, constitutes the principal challenge of our generation. The United Nations is again taking the leadership, as it did earlier in 1972 in Stockholm by the Conference on the Human Environment, and in Shantiago recently through the Conference on Trade and Development.

It is my hope that the World Population Conference will deal with all aspects of the demographic problems facing us.

DR. KURT WALDHEIM

Secretary General, United Nations.

This includes, most emphatically, moral ones. From the start of its involvement in population matters, which now dates back some years, it has been a fundamental tenet of the United Nations that there must be freedom of choice for individuals to shape their family life according to their beliefs and aspirations, and for Governments to pursue the policies that are most in keeping with the physical and spiritual welfare of their people.

But sound policies also require detailed knowledge. The dimensions of the problem are well known. Each year 127 million children are born, each year 95 million come of school age and each year 19 million reach age 65. These totals are likely to rise steeply in the years ahead as more young adults swell the ranks of potential parents and improved medical care advances life expectancy. At 2 per cent a year, the rate of world population growth is now more than double

the rate in 1940. It may still rise. Each nation, each community, each family must assess in detail how these trends affect their hopes for higher living standards, a better education, and greater health and happiness.

The over-all preparations for the World Population Year in 1974 are in good hands: those of Mr. Rafael Salas, Executive Director of the United Nations Fund for Population Activities. Thiru Salas came to the United Nations after serving as a member of the Philippine Government for many years and is an outstanding administrator, who has built the Fund into an effective international body in a very short time.

Dr. Antonio Carrillo Flores of Mexico is the Secretary-General of the World Population Conference. Dr. Carrillo Flores served for many years in the Government of Mexico as Minister for Finance and Minister for Foreign Affairs. He is another example of the good fortune of the United Nations in securing the services of the distinguished and experienced persons to carry out important and demanding tasks.

The World Population Year and Conference should help both Governments and individuals to make the necessary judgements. But to fulfil the hopes we place in them, I request Member Governments to set in motion the broadest and most comprehensive possible plans to participate in the World Population Year in such a manner that they will not only have strong representation at the Conference, but the aims of the World Population Year become widely known and discussed within their own countries so that the insights gained will be useful, not only in the formulation of national plans, but become part of the daily lives of their people.

Gandhigram In Forefront Of Population Research



A discussion session on Family Planning and Maternal Child Health Services at Gandhigram.

The United Nations has designated 1974 as the World Population Year. The first inter-governmental conference on population scheduled August 19-30 at Bucharest, Romania, had some 150 nations, including India, as participants in the conference, which hopefully had adopted a world population plan of action.

India has been in the forefront of the population battle for a number of years now, and has adopted nation-wide family planning programmes. During recent years, India has also undertaken vital research in many areas of family planning and population.

Birth rate reduced to 35%

One research centre which has done distinguished work is Gandhigram, near Madurai. Its Institute of Rural Health and Family Planning has to its credit many valuable studies on promotion of family planning. In one crucial study, the Gandhigram scientists have demonstrated in nearby Athoor block of villages that concerted efforts can bring down birth rate by thirty-five per cent. This was mainly achieved by what is described as a series of innovative approaches to family planning.

Importantly, the various agencies involved, such as the State Government departments of Health, Education, Welfare and voluntary organisations, are brought under a common council to plan and implement family planning programmes.

Mode of Approach

The council set about, first of all, to dispel fear of infant mortality which erodes confidence in planned, small families. Parents were assured that proper pre-natal and post-natal care can ensure the lives of the newborn. The number of nurses and midwives were doubled to improve maternal and child health services including immunization, nutrition and other steps to reduce infant mortality.

To infuse further confidence among the villagers, field workers were recruited locally and trained to work among their own people. Village leaders services were mobilised for stocking and distributing contraceptives to married couples.

Ford Foundation Help

The institute was assisted in its research by several international organisation, notably the Ford

Foundation of U.S.A. Even in the matter of utilising such help, the Gandhigram institute has an exemplary record.

In an interview, Dr. K.A. Pisharoti, Director of the Institute, said: "The Ford Foundation and Gandhigram with the help of State and national governments have been able to demonstrate that foreign aid received was ably utilised.

"When we started in 1959, as much as 80% of our expenditure was met by the Ford Foundation. In 1969, as much as 75 to 80% of our requirement was met by the Government of India because our government valued the programme and recognised them."

The University of North Carolina collaborates closely with the institute to help the latter expand its programmes. The American University offers scholarships for the institute's faculty members for higher training. Between the two institutions has developed a very valuable exchange of research publications and books.

EFFICIENT AND SPEEDY JUSTICE TO ALL



Aim of New Criminal Procedure Code



By

S. BALAKRISHNAN

Jt. Secretary,

Union Ministry of Home Affairs.

If there is any law, apart from the Constitution of India, with which every individual comes into frequent contact or which concerns his day-to-day activities, it is the Code of Criminal Procedure. The recent enactment by Parliament of a new Code of Criminal Procedure to replace the existing Code, enacted more than 75 years ago by the British, has been eagerly awaited by the general public as well as by the lawyers and jurists.

The new Code brings the old law up-to-date and seeks to secure several improvements to meet the needs of the present day, to simplify the procedure, without prejudicing the right of an accused person to get a fair trial and to ensure that delays in investigation and trial which hit the poor hardest are avoided.

Uniform set up of Criminal Courts throughout India :

After India attained independence, the long awaited reform of separation of the Judiciary from the Executive was implemented by many States, though the actual scheme of separation differed from State to State. The new Code provides for a uniform set-up of criminal courts throughout the country based on the principle. Magisterial functions of the Executive will be restricted to the prevention of crime and maintenance of law and order, while judicial functions relating to trial and conviction of an offender will be performed by a separate hierarchy of Judicial Magistrates under the control of the High Court. A special class of Judicial Magistrates will function in Metropolitan areas with a population of more than one million and they have the facility of adopting a simplified procedure designed to secure quicker disposal.

One of the general complaints about the old Code was that the antiquated procedure provided by it bred long delays at the stages of investigation, trial, appeal and revision. The new Code incorporates several changes to reduce the delays at all the stages.

SIMPLIFICATION OF PROCEDURE

In the first place, indefinite prolongation of investigation by the police has been made very difficult. Where the offence under investiga-

tion is punishable with imprisonment for not more than two years, a Magistrate can stop the investigation if it is not completed within six months. Further, in every case, including the serious one, if the investigation is not completed within two months, the accused will be entitled to be released on bail.

The new Code also prescribes periods of limitation for launching prosecution in cases punishable with not more than three years imprisonment, and this novel feature may promote diligence in prosecution besides securing other advantages.

As regards trial of cases, the procedure has been improved in a variety of ways mainly to reduce the scope for delays. To mention only a few, offences punishable with imprisonment upto two years can be tried summarily with a simplified procedure. Committal proceedings in sessions cases have been abolished. Summons to witnesses can be served by post. In petty cases the accused can plead guilty by post and remit the amount of fine specified in the summons without appearing before court. Evidence of witnesses can be recorded by stenographers.

Some of the longest delays in criminal trials under the old Code are attributable to two facilities, the first which provides for a compulsory stay of proceedings in a Magistrate's court on the mere intimation of an intention to move for transfer, and the second which enables every interlocutory order to be challenged in revision. Both these facilities have been taken away in the new Code.

ABUSE OF LEGAL PROCESSES

Another general complaint about the old Code related to the not-infrequent abuse of its provisions by the police against innocent persons. Quite a few changes have been introduced to eliminate chances of abuse of a flagrant type and also to further liberalise the facilities available to an accused person. An arrested person should be informed of the grounds of his arrest and of his right to be released on bail. He cannot be kept under police custody for more than twenty-four hours after arrest, or after he has expressed his unwillingness to make a confession. An arrested person in custody will have a right to be medically examined so as to help

him in his defence or to prove that he was subjected to assault during custody. Bail provisions have been liberalised and bail can, in certain circumstances, be granted even before arrest. If a police officer refuses or neglects to register a case, the aggrieved person can send his information by post to the Superintendent of Police who must take action thereon.

With a view to discourage short-term imprisonment, a provision has been made that in a case punishable with imprisonment for more than six months, no court shall impose a sentence of imprisonment for less than three months unless special reasons are given. Special reasons have also to be given by a court for not releasing a person on probation.

The period of detention spent during trial will be counted against the sentence of imprisonment ultimately passed in the case and the accused has been given a right to be heard on the question of sentence in all cases. The court must also give special reasons for awarding the death penalty when an alternative sentence is permissible.

LEGAL AID TO POOR

The opportunity for the revision of the Code has been utilised to provide certain facilities or improve the existing ones for the poorer sections of the community. The principle of granting legal aid for defence at State expense to indigent accused persons has been accepted and such aid has been made compulsory in certain cases. No person would suffer, on the ground of his poverty, in the matter of defending himself against a criminal action.

Another measure of relief to the poor is the enlargement of the scope of the provision enabling a Magistrate to order maintenance to persons in need. Apart from the neglected wife and children for whom provisions exist under the old Code, the new provision enables a Magistrate to order maintenance in the case of a divorced wife or a parent or an incapacitated major son. These persons need not have to go through costly civil litigation to get maintenance. Provisions have also been made for the award of costs to the accused against prosecution in certain cases.

ANTI-SOCIAL OFFENCES

To deal with the increasing menace of anti-social offences, a new provision has been made enabling a Magistrate to demand security for good behaviour from a person who is habitually concerned with offences against laws relating to smuggling, blackmarketing, abolition of untouchability, corruption, contribution to Provident Fund, etc., all of whom will be treated at par with habitual thieves.

The provisions in the existing Code relating to security proceedings have been overhauled to ensure that they are not abused against poor people, who for want of sureties are often kept in detention for long periods during the pendency of the proceedings. The new Code prescribes a maximum limit of six months for the completion of these proceedings. It also provides that if a person had been detained in custody for six months, the proceedings should automatically terminate. The need for sureties in bonds for keeping the peace has been dispensed with to help the poor people.

There is every reason to hope that the new Code will satisfy the long-felt need for a revised procedural law to ensure efficient and speedy justice to all.

TAI'S ALL-ROUND EFFORTS

To Provide Boon And Boost To Maize Cultivation

In

TAMIL NADU

The maize crop, which occupies the third position in the world, both in area and production, found its way to India during the Seventeenth Century.

The cultivation and utilization pattern of maize can indicate the developmental status of the country in which it is grown. Maize is used as human food in developing countries. In other countries, it is used for cattle feed and for human consumption indirectly. Food for human beings and feed for cattle account for 80 to 95 per cent of the total world production. The rest of the maize is used for beverages, seeds, etc. In advanced countries, maize is used as a source of starch which in turn is used to produce a variety of industrial, chemical and pharmaceutical products. India's use of maize is midway between the pattern of developing countries and that of the advanced countries. Maize is still used as a raw food and as flour. The corn flake industry is but a decade old and though the starch producing industry in Gujarat came into being more than 25 years ago, we do not have in the country a large number of manufacturing units.

Prior to 1966, maize was grown as a mixed crop, and in some places as a pure crop mainly for fodder purposes in Tamilnadu. The cobs from the maize grown as a mixed crop were consumed as snacks either after direct roasting in fire or steaming in hot water.

A warm weather crop

The grain production was very low in most areas. Only with the introduction of the High Yielding Varieties programme in 1966, did the cultivation of maize receive higher importance. Since maize could be planted in a wider range of climatic conditions than rice and many other cereals, the extension of

The appreciably high nutritive value of maize finds it a high place amongst the important food cereals of this State. The water free portion of maize kernel contains 77% starch, 2% sugar, 9% protein, 5% fat, 5% pentosan and 2% ash. This is in general. But there is great variation among the different varieties of maize, especially in protein and fat content. The proportion of protein may be as high as 15% and as low as 6%. In maize kernel, 80% of the protein is in the endosperm. The germ constituting only about 1/10th of the grain, contains 1/5th of the total protein. Maize contains three types of protein, viz., prolamine soluble in alcohol, Globuline soluble in neutral salt solution, and Gluteline which contains lysine. The major portion of the protein is in the form of Prolamines. Gluteline is important, but it occurs in small quantities. Overall, the quality of maize protein is rather poor. But among all the cereals, maize is richest in fat with the exception of oats. Some varieties of maize contain as high a portion as 7% of fat. About 80% of maize fat is concentrated in the germ, and the remainder is present in the outer portion of the endosperm. More than 70% of the composition of maize kernel is carbohydrate which is present as starch, sugar and fibre. The starch is found mainly in the endosperm, the sugar in the germ and the fibre in the bran.

area under this crop was not difficult. It is not season bound and can be grown all through the year. Maize is a warm weather crop requiring considerable moisture and warmth from planting to end of flowering and the climatic conditions of Tamil-Nadu meet these requirements. The yield of maize ranging upto 7000 kg. per hectare, which is the highest when compared to the yields of other cereals, is another factor favouring the cultivation of this crop by farmers.

The maize genus "Zea" has only one species i.e. Zea Mays. But this species is so rich in variety as to present a difficult task to the botanist. There are several thousands of variations and these varieties are divided into groups according to the structure of the seed. The principal groups are :

i. Zea Mays—Indendata (Dent Maize) :—

This variety is characterised by a depression or dent in the grain when the maize dries up. The depression is in the corner of the seed. The starch at the sides of the seed is corneous or hard while the soft starch extends to the Apex, and hence the depression.

ii. Zea Mays—Indurata (Flint Maize) :

The seeds of flint maize are hard and smooth. There is very little of soft starch here. The kernels are smaller than those of dent maize. So this variety is well suited for poultry feed.

iii. Zea Mays—Sachcharata (Sweet Corn) :—

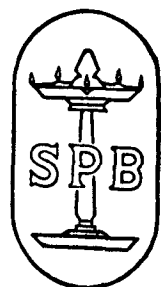
This maize contains a glossy sweetish starch. It is characterised by a translucent horny appearance when immature, and wrinkles when dry. It differs from dent Maize

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by only one gene which prevents the conversion of some of the sugars into starch. The grains are generally picked and used for edible and canning purposes.

iv. Zea Mays—Amylacea (Soft or Flower Maize) :

Its kernels which are composed entirely of starch do not develop dent and the grains are small in size.

v. Zea Mays—(Ceratina)—Waxy Maize :—

The kernels have a waxy appearance. The starch molecules in this variety differ considerably from others. They contain glycogen and are gummy. This maize has the characteristics of tapioca.

Uses of Maize :—

Maize is used for three main purposes.—(i) as a staple food for human beings (ii) as food for livestock and (iii) as raw materials for many industrial products. Manufacturing may be divided into four categories viz. Mixed Food manufacture, Dry milling, wet milling, and Distillation and fermentation. The principal food outputs of dry milling are maize flour, maize meal and breakfast cereals. From wet milling we get starch, fat, syrup, sugar, oil and dextrose. A hundred kilogrammes of average quality maize contains 16% moisture and will give 63 to 64 kg. of pearl starch and 3 kg. of oil. The remainder is used as feed. In wet milling this may give about 72.5 kg. of starch or 50 kg. of refined sugar. Distillation and fermentation industries manufacture Ethyl Alcohol, Butyl Alcohol, Propyl Alcohol, Acetic Dehydrate, Acetic acid, Acetone, Lactic Acid, Glycerol and whisky among the hard liquors.

Maize substitutes and supplements many food cereals because of its high yielding capacity, nutritive value and palatable taste. In India, at present we are mainly growing dent maize since this is economical from the point of view of its yield, starch content and commercial uses. It would however be to our advantage to grow soft or flour maize which can be easily grounded using domestic grinding stones and consumed as chappathi, porridge etc.



Deccan Maize

Popular Maize varieties

The popular improved varieties of maize under cultivation in India are Deccan-hybrid, Hi-starch and Ganga-5. Deccan Hybrid is a triple cross hybrid with hard, bright and yellowish kernel. The crop has a duration of 100 to 105 days and the yield ranges from 6000 to 7000 kgs. per hectare. Hi-starch maize is a three way cross (CM 202 x CM 111 x CM 500). The grain is white, hard and bold, having dent to some extent. The crop has a duration of about 95 to 100 days with a yield of 6000 to 7000 kgs. per hectare. Ganga-5 is also a three way cross like Hi-starch. Its grain is orange-yellow in colour and having the appearance of dent to semi-dent. It has the shortest duration of 90 to 95 days with a yield of about 6000 kgs. per hectare. None of these three varieties is season-bound or tract bound and hence all of them can be grown right round the calendar year and in all parts of the State.

Limitations in Maize cultivation

Though the area under maize extended over a small extent of a few hundred hectares barely a decade back, the area has spread over nearly 15,000 hectares in Tamil Nadu now. Still the growth in area is not adequate compared to the many advantages maize offers to growers. One of the main factors preventing rapid expansion of the area under maize cultivation is the limited marked demand for the grain. There was no developed and regular market in Tamil Nadu for the maize produced by the farmers till a short time ago. Farmers had to run hither and thither to market the produce. This is mostly because the maize produced in Tamil Nadu was used only for poultry feed and to a small extent for human consumption. Besides to convert maize for human consumption well-equipped flour mills were not available to shell the corn and make it into flour and

render it ready for easy consumption. Because of these factors farmers were not getting reasonable prices for their produce of maize. Recently however, there has been a sudden spurt in the demand for maize due to the lifting of restrictions on inter-State movements of millets. This change in the rules has brought the demand for maize in Maharashtra and Gujarat right down to our door-steps. It remains to be seen if this increase in demand will only be temporary. The Food Corporation of India which procures foodgrains by way inter-alia of extending price support has not been procuring the corn of the white varieties of hybrid maize which contain a high percentage of starch. Hence a regular market for such varieties of maize can develop in our State only if maize is used as raw material in a large scale for production in the starch and allied industries.

TAI's Efforts to promote Maize Cultivation in Tamilnadu

The idea of utilizing maize corn for preparing sophisticated consumer and industrial products like corn flour, semolina, corn flakes, corn oil, dextrose, glucose etc. was specifically suggested by the State Chief Minister, Dr. M. Karunanidhi, when he inaugurated the Kalaingar Karunanidhi Agricultural Research Institute at Kudimiamalai in 1971, and TAI promptly took up for consideration the possibilities of establishing modern processing factory for the manufacture of starch and other derivatives from high starch maize.

After collecting a wealth of preliminary data through its own officers and with the help of State Departments, TAI took up a detailed feasibility study of the project appointing competent experts to do the task. Based on the findings of this expert study, TAI has proposed to set up a modern maize complex near Arimalam village in Pudukkottai District for processing maize. The project is expected to cost Rs. 9 crores. The processing methods proposed envisage both wet and dry milling to yield sophisticated end products like corn meal, grits, starches, glucose, dextrose etc. It is proposed to utilise the waste materials also effectively to produce cattle and poultry feeds. TAI has received the letter of intent for the proposed factory from the Government of India and rapid steps are under way to implement the project.

Recently the site for the project has been selected in Pudukkottai district by a team of experts representing various disciplines. Soil and water yield tests have been taken up and soon TAI will take steps to take possession of the land, commence civil works and finalise the choice and combination of manufacturing processes and items of machinery which are likely to come from international sources. Enquiries have been floated for this purpose in countries like Bulgaria, Britain, U.S.A., Belgium and Japan.

TAI sets up a largest factory

There is no factory as yet in Tamilnadu to produce maize starch products. The proposed factory to be set up by TAI will be the largest of its kind to come up in the State. The approximate annual requirements of starch in India as reported by the Small Industries Service Institute, Madras is as follows :—

	Tons of Starch per annum
1. Andhra Pradesh	2,000
2. Tamilnadu	2,000
3. Maharashtra	30,000
4. Gujarat	25,000
5. West Bengal	10,000
6. Other States	11,000
	80,000

According to the small Industries Service Institute the present production of starch does not meet the total requirements of our textile mills. With this fact and the general pattern of growing industrial demand in diverse fields in the country, there is good scope for marketing the starch and starch products proposed to be produced by TAI's maize milling complex.

Encouragement to Maize Cultivators

Alongside its efforts to set up the industrial project, TAI is also taking steps in collaboration with the State's Director of Agriculture to evolve and implement program-

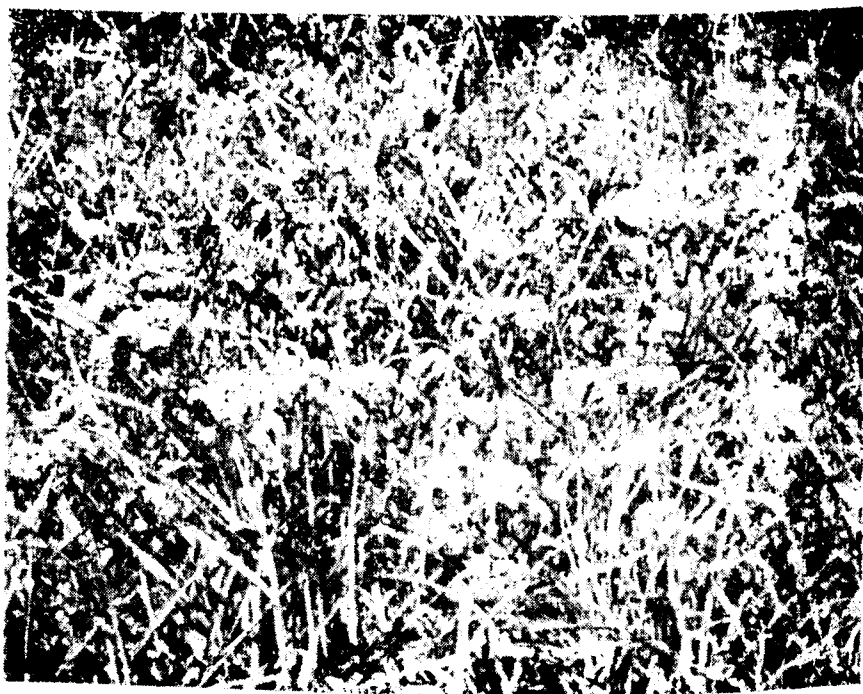
mes for stepping up the cultivation of maize by extending direct help to farmers. One such programme is to register maize growers in the Districts of Trichy, Pudukkottai and Thanjavur providing them with improved seeds, pesticides, fertilizers, cultivation loans etc. and assuring them of a steady and regular market for the produce. This will go a long way indeed to industrialise the backward areas of Pudukkottai district and also contribute to increased Agricultural production and prosperity in Pudukkottai and the surrounding feeder districts.

TAI's proposed maize milling complex will provide the advantage of an assured and stable market to maize growers so that the earlier experience in our State of maize farmers sowing a crop growing it and reaping in the end only frustration finding no market for the produce, is not repeated. TAI's project will help the high yielding variety and multiple cropping programmes in the State. It will develop cattle and poultry feeds to aid and keep pace with the growth of dairy and poultry development schemes in Tamilnadu. The industrial products from the plant will serve existing industries and help the setting up of new ventures. The spin-off effects will promote employment opportunities and greater prosperity for a large number of people.

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Tips To **RAGI** Cultivators For Increased Production



Co. 10 Ragi

Following cholam and cumbu, the third important millet of Tamil Nadu is ragi. The crop has a distribution of 3.38 lakhs of hectares, of which 2.29 lakhs of hectares is concentrated in the districts of Dharmapuri, Salem, Coimbatore, North Arcot and Chingleput. The annual grain productions from this crop is about 3.45 lakhs of tonnes, with the level of productivity being about 1021 kg/ha. This is the best average for any millet, not only in Tamil Nadu but also in the country. The main reason why the average ragi production per hectare is at a better level than other millets is that this crop has about 43 per cent of its total area under irrigation.

The development of ragi strain Co. 7 from Coimbatore represents a break-through in improving the yield potential of this crop in Tamil Nadu. In only 80 days from transplanting, maximum yields of about 55 to 57 quintals per hectare were obtained from this strain under adequate fertilization and irrigation during the summer season. In its total duration of 100 days from seed to seed, this strain is still the best available ragi strain in Tamil Nadu and has served as the standard for further evolution of improved strains of ragi in this State. Later releases like Co. 9, Co. 10 Saradha and PE. 202, though not as high yielding as Co. 7 in their best performances, are capable of producing over 35 quintals of grain per hectare. As these

strains are not hybrids, seeds are easily multiplied and the ragi growers can take to any one of them with advantage, following regional recommendations and preferences. Hence, in so far as increasing the productivity of ragi is concerned, the main direction of effort would lie in the saturation of all ragi areas with suitable improved strains and in ensuring the availability of expertise and inputs to the farmers.

As an irrigated crop, ragi can be met with all round the year in one district or another in the State. However, early summer and kharif are the main seasons. The summer crop is generally the most productive and hence, wherever possible, the farmers would be well-advised to grow ragi in summer for maximum economic grain. There is also considerable scope for taking ragi as a component in multiple or relay cropping, in areas commissioned to high intensity cultivation. As the currently recommended elite variation hardly take 90 days to mature (after nursery age), farmers can be encouraged to introduce these varieties in their cropping schedules. Because of the early maturity of these varieties and their transplantability, some new coverage for this crop may be possible, as a sandwich crop, even in areas traditionally given to other crops in sequence.

Healthy nursery for Ragi

Although it is well known that ragi (as with any other transplanted crop) should not be left too long in the nursery before transplanting, many farmers are really not aware of the reduction in yields that would occur if the seedlings are overaged. It has been observed that even a day's delay in transplanting could cause a 7-10 per cent reduction in ultimate yield and that progressive delays cause further substantial reduction. Hence, it should be imperatively emphasised on ragi growers that they should maintain a good and healthy nursery for ragi and aim to have adequately robust seedlings at transplanting age, which is 18-22 days for most varieties. Productivity will inevitably suffer if the nursery is neglected and transplantation delayed.

Where ragi is cultivated as the main crop by preference, it generally receives adequate inputs, including fertiliser. There is also considerable area under ragi, where the crop comes on the field after a main crop, which may be paddy or any other crop largely grown in the region. In such areas, ragi hardly receives any fertiliser or adequate attention at the hands of the farmers, as the crop is raised more as catch crop to utilise the residual supply of water in the wells. As ragi is a fertiliser-responsive crop, the productivity from these areas can be probably increased, if the farmers are persuaded to take to fertilization of the crop, at least at half the level advised for irrigated ragi. Even nitrogenous fertilisation alone could be enough, depending on the fertility added to the soil for the previous crop. The prospects should be critically studied in every such region and advice suitably modified.

While the irrigated ragi tracts offer compact scope for integration of all inputs to raise productivity, the areas under rainfed conditions also offer considerable promise, in spite of the uncertainty of the monsoons. With judicious fertilisation, it is possible to awake economic responses from dryland ragi as it is, and the responses would be even brighter with the new range of elite strains now available in this crop. Maximum yields of 25.1 q/ba and 27.8 q/ba under rainfed conditions have been reported from varieties Co. 10 (EC 4840) and 'Saradha'

respectively. This gives an indication of the yield levels achievable from dryland ragi and calls for exploitation. If the adoption of the new elite varieties of ragi, their fertilisation at optimal levels, and plant protection at a minimum schedule formula, are pushed through in the dryland ragi tracts at a compaign pace in the coming seasons, it is bound to be reflected in the elevation of the overall productivity of this crop in this State.

Pest Problem not so serious

Pest problems in ragi are not as serious as with the high yielding varieties of sorghum or cumbu. However, 'bloss' and mosaic diseases problems are of considerable magnitude. There are no improved strains totally resistant to any of these diseases, but some like Co. 1 are tolerant to some extent. While this can be taken advantage of as far as it goes, fungicidal and vector control measures should be diligently adopted, if the best possible responses of the crop are to be ensured. A damage of 30 to 40 per cent can easily be caused to the productivity of the crop from a disease like blast, which can manifest on the crop at any stage of its growth.

Industrial application for Ragi

Among millets, ragi is the only crop, which has an industrial application presently in the manufacture of malt beverage. This demand is only marginal now, but can be improved. Millets lack an urban appeal and unless processed foods can be developed from them, they will generate no urban acceptance, based on which only a viable processed food industry can be envisaged. Since ragi is found eminently suited for malting and is also rich in calcium, a vital element in the nutrition of children and adults as well, it should be examined in detail whether a processed food industrial unit based on ragi can be established in this State. Protein rich white-grain varieties of ragi, such as Co. 9, have also been developed recently, with fairly good yield potential. Curiously enough, in spite of the better popular appeal and nutritive quality compared to the more common brown-grain ragi, the white-grain type is reported to be not making such of an impact in the traditional ragi tracts. This situation

could perhaps be off-wet, if white ragi can be promoted as an industrial crop of premium value and encouraged to be grown as a pure crop or even as an inter-crop, wherever practicable. In these days, when popular processed foods and beverages based on more elite cereals are very costly and are becoming dearer for the middle class urbanites, preparations based on cheaper cereals like ragi, should be economically attractive. If the State could explore the possibilities of such utilisation of white ragi and also set up pilot plants in one or two likely areas (like Dharmapuri-district, which has the largest distribution of ragi in this State and which is also an industrially backward district), the productivity of ragi would gain an additional fillip in Tamil Nadu.

LARGEST EVER SHIPMENT OF PHOSPHORIC ACID — A RAW MATERIAL FOR COM- PLEX FERTILIZERS

The largest Phosphoric Acid shipment ever made in the world in the history of Phosphoric Acid trade arrived at Madras on board the "FFM Matarengi". This specially-built tanker is scheduled to unload 27,700 tons of Phosphoric Acid which is manufactured by M/s. Fertilizantes Fosfatados Mexicanos (FFM) and supplied to Madras Fertilizers Limited (MFL) under a long term Sales Agreement.

The previous largest shipment was made in Feb. 1973, also to Madras Fertilizers Limited, when 25,000 tons of Phosphoric Acid were unloaded.

Ocean transportation of Phosphoric Acid is relatively new and was pioneered by M/s. Fertilizantes Fosfatados Mexicanos in 1969 when the first shipment was made from Mexico to Rotterdam. Since then, numerous shipments have been made by FFM to fertilizer manufacturers all over the world, including Europe, South America, Asia and Australia.

Phosphoric Acid is a raw material used in the manufacture of complex fertilizers.

This consignment of 27,700 tons will be sufficient to manufacture approximately 90,000 tons of much-needed complex fertilizers.

Progress of **N M E P** in Tamil Nadu

In the pre-DDT period, a few schemes were operating for control of Malaria in Tamil Nadu covering highly malarious areas. The control measures adopted were chiefly anti-larval using such methods as oiling, parisgreen and introducing larvivorous fish in water collections where the mosquitoes which caused Malaria bred. In a few places pyrethrum was also sprayed to kill adult mosquitoes.

In 1953-54, NMCP was launched throughout India as a Centrally Sponsored Scheme. The National Malaria Control Programme in Tamil Nadu covered a population of 27 lakhs living in malarious areas of the State.

The object of NMCP was to bring down the malaria transmission to a level at which the disease would cease to be a major public health problem. The main weapon of attack was the residual house spraying with DDT against vector mosquitoes. The programme lasted for 5 years and brought about remarkable reduction in the number of malaria cases. A stage was reached when malaria eradication was considered possible in India.

In 1958-59, the NMEP was launched throughout the country. The entire Tamil Nadu State was brought within the ambit of the programme and 31.45 units were established to cover 33 million population.

Three Phases of Malaria Eradication

The NMEP having a time-bound programme was carried out in three phases viz., 1. Attack Phase 2. Consolidation Phase and 3. Maintenance Phase.

During the Attack Phase, operations were initiated against the vector mosquitoes which consisted of spraying all the houses in the State with DDT according to plan. The object was to bring about total interruption of malaria transmission. This phase lasted in the State for four to six years and by the end of 1963-64, all the units in the State had entered the Consolidation Phase.

With the commencement of the Consolidation Phase, spray operations were withdrawn.

The object of the Consolidation Phase was to detect and eliminate the few remaining malaria cases, as a large majority of cases would have already disappeared during the attack phase.

Detection of cases was made through Surveillance operations already initiated during 1960-61. Cases confirmed as malaria through demonstration of parasites in their blood are given radical treatment. Anti-focal measures such as spraying in and around positive houses are conducted to prevent local transmission. This phase will last until it can be proved that no malaria cases of local origin occurred during the last two years of the phase and that malaria has been eradicated. In Tamil Nadu between 1962-63 and 1965-66 all except 3.05 units successfully entered the next phase viz., Maintenance Phase. The projection of the remaining 3.05 consolidation units into maintenance could not however be made as they were facing problems of urban malaria.

The object of maintenance phase of NMEP is the maintenance of the area free from malaria. During this phase vigilance is maintained against reintroduction of malaria through importation of cases from areas within the country or from other countries where malaria has not yet been eradicated. For catering to the needs of the malaria vigilance, the Basic Health Service was constituted at the Primary Health Centre level and is implemented in this State from 1st April, 1969. 353 blocks and 359 Primary Health Centres which are in the maintenance phase areas have the benefit of the Basic Health Service. The Basic Health Service consisted of multi-purpose workers who performed other health functions besides malaria vigilance.

As a result of successful eradication measures carried out under NMEP, the number of malaria cases in the State declined from about 1 million cases as estimated

in 1953 to 4880 confirmed cases in 1973. The lowest incidence of malaria in the State was in the year 1967 when only 183 cases were recorded. Although the picture is not as alarming in terms of number of cases as in some other States in India, it is still disquieting to observe an upward trend in malaria case-occurrence in this State. This can be attributed to interplay of various factors.

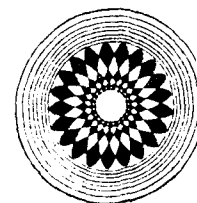
It should be recognised that maintenance of eradicated areas free from malaria is far more difficult especially when several thousands of cases are recorded in our neighbouring and other States. So long as the development of the programme is uneven in different States of our country the threat of reintroduction of malaria in the maintenance areas will always exist. Tamil Nadu, where about 90% of the State has entered maintenance as early as 1967, faces this constant threat by way of migratory labour population, mobile fisherman community, illicit traffickers and repatriates. Former highly endemic areas from where persistent malaria has been eradicated with great difficulty become once again re-activated because of their high degree of receptivity to reintroduction of malaria. About 20% of the cases recorded in this State are imported from elsewhere such as Andhra Pradesh, Karnataka, Maharashtra NEFA and Andaman and Nicobar Islands. A few cases have also been imported into this State from Malaysia and Sri Lanka. Large-scale resurgence of malaria was witnessed in recent years in certain vulnerable and receptive areas of North Arcot, Dharmapuri and Ramanathapuram districts. Remedial measures such as insecticidal house spraying and radical treatment of positive cases organised and carried out in these areas at attack phase level are having the desired effect of bringing down the number of cases but the responsiveness of these areas is not even and therefore the progress has to be slow in achieving the end-result in such areas. For instance, the lack of peoples' cooperation in Rameswaram Island for house spraying and drug

administration has put in jeopardy the programme for liquidating the infection quickly. Special but slow-acting anti-larval measures had to be instituted to surmount this difficulty. Similarly, special measures were called for to augment house spraying in Sathanur area to counteract insecticide resistance developed by the vector. Despite these difficulties, resurgence of malaria in maintenance areas has been largely confined to limited geographical areas and its widespread occurrence in the State has been prevented.

Early achievement of malaria eradication from the consolidation areas of the State has been hindered by the problem of urban malaria. Malaria in urban areas like Madras City, Salem, Erode and Rasipuram

is transmitted by the man-adapted urbanized mosquito *A. stephensi*. Due to its early development of resistance to insecticides, reliance has to be placed on the slow-acting anti-larval measures. Centrally sponsored Urban Malaria Schemes are being implemented in the State from the year 1972 in towns viz., Madras City, Salem, Rasipuram and Tuticorin. Some more towns having this problem may be taken up under this scheme during the 5th Plan period. Urban Malaria Schemes are implemented through local bodies under Central grant. The success of these schemes depends much on the operational efficiency of the local body staff on the one hand and the regularity of larvicide supplier from the Centre on the other.

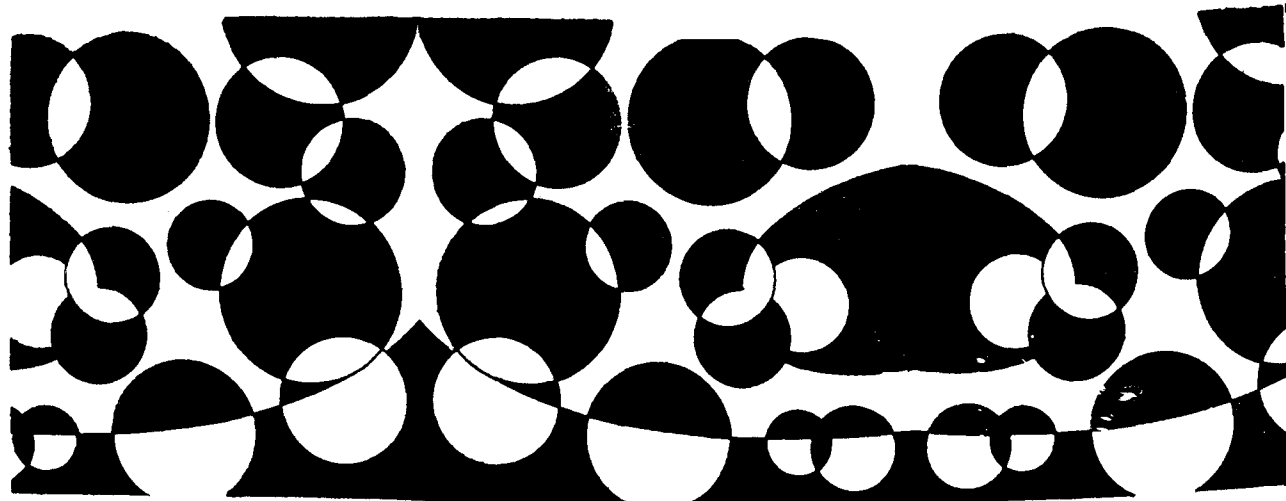
In conclusion, it may be said that the progress of NMEP in Tamil Nadu is not unsatisfactory as compared to the performance of other States. Although the situation does not give room for complacency, it does not make it alarming either and steady progress towards achieving the goal of malaria eradication is possible with properly planned strategy. The problem of vacant posts and lack of funds does not exist in our State and provided the Centre continued to make timely supplies of insecticides and drugs, the upward trend in malaria incidence noticed in some receptive areas in the State can be reversed in the foreseeable future.



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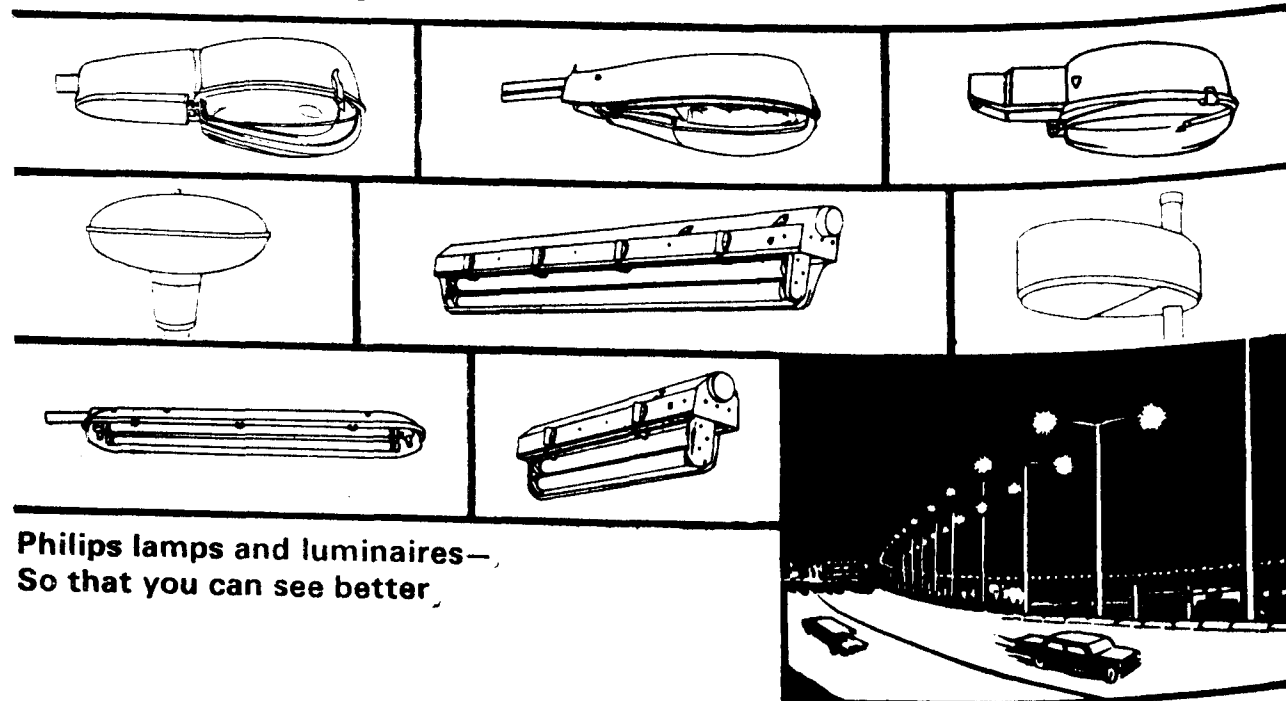


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1. Square system
2. Rectangular system
3. Quincunx system
4. Triangular system
5. Hexagonal system
6. Star system

The border space for fencing, wind breaks, roads and other amenities are marked out to get the actual plot for planting trees. If the field is irregular it may be divided into convenient squares or rectangles.

D. PAULAS, M.Sc. (AG.)

Department of Horticulture.

Tamil Nadu Agricultural University.

Planting Method

Marking the base line :—The position of the first tree is marked in the base line in the corner with half the spacing between trees from the adjacent sides of the plot meant for planting trees. The last tree in the base line also should have atleast half the spacing from the border.

Similarly the trees at the ends of each row and each column should have atleast half a spacing from the borders nearby.

All the rows are parallel to the base line which is the first row. Columns are perpendicular to the rows.

Formation of perpendicular line in the field :—A rope of convenient length is marked at spacings in the ratio of 3 : 4 : 5 (preferably 12, 16 and 20 meters). The ends of the

middle section are held in the base line, with the left end of that section coinciding with the left end of the base line where the position of the first tree is marked. The other two ends of the rope are held together and pulled taut. The line formed thus by the first section of that rope provides the vertical line.

Formation of the outline:
The base line is first formed and marked.

Preparation of the free line :—In the free line as many spacings as are in the base are marked continually with one extra mark equal to half the desired spacing in one end.

Square system

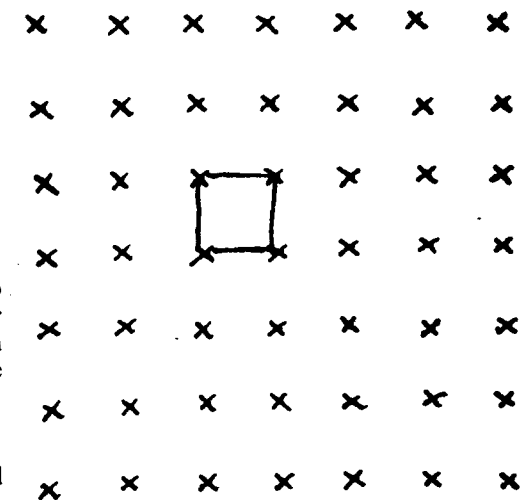
The base line is formed and stakes are planted with the help of a metallic tape at intervals equal to the desired spacing. Then a rope is tied vertically through the first tree position from the base to the other end of the plot so that it will form a straight line. Then plant positions are marked on the ground by planting stakes in line with the rope from the base. Similarly the last column is marked starting from the last tree position in the base line. The formations of the vertical lines are correct if the distance between a tree position in the last are the same as the first and last tree positions in the base line.

In order to form the rows the free line is held in such a way that its corresponding markings of the tree positions touch the first and last columns respectively. Pegs are planted in line with the markings made in the free line. The extra half spacing is not used while laying out in this system. Thus all the rows are peg marked.

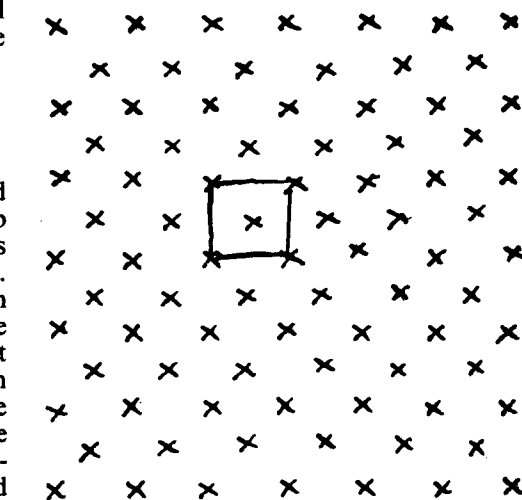
Rectangular system

The procedure here is the same as that of the square system but there will be difference between

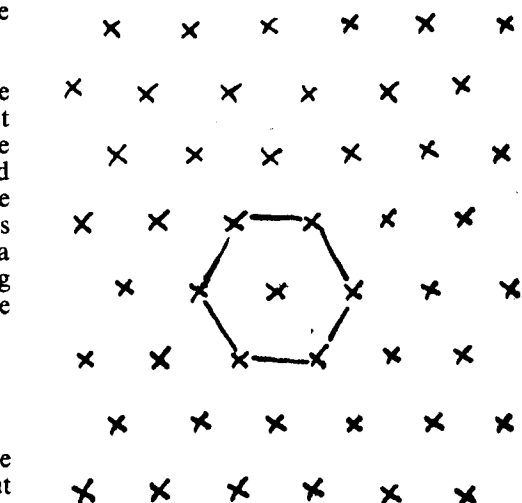
SQUARE SYSTEM



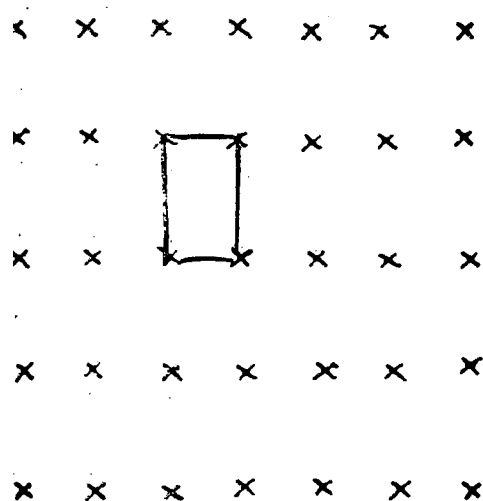
QUINCUNX SYSTEM



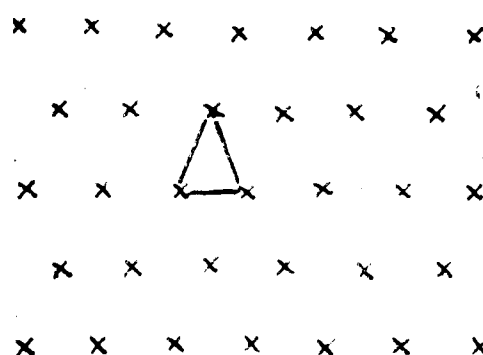
HEXAGONAL SYSTEM



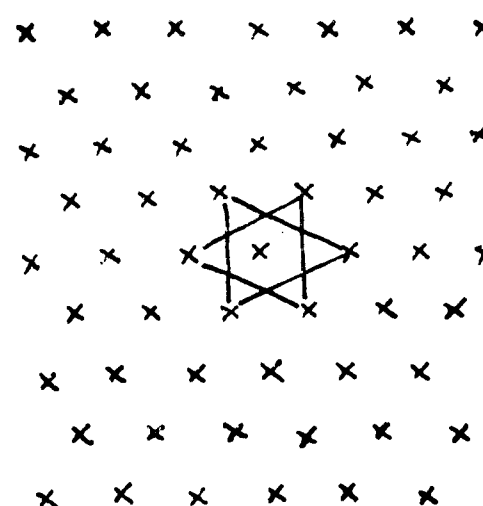
RECTANGULAR SYSTEM



TRIANGULAR SYSTEM



STAR SYSTEM



No. of trees accommodated in a square plot of one acre (0.4047 hectares)

Spacing	Square system	Quincunx system	Triangular system	Hexagonal system	Star system
3' ..	4,761	9,385	4,727	5,480	6,394
6' ..	1,156	2,312	1,156	1,360	1,564
8' ..	676	1,301	663	740	867
10' ..	400	800	400	460	540
12' ..	289	545	281	314	363
15' ..	169	338	169	195	234
20' ..	100	181	95	105	124
25' ..	64	113	60	68	75
30' ..	36	72	36	42	48
35' ..	25	50	25	30	35
40' ..	25	41	23	23	27
Percentage	100%	196.4%	99.13	114.5%	133.37%

the trees in the columns from that of those in the rows. Longer side of the rectangle will be marked on the vertical lines but spacing will be marked in the base and free line.

Quincunx System

The procedure for the formation of the base line and marking the tree positions and the formation of the first and last columns are the same as that of the square system. But markings for the first and last columns will be made at intervals equal to half the desired spacing. While holding the free line in the half distances which alternate with full spacings of the columns, the end of the half extra mark of the free line should coincide with the marking in the column. Pegs should be driven for three positions in the markings of the full distances only in line with the free line.

Triangular system

Formation and peg marking of the base line and the first and last columns are similar to the square system. The free line should have a half-spacing marking at one end. The half spacing mark in the free line is used in alternative rows for marking

tree positions. Pegs should be driven for tree positions only in the markings of the full distances of the free line.

Hexagonal system

The procedure in staking is similar to square system except that distance marked in the first as well as last columns are at the intervals equal to 0.866th the desired spacing between trees. The half space mark in the free line is used for marking alternate rows. Pegs should be planted for the tree positions only in line with the markings of the full distances of the free line.

Star system

The procedure in marking tree positions in this system is similar to hexagonal system except that markings are made in the first as well as the last columns at the intervals equal to 0.75th the desired spacing between the trees.

In the hilly terrain trees are planted along the contour lines. Wherever feasible terraces are formed and the trees planted therein, contour planting is advocated where the slope exceeds 3% and bench terraces where it is greater than 10%.

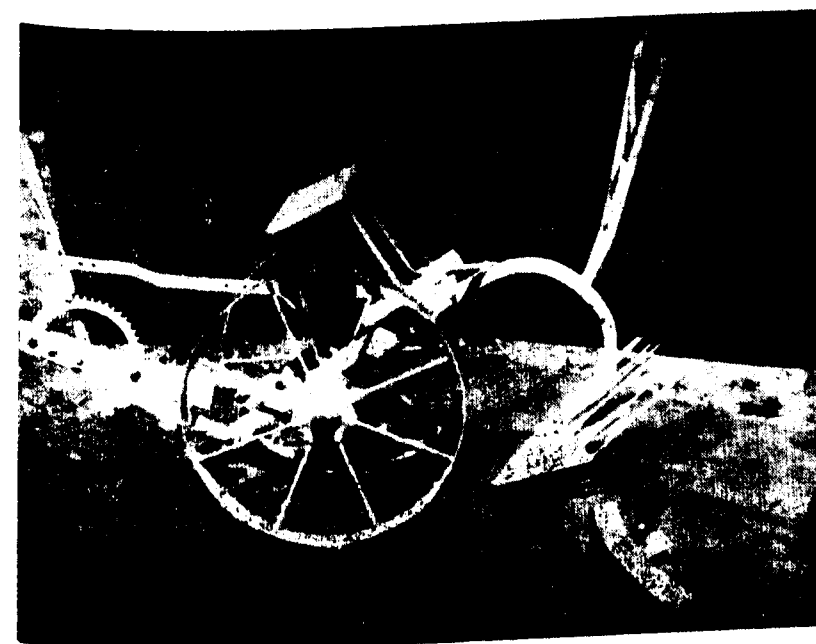
BULLOCK DRAWN GROUNDNUT-CUM- POTATO DIGGER

This implement developed at Research Engineers Workshop TNAU Coimbatore is suitable for harvesting of groundnuts and potatoes. There are separate attachments for a common tool bar, to harvest each of these crops. The groundnut attachment is a crescent shaped blade whereas the potato digging attachment is in the shape of a ridger. Both are attached to common square shankfitted to a framework. This frame is mounted on two steel wheels.

The operator seated on the implement can drive the animals comfortably as well as adjust the depth of operation. During the trials it was observed that no damage is caused to potatoes or groundnuts. The coverage was found to be 1.15 hectares and 0.88 hectare per day of 8 hours for groundnut and potatoes respectively.

The dimensions, specifications, outturn and initial and operating cost are :-

Overall length	172 cm.
Overall width	75 cm.
Overall height	109 cm.
Weight	120 kg.
Power required	A pair of bullocks.
Capital cost of the digger	Rs. 575/(with both attachment)
No. of labourers required	2 men & 4 women for groundnut 2 men & 6 women for potatoes.
Cost of operation	Rs. 45/-per Hectare (for groundnut) Rs. 100/per Hectare (for potatoes)
Outturn : Groundnuts:	1.15 hectare/8 hours
Potatoes :	0.88 hectare/8 hours.
Released by :	Communication Centre Tamil Nadu Agricultural University, Coimbatore-3.



Bullock drawn groundnut-cum-potato digger

WEALTH FROM WASTE

A new source of raw materials for making exotic leathers has been brought to light during the studies undertaken by the Central Leather Research Institute, Madras, on the salvaging of various slaughter house by-products. The internal stomach layers from the cattle and buffaloes which are being practically wasted at present have been found to be a very useful raw material for making exotic leathers which could be used for making various fancy articles. This discovery of the CLRI scientists has won the Invention Promotion Award.

The area of stomach layers obtained from a grown-up cattle or buffalo will be approximately that of a goat skin. The availability of the stomach layers can be taken as the same as the cattle and buffalo hides put together which is 19.73 million and 7.15 million pieces respectively per year. The complete recovery of these stomach layers will be a very big source of raw materials for preparing leathers.

Methods for processing the stomach layers have already been standardised at the Central Leather Research Institute, Madras. Depending upon the end use of the final leather the processing of these stomach layers could be done in different ways. The thickness of the finished leather varies from 0.4 mm to 0.7 mm.

The leathers made out of stomach layers are found suitable for making a number of exotic leather goods items. One of the main attractive features of this leather is the presence of the papillae which gives it a Turkish towel look. It also provides a grip which makes it suitable for use in the making of gloves, scooter handles, racket handles etc. Ladies hand bags, pouch bags, bed room chappals, jewel boxes, wallets, ties, leather garments etc. are some of the attractive leather goods items that have already been made from this leather. Because of the natural attractive features of the leather, the articles prepared from this source can easily find an export market in fashion-conscious countries. Many tanners and the public have already evinced interest in these leathers. Enquiries have also come from foreign buyers on some of the articles made out of this new leather.

The process is available for commercial exploitation by any interested entrepreneurs.

CURRICULUM

IN THE PAST AND

IN THE PRESENT

The author herein defines and demarcates what and how the relationship should exist between the teacher and the student community in the future world for a better standard of education. He also brings out various methods of education, to analyse and also put-forth a plethora of solution so as to overcome all practical difficulties that confronts the academic world.

The question of student-teacher relationship is an important problem; in fact it is the most pivotal problem of education. It covers almost every aspect of education, and therefore, no excuse is needed for bringing under the survey of this subject the multifarious problems confronting the educationists today.

Early Traditions

Concerning the relations between the teacher and pupils, the high position accorded to the teacher and the insistence on implicit obedience to the teachers and the whole-hearted devotion to the acquisition of knowledge on the part of the pupils and above all the emphasis laid on the development of character, India has had a long and laudable tradition. (The Gurukula system is a unique institution of early India. We hear of Drona and Bhishma as outstanding examples of ideal teachers. In the extreme south, in the Tamil country, too, the educational traditions were high. Tiruvalluvar lays special emphasis on the value of acquiring knowledge through listening to the wise. Knowledge received through the ear is considered even superior to mere 'Book learning'. 'Those who feast their ears with learning are comparable to the venerable people who make sacrificial offerings' (Kural 413). 'Though devoid of learning, let one fill one's ear with knowledge; it is his support in his hour of gloom' (Kural 414).

The traditional 'pial' schools called 'palli's were conducted invariably by individual teachers. The pial was the 'tinnai' or the verandah of the house. In certain cases perhaps sheds or covered shelters were set up near the thatched house. We hear of some pupils having lived in public rest-houses like the Manrams which seem to have served as schools.

In the pial schools a basic grounding in language and literature as well as arithmetic was provided. Alphabet was known as Nedunkanaku and that was perhaps the reason why teachers were called 'kanakkayar'. (Oral teaching played an important part, and the education of those days afforded great scope for the training of memory. Writing was done on dried and seasoned palmyrah leaves with the help of a pointed iron stylus (Eluttani). While writing, usually the leaf was held between the leaf thumb and the first finger and the stylus between two fingers of the right hand. The initial training for youngsters in the art of writing was provided by making them write on sand spread on the floor.

By

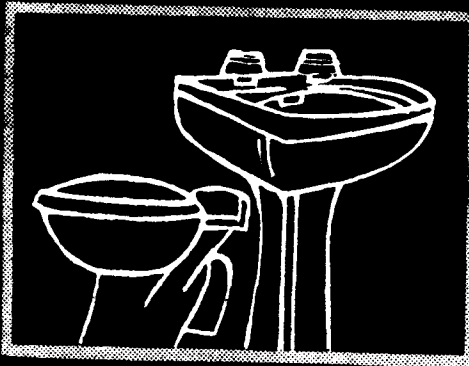
Dr. K.K. PILLAY

*Director Institute of Traditional
cultures, Madras.*

(The importance of each village having a teacher was recognised by the author of the Tirikadugam. The teacher who was known as Kanakkayar in the Sangam period was known alternatively as 'Uvattiyayar' in the post-Sangam period. 'Asiriyar' was apparently a teacher of profound learning and an author of literary works. 'Asiriyar' or 'Asan' also denoted experts and teachers of particular arts like music and dance.

The Tamils of old seem to have appreciated the importance of commencing education at an early age. "Learn while young" is a well known maxim of Auvaiyar. "What is learnt while young is like writing on rock", is another old saw. These sayings, though of a considerably later period than the Sangam age, must have emerged from long established tradition. From indirect and later references, it may be inferred that the child's formal education commenced in the fifth year. It is learnt from the Jivakachintamani, which is no doubt a work of a later epoch, that the sons of Jivaka were sent to school at the age of five to learn the arts.)

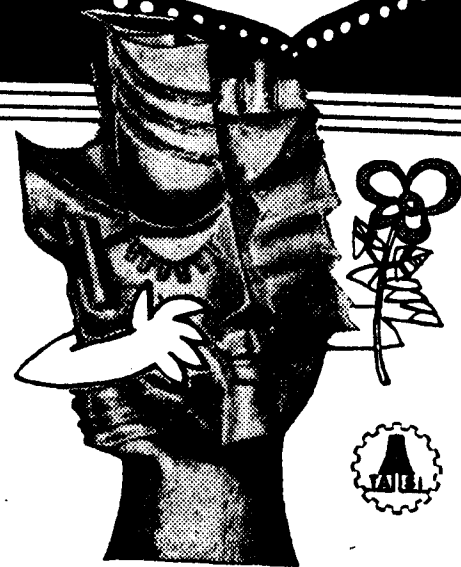
From the indirect references in the early Tamil classics and from the known data of medieval and modern epochs, the teacher in the Tamil country was in close touch with the pupils. (The relationship between the teacher and the taught was that of a father and son.) Now



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there is hardly any mental or spiritual communion between the teachers and students. Today the relationship has become mechanical and commercial. The teacher hardly evinces a living interest in his pupils.

In the Tamil society of early times though the rich had always a greater facility than the poor in the matter of education since they could afford to pay for it both in cash and in kind the poor were not devoid of all chances, because they could render some kind of service to the teacher and thereby get the benefit of education. The Pandyan king Aryappadaikadanda Neduncheliyan advises his people to take the learning either by giving fees or rendering service to the teacher and also stressed the importance of education. It adds that if a person of a lower caste were better educated than others, then even members of the higher caste should learn from him. It lays stress on the ideal that education should really transcend the barriers of caste. The cumulative effect of the perpetuation of this communal injustice has resulted in the dormancy of the intellect on the part of the lower castes.

The Present educational system :

From the introduction of an educational policy in India by the British, three stages in a pupils' education were demarcated. "Primary education is as the plinth with the foundation broad and deep; secondary education is as the superstructure with its walls and pillars; higher education is as the proof with its domes and towers. No part of the structure can be injured or neglected without affecting the safety of the usefulness or the beauty of the whole."

Several educational experts hold that pupils in India spend a lesser number of years at School than in most of the advanced countries of the world. I too, feel that there should be at least eleven years of schooling. That gives a grounding for a real higher education and proper university life.) There is a glaring disparity in age between University students in India and

those in Europe and America. There is no country where students are admitted to higher education in the 15 year as in India. Even the American freshman at the age of 18 is considered unfit for University and relegated to the Junior College. Our undergraduates are more properly described as senior High School children taken as adult men and women who should more correctly belong to a Degree college. Everything considered it must be acknowledged that the P.U.C. scheme has proved disappointing. The Intermediate course can be reintroduced with advantage. Then there can be two years of Collegiate study for the first Degree, B.A. or B.Sc. as the case may be. In deserving cases a specialised post graduate study of two years is to be provided. In this connection the selection for admission to the post-graduate courses has to be done with special care.

That brings us to the thorny problem of the restriction to admission for higher education. There has been a rapid development of higher education in the recent past in our Country, and it is not confined to the so-called higher sections of society. The latest available figures indicate the tremendous increase in the number of students attending colleges and universities. After 1947, the number of universities in India has increased from 19 to 92 and that of colleges from 250 to about 3,000. Each university has a prodigious number of students affiliated to it. According to the Gajendragadkar Committee Report the optimum enrolment for an affiliating university should be somewhere between 30,000 and 40,000 students. But in fact the major Universities in India are enormously over crowded. It is appalling to learn that even some of the residential universities have more than 10,000 students!

The number of students in the universities is nearly 2.2 million at present. **The craze for University Degrees is primarily because they are considered as passports to employment.** This ever increasing rush for higher education has not witnessed a corresponding rise in the number of Professors and lecturers with the result that the teacher-student ratio has diminished. Each lecture class has a much larger number of students than before.

STUDENT UNREST

In fact, the most alarming problem in the field of education at present is the ever increasing number of strikes and boycotts. Confining our attention to India—and few other countries are free from this menace—it is seen that almost every part of the Country is affected by this malady. One writer observed sarcastically that the Indian academic year is divided into three terms; the first devoted to inaugural functions, the second to agitations and the third to valedictory speeches. Like all generalisations this view is not quite accurate; for one thing agitations on the part of students are not confined to the second term alone. They spring up at any time except perhaps during the vacations, and they arise on account of any cause, reasonable or otherwise. For instance, the 68 day long strike in the Rajasthan Medical Colleges for higher stipends and interest free loans to encourage rural medical practice and private medical service respectively, the Delhi pre-Medical students' agitation for more medical seats, the agitation of the students of Delhi for better transport facilities, the Bikanir students clamouring for a separate University, the strike of the house-surgeons and the medical post-graduate students in Andhra Pradesh on the issue of allowances, the language riots in Assam, the agitation for and against the Mulki rules in Andhra Pradesh, the clamour for a voice in the administration of the Colleges and Universities—these and many more are heard frequently. In Ganganagar District of Rajasthan, the college students went on strike demanding an increase of 5% in marks in the preceding examinations on account of the Indo-Pakistani war. The State Government agreed! There is now an impression all over the Country if the students agitate, anything can be achieved.

The students must be weaned off from politics. It is one thing for students to take an interest in politics, which they can certainly do with advantage; but it is another to plunge themselves into active politics ruining their studies and wasting their parents' money. But it is easy to offer this counsel. Will it be acted upon?

The following prescriptions can be suggested as a remedy to the problem. (1) Disband all student

Unions (2) Abolish leadership elections in Schools and Colleges (3) Close down all hostels, Since they are the breeding places for agitation and (4) Students must be made to study under adverse conditions. Then only can they be made to feel the value of education. These are obviously drastic and to a large extent impracticable. They may provoke fresh agitation.

For combating this desperate situation I suggest that Parents' associations may be formed from which, a sobering influence on students' activities can be exercised.

In this connection it must be said that more than the male adults, the women of the household can play some effective role, if they realise the gravity of the problem. They have to exercise a healthy influence on their sons and daughters. If for nothing-else, at least for the sake of their own personal safety the students must be dissuaded from entanglements, in students' agitations.

In all seriousness I suggest that some day, sooner rather than later, a public pronouncement from the highest authorities in India must emanate to the effect that students participating in any hartal or agitation of any kind are likely to do so at their own risk and that parents and elders must give their wards a timely warning not to embroil themselves in any agitation. This has to be done unless utter chaos is to be perpetuated. After the warning the Police has to take justifiable action wherever necessary. As long as students are treated for purposes of law and order as a special category, there will be no end to unrest. All new proposals to improve the quality of education will have no meaning if the students are given opportunities to rebel and retaliate, at the end of which they are allowed to go scot free.

It is easy to suggest the formation of students' Councils. If in a few instances at least they prove effective, the situation will be encouraging. Unfortunately the experience wherever it has been tried, has proved far from satisfactory.

Even so are the so-called organisational personnel services. Such services may help students in the choice of subjects, help in adjustment to college life and more speci-

fically in the area of study techniques and skills. Even when they are operated by professionally qualified persons, beneficial result may be only temporary.

Teachers.—That brings us to the important question of manning the educational service by competent and devoted persons. For one thing, there has been no increase in the personnel of the teaching staff corresponding to the growth in numbers of the students. This is true not only in respect of the collegiate section but also of the High school and even primary school set-up. This is most undesirable from the standpoint of the development of a healthy teacher-pupil relationship. It has to be observed here that the work load of teachers is too high, averaging in most Universities 15 hours a week, and what is worse, involving too many subjects for each teacher to teach.

Numbers apart, the quality of the teacher is of pivotal importance. **It is a truism to say that the teacher, both by precept and example, should be a source of inspiration to the taught. The time honoured tradition of dedicated service on the part of the teacher must be re-established. The teacher must virtually become a hermit passionately devoted to his sphere of intellectual pursuit and at the same time prepared to inspire his wards with enthusiasm.**

Unfortunately there has been a conspicuous fall in the quality of the teacher, particularly in the field of higher education. Many of them are totally unsuited for the noble profession of teaching. Quite a large number of them have no love much less passion for acquiring fresh knowledge or transmitting this to their wards. It is sometimes said that a teacher is born and not made. Perhaps there is a large measure of truth in this.

At times the teachers themselves strike work. The Jodhpur University, for example, has been for many years plagued by the evils of groupism, nepotism and partiality.

The teachers have also begun to form Unions to advance their cause. The Vice-Chancellor of the Delhi University suggested the formation of College Councils. The Teachers' Association of the University protested against it. The scheme of the Vice-Chancellor envisaged the formation of such Councils for a group of Colleges and these Councils were to act as a buffer between the College Principals and the Vice-Chancellor, and they were charged with the task of sorting out all academic questions before the University came to a final conclusion. On the face of it there was nothing objectionable in it since it only meant decentralisation which should have been welcomed by the teachers. However the Vice-Chancellor, instead of allaying the fears of the teachers, issued an ordinance empowering the University to set up the Councils. The teachers were enraged and they threatened to strike.

The teachers then struck work and the Class IV staff also joined them. The Vice-Chancellor was helpless. He declared finally that through the Act was passed authorising him to set up the councils, he would not do so until the teachers agreed to this. The strike was called off and the colleges began to work normally. It was a triumph for the teacher's Union. This gave also an encouragement to the students to demonstrate to get their so-called demands satisfied. It may be noted that the President of the Students' Union is a member of the Jan Sangh. A former President of the Union has joined the Congress Party. This is a typical situation in a University where both teachers and students have their political affiliations in pursuance of which they act.

The National Cadet Corps, the National Discipline Scheme and the National Service Scheme have not disciplined the Indian student and will not discipline him as long as the teacher is ignored and the elders remain indifferent.

The entire trouble of the system of higher education is that as stated earlier, most of the students take to it as an avenue for employment. Historically speaking this feeling has been fostered indirectly from the days of the British rule. The British Government needed clerks and secretaries for the discharge of

their administrative responsibilities. The English educated persons were found useful in the service of the administrative departments and educational policy was linked with government employment. Gradually, during the last hundred years or so, the feeling has gained ground that a University Degree is a sure passport to Government service. The true objective of education has been ignored. The result is unfortunate. On the one hand, it is not found possible to provide employment for the speedily increasing number of graduates and highly qualified persons; on the other, the true aim of education is cast to the winds.

The General idea prevailing among the educationist is that after the S.S.L.C. a large number of pupils must be diverted to technical education of one kind or the other. Emphasising that it is necessary to disabuse the minds of the people at large of the real value of the Degree, should be urged that we should consciously and systematically try to "denigrate" or "debunk" Degrees. The employment agencies, Government or private, should set no value on Degrees, but give recognition to real attainments and experience. But the suggestion is not free from difficulties. In due course there is bound to be a glut among the technically trained S.S.L.C. Secondly there is no corresponding assurance that the quality of the higher education would be improved. One important fact to be remembered is that incidental to serving as a passport for employment, the higher education fulfilled to a certain extent the education of the recipient. Theoretically it must be admitted that some knowledge is acquired by the undergraduate through higher education.

My own feeling is that instead of the S.S.L.Cs. taking to technical education, the graduates may be switched on to that line, so that they would have had a grounding in both higher education and technical education. The current preference for the white-collared job must vanish and graduates and post graduates should have no hesitation to take to even manual work. There have been some instances of University men taking to what was considered mechanical or manual labour. Quite recently (on December 6, 1972) Cheruvikal Panchayat, on the outskirts of Trivandrum city

witnessed the rare and inspiring spectacle of University boys and girls working shoulder to shoulder with the local villagers on a rural housing project of the Kerala Government. One is eager to know how long such enthusiasm would last and whether college students elsewhere in the Country would undertake similar work. The first flush of enthusiasm is no indication that it will continue. But a tilt in the outlook of graduates and their parents in favour of mechanical work is bound to be beneficial in the long run.

Turning to the existing system of higher education itself, some suggestions regarding the methods currently adopted may be considered. It is accepted on all hands that the present system is very defective and has been steadily deteriorating. Success, and if possible with distinction in the examinations, is considered by students to be the only goal. This determines the patterns of learning and teaching. Lectures of a high quality, invoking independent thinking and expression are at a discount. In fact, lectures very often take the form of dictation of 'notes'. 'Made easy' books are widely popular. Little wonder, the teacher has lost his respect both in the class room and outside. **There is a wise saying in the Jewish text which states that Jerusalem was destroyed because the teachers ceased to be respected. Reading beyond the text book is falling into disuse.**

Research.—The academic Degree is at best a mere passport; it is not the be all and end all of learning. Education is indeed a life-long process. 'Make an end of learning only when you make an end of living' is a famous dictum well worth adoption by every student and teacher.

TUTORIAL SYSTEM

One of the remedies suggested is the adoption of the Tutorial System. Oxford and Cambridge had through the centuries developed a sound tutorial system. Latterly that does not seem to be working in the same sound manner. However, the ideal tutorial system may be introduced in at least a few institutions of higher education in our country.

During the course of the formal lecture certain salient points provoking thought alone may be stressed. Thereafter the theme is worked on by the students on the basis of prescribed reading. This is followed by the students writing an essay on the topic which will be discussed in a small group of three or four students who have similarly worked on it. The tutor presides and a discussion of the written matter follows. As Dr. Will More of Oxford said **"The tutor will help the student to refute or correct him; which is to say that he will teach method rather than hard and fast conclusions."** Adopted in the right spirit, the tutorial system is bound to provide useful results.

But how many Colleges in India can afford to adopt tutorial system? Many tutors, of the proper type, are needed; library facilities have to be increased and above all the outlook of the students has to be attuned to his pattern. It is suggested that some Universities adopt the Tutorial system in the first instance.

Seminars.—Seminars are useful concomitants to the Tutorial system. They provide further thinking on the subjects and also cultivate the proper expression. Now we hear frequently of seminars in India; but they are not all of the ideal type. A beginning can, however, be made in the direction of organising a scheme of well-planned seminars. They promote thinking and free expression and above all exchange of view.

Examinations.—The basic problem for improving the relations between the teachers and the students and for reorganising the system of education as a whole is that of examinations. The system of examinations of the present has come in for a great deal of criticism for several years past. **Every one admits that examinations have become stereo-typed, that they lead to concentration on a few books, that they encourage the use of made-easy books and finally that they afford little scope for independent thinking on the part of students.** These criticisms are valid up to a certain extent. But it cannot be denied that that shortcomings are exaggerated. The scope for test of intelligence, no less than of memory, does exist even in the present much-maligned examination system.

INTERNAL ASSESSMENT

The question arises as to what alternatives can be suggested. Internal assessment is one of the devices, though it need not supplant the external examination. Each has its merits and shortcomings. Internal assessment—that is periodical assessment of students' learning by their teachers in the colleges is favoured by many. While teachers are generally in favour of its adoption, students are opposed to it. In particular, they are against the combination of internal marks and the marks of the external examination. This is an apprehension which the teachers in due course have to dispel.

It might be advantageous to try internal assessment initially with the post-graduate sections before extending it to lower limits. In the beginning internal assessment is limited to academic achievement in the curricular subjects. Some have suggested that assessment may be made of such traits as "personality", "character", and "conduct". It is possible to evaluate these if the traits are adequately defined and means of treating them are developed, but this would require a long period of study and development. Internal assessment is now in vogue in technical and professional institutions such as the I.I.Ts and the Agricultural Universities.

Oral Tests.—Internal assessment and Public or external examinations can be supplemented by oral tests (Viva Voce). They are not very popular in India, partly on account of the time taken in examining a large number of candidates. An oral test may reveal characteristics of students which may not be revealed in any other way. But it must be admitted that it is most difficult to achieve reliability in oral testing. Standards of assessment may vary; but, by and large, they yield dependable results. However, Viva Voce tests need to be employed only at the post graduate level.

OPEN UNIVERSITY

Then there arises the question of organising an Open University affording scope for even those not having the essential entrance quali-

fication. The Education Ministry of the Government of India has set up a working group to consider the feasibility of establishing an "Open University" in the country. The "Open University" which has been tried in other parts of the world with a fair measure of success, is different from the regular University in that "entry is open to any one whether or not he or she has formal academic qualifications." **In the Indian context the 'Open University' is to provide opportunities of undergraduate and post graduate education to all those who, for some reason were precluded from achieving their aims through an existing institution of higher education.**

The distinguishing feature of the 'Open University' is that the students of the University will not be confined to one or two subjects; their programmes of study will be designed to embrace a widerange and interdisciplinary approach will thus characterise the Open University courses consisting of correspondence lessons, requiring return of assignment by students, a series of television or radio programmes, short summer courses and regionally organised tutorial and counselling system.

The advantage that an open university does possess is that it need not require a campus and attendant facilities.

MEDIUM OF INSTRUCTION

There comes ultimately the thorny question of the medium of instruction. There is a *prima facie* case for the instruction in the mother tongue or the regional language at all stages of education. There is a natural case in teaching and understanding the matter in one's own languages. The difficulties of expression of scientific and technical terms can be overcome by adopting foreign words which have come into general use. Chauvinism in this respect has to give place to practicability and case for the teacher and the taught. The lack of adequate books has to be speedily made up by a steady and sustained effort. The example of Japan serves as a useful guide.

The English medium institutions of education have to be reduced to the lowest possible extent.

199 To say this is not to counsel the abandonment of the study of English as a second language. The advantages of having a working knowledge of English are obvious. In fact that itself should improve the vocabulary of the regional language. Moreover, the contact with other countries will be facilitated by the adoption of this course. It need hardly be mentioned that the entire world is much easier of access than ever before. The scope for widening one's knowledge will be improved through acquaintance with the English language. In this connection it may be noticed that even where the regional language is well developed as in Sweden, Holland and Poland, it is usual for those who attend higher educational institutions to have a good knowledge of one of the major languages of the international intellectual community.

Thus the problems of education in general and those, pertaining to the relation between teachers and students in particular, are many and varied. Some of them seem to defy solution. Some recommendations are theoretically sound but unworkable in practice. The entire approach to the educational set-up is confronted by the ever growing student unrest. Soon we will turn the corner and education will be free from the agitational approach of the present. Then some of the suggestions like selecting proper teachers and students, establishing ideal relations between them, the introduction of sound tutorial system and seminars, the adoption of internal assessment besides the continuance of external examinations, these and numerous other questions will be properly tackled and solved.

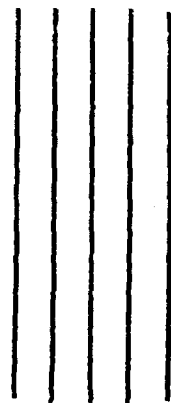


There is laughter and gaiety wherever Monica Sen is. She is relating some hilarious incident from a film to her friends. Suddenly the laughter and gaiety in the faces of her friends die out. Horror and fear take their place instead. A soul-piercing cry is let out from Monica's throat. Her body stiffens, limbs jerk out and she slides down. One of the girls screams and runs out of the room in fright. A cynical girl tries to remain outwardly calm; a superstitious girl says that the devil is visiting her. One of the girls runs out to fetch the warden. Another thrusts a bunch of keys in Monica's hands. Yet another tries to throw cool water on her face. The atmosphere full of gaiety is transformed to that of a graveyard. There is a babel of talk in low voices. The warden arrives on the scene, takes a look around, chides the girls to be silent and not to crowd around. She tells one of the girls to fetch a hot cup of coffee. Meanwhile, the girls help to stretch Monica upon a divan. A visiting mother says that she would not allow her daughter to stay any more in such an atmosphere. Young, attractive Monica Sen, lies prone, unconscious to the happenings around her.

Tall, slim, pale but beautiful Rukmani was decked in jewels and flowers and attired in her red bridal sari. Her heart is too full with emotion, since she was getting married at an age, when her friends had already got married and had children too. Clasp the groom's hands she was going round the fire. The groom suddenly felt his hand being tugged. A second later, he saw his beautiful bride prone at his feet. Even while he was wondering what had happened, the tell-tale jerks had begun. Rukmani's parents were aghast and their faces had become grey and ashen. The groom's parents caught the apprehensive expression on their faces. They recognised the facts. The wedding was stopped not only then but forever.

"Well-done Shekar"; "Encore"; "Keep it up"; "Victory for our team"—were heard all round. Tall, well-built with rippling muscles, Shekar was all set for the next shot, when all of a sudden the bat along with the ball

DEMON OR DISEASE?



The Truth About

E P I L E P S Y

hit the net and Shekar lay sprawling on the grass, his limbs jerking and saliva pouring down his mouth. A crowd gathered, each administering; each admonishing. A doctor was sent for, who gave Shekar a shot of injection. Shekar lay quiet and dazed. The team appeared dejected and disappointed, since now they could not get the much sought after trophy which was almost within their grasp.

Short in stature, almost dwarfish, with bowed legs and vacant looks, Gopi was an easy target for all children. Cat calls and chants like "Shorty, shorty", were familiar to him. His is a case of a boy prone to frequent attacks becoming and treated as a demented person.

Tall and thin, with noble features but with long matted hair, Rajendra walks up and down in his room like a caged animal. His eyes focussed beyond the horizon, he would gaze out of the window. On days he would take interest in himself. On certain days he would rave like mad. An heir to a large fortune, he spends his life almost in his prison cell, far away from his mansion, far away from the maddening crowd ?!

These various phenomena, strange and horrifying to the spectators, at once drawing forth exclamations of pity, sympathy, horror, scare and various mixed feelings are familiar enough to the practising doctor. These are but features of a very commonly prevalent but least talked about disease known as "Epilepsy" to the doctor, "fits", "convulsions", "attack" to the public at large.

Two thousand five hundred years ago Hippocrates, the father of modern medicine first recognized that epilepsy results from organic processes in the brain. Since then numerous causes, some known and some unknown have been incriminated for the production of fits. Epilepsy itself is seldom a cause of death and it usually does not affect general health or intelligence. Though afflicted with epilepsy some had made lasting contributions in many fields. St. Paul, Julius Caesar, William Pitt, Napoleon, Vincent Van Gogh, Dostoevsky and Alfred

Nobel were epileptics. These names are cited only to stress that because of epilepsy none should be shut out from his or her normal vocation or pursuit in life.

Epilepsy is a disease of the nervous system, caused by an irritation in the brain. It may be due to a variety of causes such as an injury, tumour or disease in the brain. The irritation in the brain causes fits. There are three types of fits known as the major, minor and the Psycho motor attack.

In the major attack the person loses consciousness and falls down. The body and the limbs jerk in convulsions. In a minor attack, there is only a momentary loss of consciousness with perhaps twitching of a few facial muscles. In the psycho-motor attack, the person undergoes short spells of unusual behaviour, like wandering about aimlessly. The person may smack his lips, fumble with his clothes, utter irrelevant remarks, on recovery he does not remember what has happened. These three types of fits may occur singly or together.

It has been observed that apart from these attacks, there is the sensory motor attack. The causes of these attacks are many. They may be caused through the sense of smell; for instance the fragrance of rose or any strong perfume. Through the aroma of foods;

some through noise, a particular tune or voice. In rare instances at the time of a Radio fall out the fits may ensue. This was observed by a Director General of AIR (now retired). These admittedly are rare phenomena. One such type noticed during an exhaustive study of epilepsy in Bangalore, puzzles the investigators. It was found that 9% of the patients complained that if they poured hot water over their heads while bathing they were prone to get epileptic attacks. Dr. K. S. Mani, Director and the Principal Investigator of the Centre observed; "Why hot water in Bangalore and not in other places of the country, much less in other parts of the world." These and similar phenomena are intriguing and provide food for thought.

Medical Help

Epilepsy has to be diagnosed and treated like any other disease. A physician could administer the drugs the epileptic has to take, after examining him and learning the nature of the seizure.

In some cases it may be necessary to try more than one drug, till a suitable drug is found. Also, till the correct dosage is arrived at, the dosage may have to be increased. The type of medicine and dosage differs from patient to patient. The medicines have to be taken over a long number of years, without any

break. It is important to understand that the medicines do not injure the brain. They are solely to control the fits. They do not interfere with other medicines, the person may have to take for other ailments, like cold, fever, headache, etc. The drug for the control of the seizure can be taken along with these medicines. Reducing the dosage or discontinuing the drug should be done only on the physician's advice, as otherwise violent convulsions would result.

There may be side-effects as in the case of other drugs as may be in the initial stages. The physician will advise as to what should be done in such cases.

In some cases, it may be possible to reduce the dosage gradually after some years. This should also be done with great care on the expert advice of the physician.

Electro-encephalogram :

Certain difficult cases of epilepsy have to be investigated by a study of a record of the brain waves. The record is known as the electro-encephalograph taken by a machine, the electro-encephalogram.

The person lies on a bed. Small metal bits known as electrodes are placed on the skin of the head. Wires are connected from the

E. E. G. AT WORK

The Electro-encephalogram shown alongside, gives a graphic record of the electrical activity recorded by electrodes applied to the scalp of the patient as seen in the picture, magnified about a million times. Stereotaxic surgery however, needs magnification by several million times of the minute electrical impulses of small groups of nerve cells, a task beyond the electro-encephalogram. In such cases, Tetromix dual beam oscilloscope, along with a set of preamplifier, cathode followers and Shackman camera enable the neurosurgeons to identify precisely the area of brain that he is exploring with a micro-electrode—a tungsten wire sharpened to a tip diameter of a hundredth of a millimeter.

The picture to the left of the patient is of a 16-channel e. e. g. recorder capable of examining all 3 sides of the brain in one sitting.



machine to the metal bits. These wires record the electrical activity of the brain on a paper like a graph.

From this graph, the physician can find out the nature of the epilepsy and the drugs that should be administered. Incidentally, the physician can also trace out the cause of epilepsy, if such exists such as a tumour in the brain which could be operated on and removed.

Social Aspects :

Epileptics are not very different from other people. Most of them are active and healthy, both physically and mentally. In their studies, in their career, at sports, or at a social meet they behave as any other person does. They are not physically disabled nor are they invalids. Children afflicted with epilepsy should be told the truth and made to understand that they could lead a normal life. They should attend school, and take part in extra-curricular activities like other children. Preventing them from their normal activities makes these children feel different and trying, which in later years lead to apathy and abnormality. The only activity to be supervised is swimming in children, probably curbed in adults.

Adults can take up any career or job they choose to. They can choose the professions of doctors, engineers, lawyers, or executive posts; they can even work in factories, provided they do not lift heavy weights or go anywhere near a fire. They are second to none in intelligence, as could be seen, by the wide variety of jobs they hold, according to a study made in the United States.

With proper medication and care, the convulsions are controlled and the person could get married. There is substantial evidence that epilepsy is not transmitted from one generation to another, as in the case of diabetes or high blood pressure. If both parents have epilepsy there is a chance of one of the children developing a tendency for fits.

Epilepsy is not the direct cause of retardation in children. Retardation is caused by the brain damage.

Retardation in children may cause different problems and they need more care and understanding than the average child.

Parents, brothers and sisters and others should be more understanding and accommodative with a child afflicted with seizures. Negligence, seclusion or ridicule may lead to emotional disturbances and difficult behaviour ending in inferiority complex, insecurity and resentment. People should understand the problems of these less fortunates and help them in adjusting to their difficult role in society.

BOON TO EPILEPTICS

Research has shown that the brainwave patterns of a person suffering from epilepsy show a marked change just prior to a seizure. This change in brain pattern will be discerned by a device developed under the sponsorship of the United States Department of Health, Education and Welfare. Weighing less than half a kilogram it warns the epileptic of approaching seizures. This device is small enough to slip into a pocket.

The epileptic is warned of an approaching seizure by a buzzer and a flashing light. This allows time for medication to be taken. The device consists of two tiny silver electrodes which are placed to the sides of the person's head and attached by wires to the case. The warning system uses electronics to distinguish between the normal and pre-seizure brainwaves.

A collaborative study between U.S. and India, on epilepsy was started in 1970 at five centres in India, with a purpose of comparing the various aspects of epilepsy in different geographical locations. The following centres, the All India Institute of Medical Science, New Delhi, Bangur Institute of Neurology, Calcutta, K.E.M. Hospital, Bombay, General Hospital, Madras and the All India Institute of Mental Health, Bangalore were the

five Centres. The Health Services and Mental Health Administration, a division of the National Institute of Health, U.S.A. sponsored the programme under the P.L. 480 grant. Each Centre received Rs. 8,70,000 for a five-year study period.

Using uniform criteria, each centre has prepared an exhaustive case history of each patient. After a check up, the doctor has prescribed a treatment of drugs and the patients report every year at the Centre for a check up.

This study will serve a twofold purpose. Firstly, it will enable the various centres to compare and contrast their findings. Such a comparison will certainly result in some very interesting conclusions. For instance, analysis of the data may uncover a reason for a large percentage of epileptics in one part of the country than in another.

Secondly, such an exhaustive study would uncover any exotic varieties of epilepsy, types of epilepsy not described before in other parts of the world.

The study during the last five years has yielded enormous data, which no human brain could analyse. Therefore the Indian Council of Medical Research, New Delhi processes the data through a computer. The original PL 480 grant pays for the work of the statistical division of the ICMR.

What will be achieved on the completion of the project? Will the complex problem of epilepsy be solved?

This project has enabled many doctors to have a better understanding of the problem of epilepsy. For decades man has grappled with this problem. This project will not solve the problem completely or result in a case for epilepsy but surely will yield enormous information of value and perhaps yield pointers for further fruitful research in this as yet unsolved problem.

—Rajalakshmi Bharati.

The Special programme for electrification of villages launched in 1969 at the instance of our Hon'ble Chief Minister Dr. Kalaignar, has paved the way for the starting of a number of new rural industries and connecting up of additional pumpsets resulting in the development of the rural economy in the State. But for this resourceful and dynamic scheme the rural population would not have had the benefits of electricity brought right in their midst so quickly and made easily accessible to them. In a way this scheme of great foresight has rendered a very useful service to the society at large.

The Rural Electrification Corporation have approved in 1973-74, as many as 10 schemes for extension of supply to pumpsets and other services and 7 schemes for system improvement, in all costing Rs. 539.12 lakhs against which they have released Rs. 249.17 lakhs. From inception, R.E.C. have sanctioned so far 40 schemes costing in all about Rs. 17 crores against which they have disbursed Rs. 8.68 crores.

A Research and Development Directorate has been created in the Tamil Nadu Electricity Board to conduct studies of the various operation and maintenance problems in generation, transmission and distribution. It is expected that this will result in improvement of existing know-how, development of new techniques for power system, and finding satisfactory solution to certain operational and maintenance problems.

The cost of generation of power in Tamil Nadu is higher than that in Kerala, Karnataka and Andhra Pradesh. Kerala and Karnataka are purely hydro in their potential. Andhra Pradesh is advantageously placed by way of its proximity to coal mines, whereas Tamil Nadu has to transport coal for its thermal stations both by rail and by sea over long distances paying heavily for the seaborne coal.

Another peculiar feature in this State is the operation of the largest number of pumpsets. This contributes to the peaking and frequency problems of the Tamil Nadu Grid necessitating in turn various restrictions like grouping, load shedding, etc. I am afraid it is going to be more difficult to embark upon large scale connections of agricultural pumpsets in the years to come as we have been doing so far, unless the Centre could help us with more funds and generation schemes for timely execution.

The anticipated revenue receipts of Rs. 99.96 crores for the year 1974-75 was originally provided on the assumption that the difficult power position will ease during 1974-75. However, as the power position continues to be difficult even in 1974-75, there will be considerable reduction in revenue receipts. The revenue receipts are now estimated at Rs. 81.30 crores only as against Rs. 99.96 crores originally provided because of the fall in generation and quantum of power purchases.

(a) During the past five years there has been increase in the rate for purchase of power both from neighbouring States and from Neyveli Lignite Corporation. The rate for Kerala power has increased from 4.5 to 8.0 paise per unit and the rate for Neyveli power from 5.9 to 8.48 paise per unit. Besides, there has been ad hoc increase in price of coal and also in movement of coal by sea. In addition, cost of conversion to oil firing at Neyveli has also increased the cost of power. It is about 27 paise/unit and the additional commitment is nearly Rs. 9.25 crores for 1974-75.

(b) For the current year the cost of power purchase is likely to go up to Rs. 29.51 crores as against Rs. 18.58 crores in 1973-74. Besides, on account of the power cut there has been a substantial reduction in revenue to the Board to the extent of Rs. 10.5 crores in 1973-74, and this is likely to go up to Rs. 18.66 crores during the current year.

(c) Hence it will not be possible to meet the working expenses in full from the revenues likely to materialise. There will also be difficulties in making provision for the Depreciation Reserves, interest obligations due to Government, Banks and other loans.

There is therefore a very strong case for revising the tariffs as otherwise the working of the Board will be very seriously affected financially.

The Budget Estimate for 1974-75 of Tamil Nadu Electricity Board for capital works is Rs. 47.77 crores for which the known and decided resources viz., from open market, L.I.C., R.E.C. and Deposits come only to Rs. 22 crores. Including Rs. 14 crores of net repayment for Banks, the total cash required is Rs. 62 crores. The Government loan has been assumed as Rs. 10 crores. Resources have yet to be ascertained for Rs. 30 crores.

According to latest decision taken at the Conference of Ministers for Irrigation and Power at New Delhi, the target for commissioning Thermal Stations is 3.5 years and that for commissioning Hydro Stations is 5 years. If these targets are to be adhered to, the present provision of Rs. 47.77 crores for 1974-75 has to be enhanced by Rs. 15 crores, since major projects like Tuticorin, targetted for commissioning early in 1978-79 should be advanced. The question of resources to meet heavy expenditure according to the revised programme, if commissioning targets are to be adhered, has also been considered.

The Tamil Nadu Electricity Board has programmed works involving a capital outlay of Rs. 47.77 crores during the current year, i.e., 1974-75. Having this in view the State Government is pressing the Planning Commission for allocation of more funds for the Annual Plan 1974-75. As a result of the tremendous escalation in price of steel, conductors, transformers, etc., to the extent of 40 per cent in recent months, the need for more funds is keenly felt for executing the projects in time.

The recent indications are that there is going to be greater credit squeeze for the State Electricity Board which has been relying heavily on commercial banks, L.I.C., and open market loans for raising its own resources to support its capital programmes.

In the context of the prevailing power shortage and the need for quickening the pace of on-going and new projects, this Government is taking into account the representations of the Tamil Nadu Electricity Board and is striving to see what best can be done.

CONCESSIONS TO EMPLOYEES

I shall now deal with the various concessions extended to the employees by the Tamil Nadu Electricity Board :-

(i) In line with the absorption of T.C.I., workmen with 4 years of service as on 31st December 1972 in January 1973 benefiting about 9,000 T.C.I. workmen, the Board has decided to absorb the T.C.I. workmen who have put in 4 years of service as on 30th April 1974 in Regular Establishment from 1st May 1974. The number of workmen estimated to get the benefit of this

absorption in the second stage, will be about 5,000. The Board is taking necessary action in this regard.

(ii) A Family Benefit Fund Scheme as applicable to State Government servants has been introduced from 21st June 1974, for all the monthly paid employees under the Board.

(iii) The Dearness Allowance of the employees of the Board was revised from annual basis to quarterly basis with effect from 1st October 1973.

(iv) An ad hoc payment of Rs. 30 per mensem was also granted to T.C.I. workmen from 1st October 1973 pending adjustments against revision of wage rates and allowances due on 1st December, 1974.

(v) A seven member committee consisting of two members of the Board and Chief Engineers and Senior Officers of the Board, has been constituted to go into the question of revision of pay scales and allowances due from 1st December 1974 the date on which the existing agreement on wages for the employees expires and this Committee will also go into the question of revising work norms of all the staff of the Board.

(vi) The employees of the Board have been permitted with effect from 1st June 1974 to surrender and encash earned leave not exceeding 15 days once in a year without actually going on leave. Where the intervening period is 24 months or more, the employees of the Board can avail surrender of leave not exceeding 30 days.

(vii) The increments of all the employees of the Board have been advanced so as to fall due on the commencement of the quarter.

(viii) The Board by way of providing adequate recreational facilities to its employees is continuing recurring expenditure on systems Recreation Clubs, inter-system sports activities, and participation in All-India Inter-Electricity Board Tournaments, etc. A Sports Control Board has been constituted to administer the activities.

(ix) The Board has instituted an award scheme for each system by which best drafts or notings in Tamil by the employees would be eligible for 3 prizes totalling Rs. 500 each per year for every administrative wing.

For the rational supply of electricity in the States, the taking over of private electrical undertakings engaged in the business of supplying electricity was considered imperative. Therefore, the Tamil Nadu Private Electricity Supply Undertakings

(Acquisition) Act, 1973 was enacted. Under provisions of this Act, the following Private Electrical Undertakings were acquired by Government and handed over to the Board with effect from the dates indicated against each (Table II):—

TABLE I

Sl. No.	Scheme	Installed Capacity (MW)	Energy benefits (mu)	Estimated cost. (RUPEES IN CRORES)
1	Cholathipuzha H.E.S. ..	60	225	7.39 (InterState project)
2	Lower Mettur H.E.S. ..	160	643	34.14
3	Paralayar H.E.S. ..	35	87	5.63
4	Shanmughanadhi H.E.S. ..	30	131	9.02
5	Upper Amaravathi H.E.S. ..	20	69	5.98
6	Upper Thambaraparani H.E.S. (excluding Servalar Unit).	165	557	43.92
	Sub-Total ..	470	1,712	106.08
7	Mettur Thermal Scheme ..	330	2,024	65.53
	Total ..	800	3,736	171.61

TABLE II

Name of the Undertakings	Date of vesting
1 Shencottah Electrical Undertaking of the Shencottah Electric Supply Agency.	1st December 1973
2 Kumbakonam Electrical Undertaking of Kumbakonam Electric Supply Corporation Limited.	7th January 1974
3 Nagapattnam Electrical Undertaking of Nagapattnam Electric Supply Company Limited.	7th January 1974
4 Vellore Electrical Undertaking of Vellore Electric Corporation Limited.	7th January 1974
5 Salem-Erode Electrical Undertaking of Salem-Erode Electricity Distribution Co. Limited.	1st February 1974
6 Tinneveli-Tuticorin Electrical Undertaking of Tinneveli-Tuticorin Electric Supply Company Limited.	1st February 1974
7 Trichy-Srirangam Electric Licensee of South Madras Electric Supply Corporation.	1st February 1974

COMPANY NOTICE

Statement by Thiru H. K. GHAZI, I.A.S. Chairman, Cheran Transport Corporation Limited, at the Third Annual General Meeting held at Coimbatore, on Monday the 26th August, 1974.

Gentlemen,

It gives me great pleasure to welcome you all to the Third Annual General Meeting of our Corporation. As you are aware, the Report of the Directors as also the audited accounts for the year ending 31st March, 1974 have already been circulated to you. I would, therefore, with your permission, take them as read.

I am sure that all the Directors would commend the performance of our Corporation because we have been able to show a substantial profit. The income for 1973-74 has come to Rs. 451.90 lakhs while the total expenditure was Rs. 406.69 lakhs leaving a profit of Rs. 45.21 lakhs. The net profit for 1972-73 came to Rs. 7.51 lakhs. The paid-up share capital of your Corporation is Rs. 35.01 lakhs and the borrowings from Government amount to Rs. 10.89 lakhs. Thus, the Government have invested Rs. 45.90 lakhs in all in your Corporation.

Gentlemen, as you would have noticed, your Corporation has earned a handsome profit this year and the profit is indeed equal to the investment made by the Government. Undoubtedly, the achievement is praiseworthy. In the field of transport, there is a great deal of competition. Thus, the netting of such a neat profit is all the more remarkable. The credit for this goes to all those connected with the management of this Corporation.

As you are all aware, your Corporation has been selected for the introduction of the scheme of "Employees' participation in equity capital and Management." I may say with some sense of pride that in your Corporation all the employees have voluntarily become debenture holders even though they had the option not to do so. This clearly demonstrates the excellent relationship that exists between the management and the employees. Let me, therefore, hasten to congratulate the employees on their outstanding performance as also their sense of participation in this great economic endeavour. Your Corporation had rightly decided in April 1974 to pay a special performance bonus of 12.5% of the total salary, to the employees. In addition to this, provision has been made for paying 20% bonus to the employees for 1973-74. You would recollect that the bonus paid in 1972-73 was only 14%.

In order to infuse confidence in the minds of the employees as regards old age benefits, your Corporation has introduced a pension scheme in January 1974. A sum of Rs. 25 lakhs has been set apart as a "fund" out of the net profit of Rs. 45.21 lakhs earned this year.

It is a well-known fact that the recent increase in the price of fuel will have far-reaching effect on the transport system of the country. Having all this in mind, your Corporation has earmarked a sum of Rs. 3 lakhs for the award of prize.

The Government of Tamil Nadu had accordingly organised two All India Competitions, one to effect fuel economy by finding an alternative to diesel by mixing a suitable chemical with diesel. The other prize is intended for some one who can suggest a lighter body design for transport vehicles. Your Corporation would meet the cost of the awards.

Out of the net profit of Rs. 45.21 lakhs, a sum of Rs. 11 lakhs has been earmarked for special performance bonus. A sum of Rs. 25 lakhs has been set apart for the pension scheme and a sum of Rs. 3 lakhs for the fuel economy prize scheme. After deducting all these, the final profit before income-tax would come to Rs. 6.21 lakhs.

Your Corporation has already declared an interim dividend of 10% in March, 1974. A cheque for Rs. 3.5 lakhs was presented to the Chief Minister of Tamil Nadu on 5th April, 1974.

The capital employed by our Corporation (including share capital and borrowings) would come to Rs. 134.32 lakhs. The return on this has been Rs. 50.72 lakhs. This works out to a return of 38% on the capital employed as against 20% in the previous year.

On two occasions in the recent past, your Corporation took upon itself the responsibilities of an important character. When the Government of India stopped the running of the Railway train between Mettupalayam and Ooty on account of shortage of coal, your Corporation put in additional buses to fill in the gap. Again during the Railway strike, your Corporation pressed into service 30 additional buses to cater to the needs of the travelling public.

There has been a phenomenal expansion in transport operations undertaken by your Corporation as would be obvious from the statement given here :—

	As on 31-3-73	As on 31-3-74
1. Fleet strength ..	312	412
2. Route buses ..	247	306
3. Routes ..	174	227
4. Kilometers (in lakhs)	146	287
5. Daily Collections	Rs.83,130	Rs.1,82,400
6. Personnel ..	1,808	2,459

Though, as a Corporation, we are supposed to make a profit and run the concern on economic lines, we have by no means neglected social responsibilities. During 1973-74 the Corporation operated 59 routes which were unremunerative but otherwise useful and necessary. This resulted in a loss of 12.85 lakhs in respect of those routes which amount has of course, to be treated as a "social cost."

Your Corporation has also made contribution to allied services. Thus, bus shelters have been set up in Coimbatore and Ooty at a cost of Rs. 15 lakhs for the

convenience of the travelling public. Your Corporation has also had an automatic road traffic signal installed at Coimbatore at a cost of Rs. 64,000. Your Corporation is having a bus stand constructed at Ooty. Your Corporation has even contributed a sum of Rs. 25,000 towards the beautification of two ponds in the Botanical Gardens at Ooty. This is intended to be a tourist attraction.

I am happy to inform you that your Corporation has to its credit numerous welfare schemes such as the pension scheme, family benefit scheme, scheme for providing educational facilities for the children of the employees and mobile van. Even family planning measures are not outside our horizon!

Your Corporation has launched two housing schemes, one at Coimbatore and another at Pollachi for providing houses for about 300 employees. The Corporation has also granted interestfree loans upto 50% of the cost of house sites and attempts are being made to get assistance from HUDCO.

We have a proposal on hand for constructing a Holiday Home at Ooty for the benefit of our workers, who cannot afford to spend a summer at Ooty, otherwise.

Another important feature worth mentioning is the starting of consultancy service. I have great pleasure in informing you that our consultancy wing has already taken up the question of improving the transport system in Mehalaya. Even the Madras Corporation has requested for the services of our consultancy wing as regards its own fleet of vehicles.

Gentlemen, I must take this opportunity to express my deep sense of gratitude to the Honourable Minister for Transport of the Government of Tamil Nadu and his distinguished colleagues for their guidance. I must also thank the previous Chairman for the services rendered by him to the Corporation.

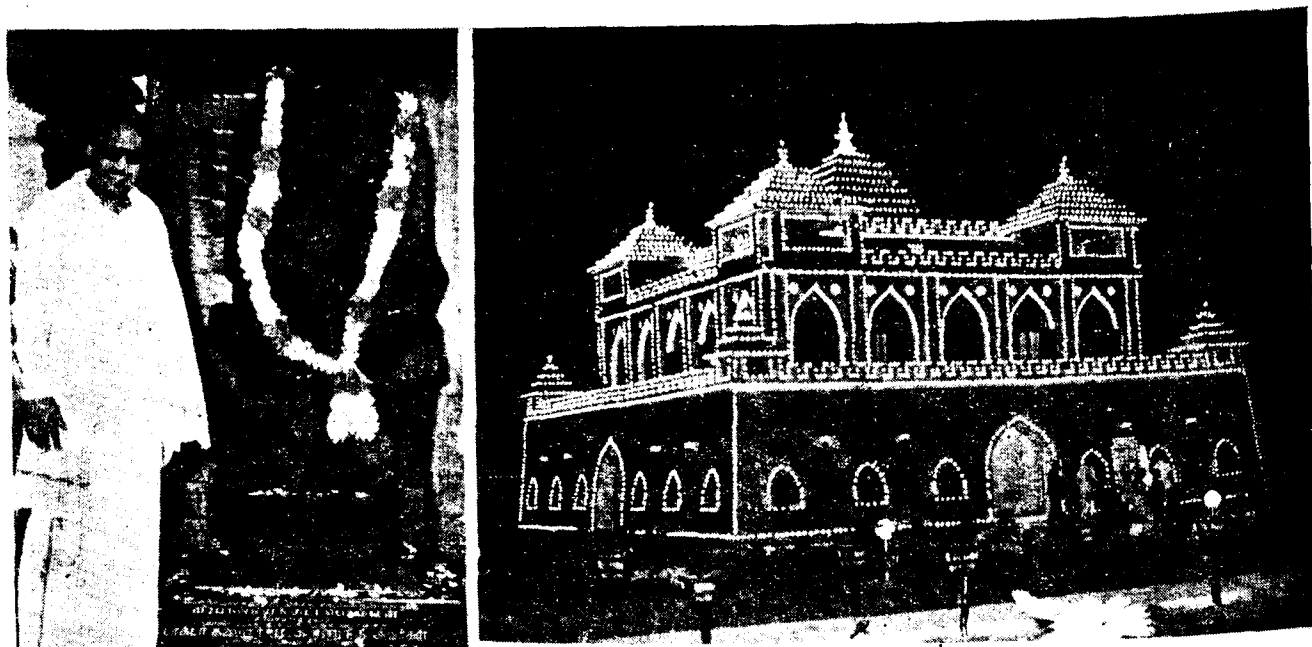
I am pleased to inform you that the Auditor General has had no comments on the accounts of your Corporation for 1973-74. I thank our Auditors for their co-operation and for having completed the audit in time.

Gentlemen, I must thank all the employees of the Corporation for their remarkable performance. I am also grateful to my distinguished colleagues on this Board for the valuable suggestions which they have been offering from time to time.

I now move that the Directors Report and the audited Balance Sheet and the Profit and Loss Account may be approved and adopted.

(Sd.) H.K. GHAZI,
Chairman.

This does not purport to be a record of the proceeding of the Third Annual General Meeting of the Company.



(ABOVE)

As part of the State's Independence Day Programme, a large sized model of Kattabomman's Fort was opened at Panchalamkurichi as a Memorial to the First Fighter for Freedom against foreign rule, the Brave Kattabomman whose statue as erected there is seen at left above.



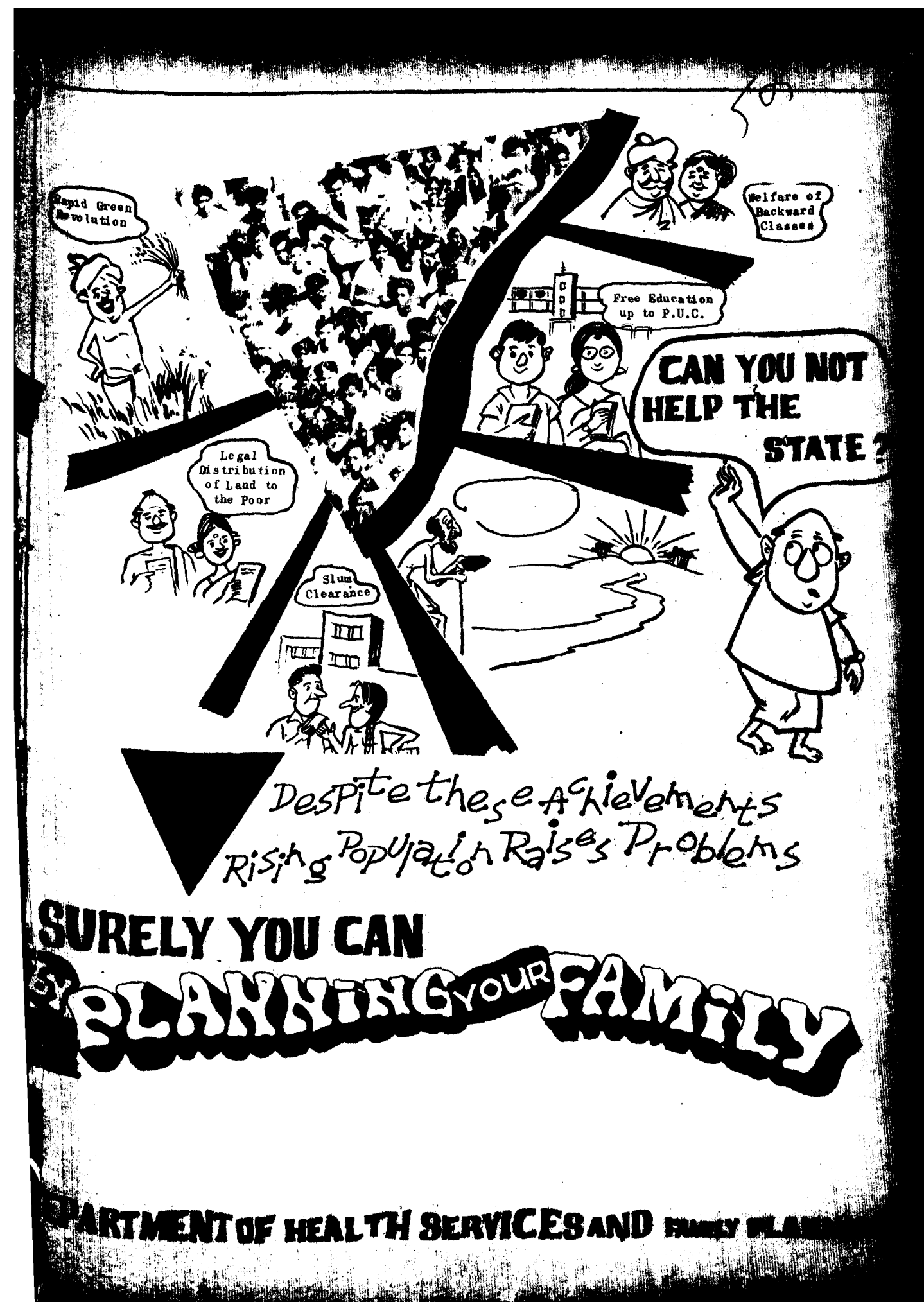
(LEFT)

The President of India Thiru Fakhruddin Ali Ahmed in a jovial mood with the Chief Minister.



(RIGHT)

When Fishermen are lost at sea a compensation of Rs. 1000/- is paid to dependants by Tamil Nadu Government. Thiru C. V. M. Annamalai, Minister for Fisheries is seen presenting one such compensation payment.



VISIT Poompuhar

FOR A REAL
INSIGHT INTO

Tamil Culture

Kaveripoompatinam, known as Poompuhar in its more fortunate days was a well laid out port town which boasted of a separate settlement for the foreigners. Much of the archaeological remains still are there for us to see.

In addition, the recently constructed art gallery is the first attempt, after many centuries, at group-sculpture for which Tamil Nadu is justly famous. In the form of group-sculpture and also in individual figures a remarkable edifice to recreate the life and times of the Tamil classic "Silappathikaram" Story of of the Anklet has come up at Kaveripoompatinam in its art gallery.

FOR FURTHER DETAILS

CONTACT:

RECEPTION OFFICER,

Poompuhar Art Gallery

(VIA) Sirkali, Thanjavur Dist.



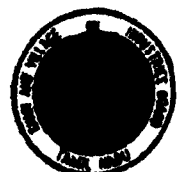
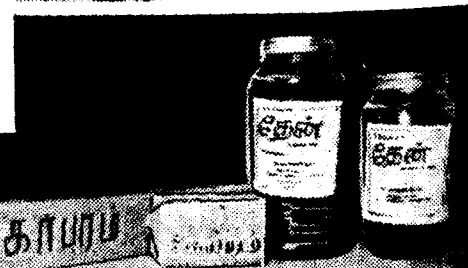
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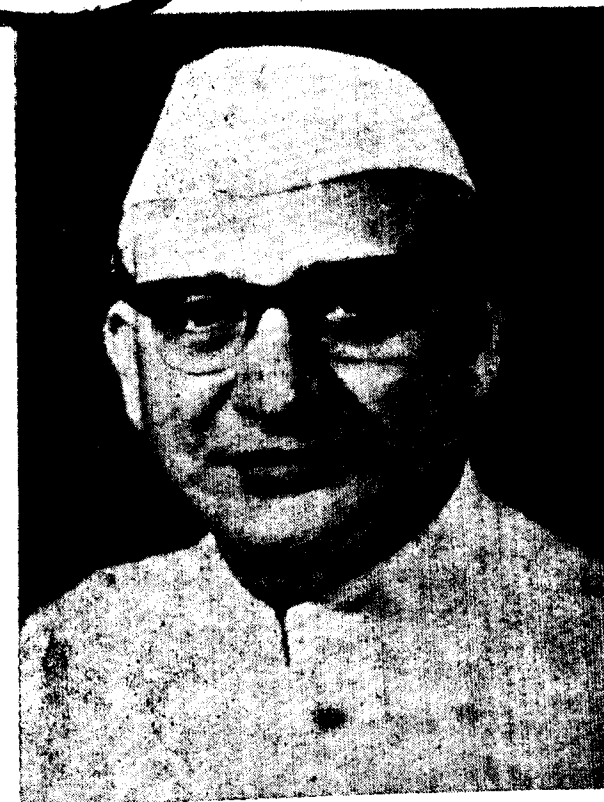
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Tamil Arasu

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Governor Thiru K. K. Shah's efforts for popularising Gandhiji's ideals have been crowned with success this year with the starting of a Training Centre at Gandhi Mantap, and the erection of a huge Rs. 8 lakhs roofing for the amphi theatre in front of Gandhi Mantap.



The architect's Blue Print of Valluvar Kottam to be built in Madras for propagating Tirukkural



WORLD RECOGNITION FOR TAMIL NADU SCHEME

The Rs. 8 lakh Modern Workshop declared open on September 10, 1974 by Tmt. Indira Gandhi, Prime Minister of India, under the presidentship of the Chief Minister of Tamil Nadu, Dr. M. Karunanidhi, is an index of International Red Cross recognition of the Tamil Nadu Scheme. The Workshop was in part financed by Swedish Red Cross. As well, it is a tribute to the farsighted nature of the efforts undertaken by the State Government to rehabilitate the helpless leprous beggars.

The Chief Minister pointed out in his presidential address that the Modern Workshop is the first of its kind in the country and that the Centre should come forward in a generous manner to help the State for such noble scheme with more grants.

The Prime Minister, in her inaugural address, said that the scheme executed by the Tamil Nadu Government to rehabilitate the leprous beggars in a constructive and comprehensive way "is a laudable one."

Before the commencement of the function, the Prime Minister was taken round the workshop in a jeep.

Thiru C.V.M. Annamalai, Minister for Social Welfare, proposed a vote of thanks.

Top—The Prime Minister, the Chief Minister Thiru Dr. M. Karunanidhi, Thiru C.V.M. Annamalai, Minister for Social Welfare and Thiru P.U. Shanmugham, Minister for Public Works are seen in the picture.

Top, Left—The Modern Work-shop in the Leprosy Beggars' Rehabilitation Home at Paranur. *Second from Top*—The Prime Minister addressing after declaring open the Modern Work-shop.

Third from Top—The Chief Minister is seen delivering his Presidential address.

Bottom—The Prime Minister, the Chief Minister and the Minister for Social Welfare going round the Modern Work-shop in a jeep.

GANDHI JAYANTHI CELEBRATIONS IN MADRAS

The 105th Gandhi Jayanthi will be celebrated from 2nd October, 1974 to 4th October, 1974 at Gandhi Mandapam, Guindy, Madras.

The Chief Minister will also declare open the 'Auditorium' at the Gandhi Mandapam under the presidentship of the Governor, Thiru K.K. Shah.

The Chief Minister will preside over the inaugural function of the Jayanthi.

The Union Home Minister, Thiru. Umashankar Dikshit, will inaugurate the function.

In this function, aids will be distributed to the physically handicapped persons.

On October 3, 1974, a Seminar on "Self-employment as part of the Gandhian method of fighting unemployment" will be conducted.

In the evening function at 6-00 P.M. under the presidentship of Dr. V.R. Nedunchezhiyan, Education Minister, Thiru. Mohanlal Sukkadia, Governor of Karnataka, will address the public and Thiru N.D. Sundaravadivelu sums up the morning discussions at the Seminar.

Sewing machines to the destitute women will be distributed in the end.

On October 4, 1974 a Seminar on "Gandhiji's approach to planning at the village level" will be held in the morning and free uniforms to harijan students will be distributed at the close of the function.

In the evening at 6-00 P.M. Thiru Chhedi Lal, Lt. Governor of Pondicherry, will address the public under the presidentship of Thiru K. Rajaram, Labour Minister, Thiru Pyarelal will sum up the morning discussions at the Seminar.

Interest-free loans for petty trade to harijans and ambar charkas to destitutes will be distributed.



THE MAHATMA

Every year we are reminded of the charismatic personality of Mahatma Gandhi, his mission and his message, as we celebrate Gandhi Jayanthi throughout the length and breadth of India. From whatever I have seen and felt, I can say with confidence that Tamil Nadu is entirely in tune with Gandhian philosophy and approach to social, economic and political issues. What strikes me most is that the Government, the public and the leaders of all parties vie with one another in celebrating the occasion in a magnificent manner. This is indicative of their firm faith in the ideals that Gandhiji preached. This massive demonstration of faith in Gandhiji's philosophy will, I am sure, herald a new era in public life.

GOVERNOR'S
MESSAGE
TO
PEOPLE
OF
TAMIL NADU



I am happy to find that the Anna Memorial Committee is seeking to perpetuate the memory of Anna in a fitting manner. The fact that the leader of the eminence of Giriji has blessed the occasion shows in what high esteem Anna is held.

Anna surpassed at an early age even seasoned orators in brilliance and flashes of intellect when as a student he kept his audience spell-bound. He started his career as a playwright, journalist and a consummate social reformer. It did not take long for him to catch public imagination. He captivated the minds of the masses. The secret of his success lay not only in his erudition but in the presentation of ideas to the people in their own simple language and that too, in a manner that the masses could easily understand. His oratorical talents were an asset.

A HARD WORKER

Anna did not live in the ivory tower as intellectuals usually do. He identified himself with the masses. The poor and the downtrodden found an indefatigable fighter in Anna. He fought tooth and nail against communal and caste distinctions and condemned social evils like untouchability in no uncertain terms. He took full advantage of mass media of communications like the stage and the screen to propagate his ideas for social reform. By hard work, he succeeded in creating a prominent place for himself in public life.

ANNA- A TRUSTED LEADER FOR MILLIONS



GOVERNOR'S TRIBUTE TO THE DEPARTED LEADER,

With his rich background of experience, preparation and popularity, Anna stepped into the high office as Chief Minister of Tamil Nadu with the madate of the people. He soon won esteem and confidence from all quarters. His leadership provided the most eloquent proof that the Centre and State had identity of objectives in working for the economic progress of the country combined with social justice. In fact, it is this identity of approach that constitutes the driving force for the Centre and the States to improve the conditions of the people.

His profound knowledge of men and matters, his spirit of accommodation and his zeal for preserving the unity of the country, won for him national respect and affection. I may recall that the acceptance of the A.I.R. Code by the Chief Ministers, when I was the Union Minister for Information and Broadcasting, was made possible because of the co-operation I got from Anna. In the same way, the serious controversy over the Press Council and the Film Council was resolved because friends all over the country, especially my respected friend Anna, helped me to carry conviction to others.

A TRUE DEMOCRAT

Anna was a true democrat. He knew that democracy was built on the bedrock of the concept of people

as masters. Whether he functioned from the Opposition or Treasury Benches in the legislature, he always remembered that unless he served the people who were his masters, he had no place in public life. His eloquence found new heights because it was backed by sincerity of purpose. His earnestness was appreciated. He always used moderate but effective language to present his views and never left a bitter taste in debate or discussion. He was an embodiment of the best in Indian culture and quiet dignity. When he entered the State Legislature in 1957, he was considered a model leader of the Opposition. He emerged as a national figure when he entered the Rajya Sabha and made a significant contribution to the debates by his brilliant performances. His criticism was marked by sobriety and tempered by responsibility. Even though he loved Thamizh as mother tongue, he knew that modern world needs knowledge of more than one language. He therefore once said : "I speak English rarely but English is not rare to me." His speech on national integration when he inaugurated the defence train from Madras is an eloquent example of his mastery over English. He was invited to go to U.S.A. as an invitee of the Yale University's Club Fellowship Programme. He was the first non-American to receive this honour.

Anna, as an ardent social reformer, did not want law to be static, but wanted it to be an instrument of service to the people. This is a concept which is increasingly becoming popular, thanks to the pioneering efforts of social reformers like Anna. Addressing lawyers, he said : "My only request to the members of the Bar and also of the Bench is that the time has now come for them not to be satisfied with their role as mere interpreters of law : they should take active interest, now in law, as it is, but in law, as it should be."



The Chief Minister presenting crutches to a handicapped

A TRUSTED LEADER

Highly respected by the people and his own colleagues and followers, Anna proved himself to be an able, ideal and trusted leader, a loyal friend, and an erudite scholar. It was he who gave us the well known and powerful slogan—Duty, Decorum and Discipline. This slogan lays down the essential norms for our public life and can make democracy a mode of living. His unostentatious ways, utter simplicity in his personal life, and his sympathy for suffering humanity endeared him to one and all. At a time when much

was expected of him and when his stature was rising as a national leader, his passing away was a great national loss. The fittest way to honour him is to work for national integration, to fight for standards in public life and to remember that public life whether in opposition or in Government is an instrument of service to the masses. Let us be worthy admirers of Anna by following his great ideals.

Speech of Thiru K. K. Shah, Governor of Tamil Nadu, at the Symposium on Anna at Madras on 15th September, 1974.

Read

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CHIEF MINISTER'S POLICE MEDAL FOR Outstanding Service Gallantry

The following members of the State Police Service and Subordinate Services of the Tamil Nadu Police and the members of the Tamil Nadu Fire Service have been awarded the Tamil Nadu Chief Minister's Police Medal for outstanding service/Gallantry on 14th September, 1974 by the Governor of Tamil Nadu.

The recipients are eligible to draw lump-sum grants at the rates noted against each :—

OUTSTANDING SERVICE— (Grant of Rs. 3,000/- each)

1. Thiru T. M. Guruswamy, Deputy Superintendent of Police, Special Branch-II, C.I.D., Tiruchirappalli.
2. Thiru M. Dorairaj Deputy Superintendent of Police, Vigilance & Anti-Corruption, Tirunelveli Detachment.
3. Thiru K. Kuppuswami, Deputy Superintendent of Police, Tiruchirappalli (Rural).
4. Thiru D. K. M. Abdul Razack, Deputy Superintendent of Police, Sivakasi.
5. Thiru S. Sathyanarayanan, Deputy Superintendent of Police, Computer Wing, Madras.
6. Thiru A. Arunachalam, Deputy Superintendent of Police, Category-2, Coimbatore (Urban).

Grant of Rs. 2,000/- each

7. Thiru C.G. Rajendran, Inspector of Police, Directorate of Vigilance & Anti-Corruption, Madras.
8. Thiru S. Rajan, Inspector of Police, Directorate of Vigilance & Anti-Corruption, Madurai Detachment.
9. Thiru K.A. Meenakshi-Sundaram, Inspector of Police, Madras City Police.
10. Thiru L.J. Manoah, Inspector of Police, Madras City Police.

11. Thiru N. Lingaswamy, Inspector of Police, Vigilance Cell, High Court, Vellore.

12. Thiru G. David Thiruthuvai, Reserve Inspector, Madras City Police.

13. Thiru S. Varadharajan, Sub-Inspector of Police, Madurai South.
14. Thiru S. Murugesan, Sub-Inspector of Police, The Nilgiris.
15. Thiru P.N. Ezhuthachan, Sub-Inspector of Police, Tamil Nadu Special Police, IV Battalion, Kovaipudur.
16. Thiru E. Ramanathan, Asst. Sub-Inspr. of Police, Railway Police.
17. Thiru N. Marimuthu, Station Fire Officer, Tiruchirappalli.

Grant of Rs. 1,000/- each

18. Thiru K. Varadhan, Head Constable 857, Salem.
19. Thiru K. Neelakandan, Police Constable 170, Railway Police.
20. Thiru Sheik Md. Yacob, Police Constable 1372, North Arcot.
21. Thiru A. Govindarajan, Police Constable 1279, Madras City Police.

FOR GALLANTRY (OR OTHER DISTINGUISHED SERVICES)

Grant Rs. 3,000/- each

1. Thiru K. R. Venkatesan, Deputy Superintendent of Police, Pollachi.
2. Thiru R.V. Veerannan, Reserve Sub-Inspector of Police, Ramanathapuram.
3. Thiru P. Iyyakannu, Sub-Inspector of Police, Food Cell, C.I.D., Shenkottai.
4. Thiru R. Vellaisamy, Police Constable 1008, Madurai South.

The Chief Minister Dr. Kalaignar M. Karunanidhi presented the Medals to the recipients at a Police Parade held at Madurai on 14-9-74.

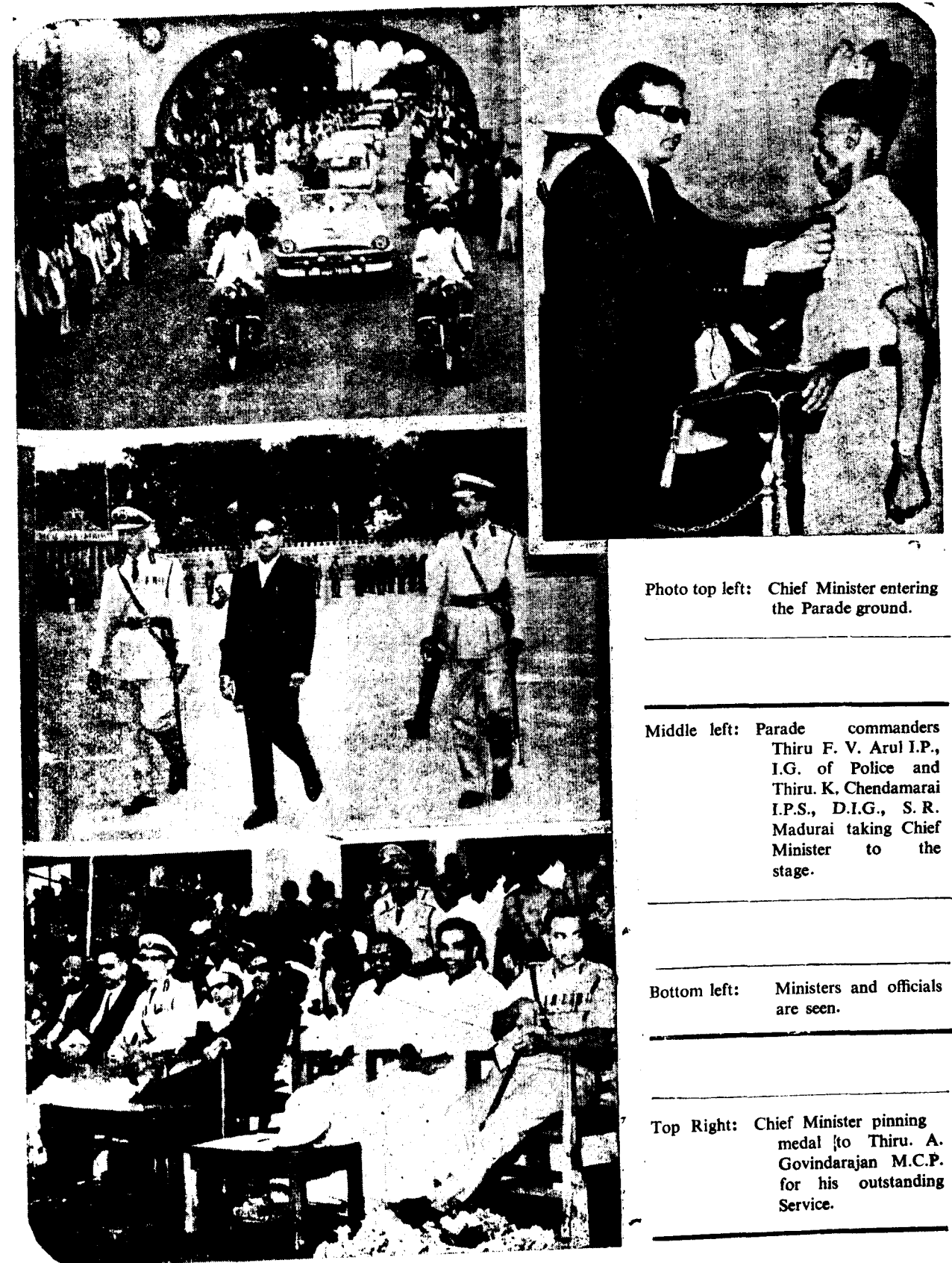


Photo top left: Chief Minister entering the Parade ground.

Middle left: Parade commanders Thiru F. V. Arul I.P., I.G. of Police and Thiru. K. Chendamarai I.P.S., D.I.G., S.R. Madurai taking Chief Minister to the stage.

Bottom left: Ministers and officials are seen.

Top Right: Chief Minister pinning medal to Thiru. A. Govindarajan M.C.P. for his outstanding Service.



Photo above: Avanasilingam Home Science College girl students, are seen engaged in Social Service work conducted at Koundampalapuram in Coimbatore District.

Photo left: A simple latrine constructed by the Youth volunteers.

"YOUTH AGAINST DIRT AND DISEASE PROGRAMME"

The 'Youth against Dirt and Disease' Camp, sponsored by the University of Madras was jointly organised by the National Service Scheme Units of the PSG Arts College and Government Arts College, Coimbatore from 14-6-74 to 24-6-74 and was held at Ganapathy Panchayat, six kilometres from Coimbatore. From each college twenty five student volunteers participated in this camp. This camp was organised to achieve the primary purpose of instilling health consciousness among the rural and suburban population so that the minimum standards of cleanliness, both personal and environmental, required for the longevity of our people is maintained.

The Campers constructed two Urinal Sheds to the Panchayat elementary and high schools where no such convenience existed both for the students and to the staff. The bricks and stones needed for this construction was generously donated by the local merchants and the student volunteers took active interest in completing the construction work with the limited period available. They have also constructed an RCAP type of latrine in the premises of a printing press in the village.

Documentary films having health and educational value were screened during the night hours in the Panchayat at various places. Village youths and Panchayat Board Members participated in the group discussion sessions conducted by the student campers in which preventive aspects of certain diseases and promoted aspects of general health were discussed in simple terms.

Apart from these, mass cleaning campaign was another daily routine of the camp continuously for five days from 6-00 to 8-30 A.M. The campers cleaned the Roads, Streets, Drainages etc. A survey was also conducted with the aid of an interview scheduled for the purpose of identifying the pattern of leadership in the villages and to know the health problems of the people and their needs.

Tamil Nadu Industrial Investment Corporation Celebrates Its Silver Jubilee Year

The Tamilnadu Industrial Investment Corporation, established on the 26th March, 1949, commenced operations on the 1st September, 1949, and after over 25 years of useful service to the industries in the State, is now in its Silver Jubilee Year. It is the premier institute of its kind in the whole country. All along these years, the Corporation was presided over by such a far-sighted and distinguished economist-cum-statesman like Sir. R. K. Shanmugam, the first Finance Minister of the Union Government, and industrialists like Tiruvalargal Venkatasamy Naidu, A.M.M. Murugappa Chettiar, etc. In order to focus public attention on a wider scale on the manifold achievements and multipurpose activities of the Corporation, the Silver Jubilee Celebration has been spread over a period of 6 months, i.e., from 26th March, 1974 to 9th September, 1974. Accordingly, the celebration was inaugurated by the Hon'ble Minister for Industries, Thiru S. Madhavan at Madras on the 26th March, last, followed by the second functions at Coimbatore on 26th April, 1974 in the Presence of Hon'ble Thiru S. J. Sadiq Pasha, Minister for Revenue. The third one was conducted at Madurai on 26th May, 1974 in the august presence of Hon'ble Thiru O. P. Raman, Minister for Electricity followed by the fourth function at Vellore on the 26th of last month, when the 5th Branch Office of the Corporation was also simultaneously inaugurated. The fifth function was held at Tirunelveli on 26th July, 1974, when a branch Office of the Corporation was opened in the town of Tirunelveli. After another function at Pondicherry in August, the Silver Jubilee celebration was concluded with a grand function at Madras on 9th September, when Thiru Y.B. Chavan, the Hon'ble Finance Minister, Government of India, participated in the occasion with the Chief Minister of Tamil Nadu, Dr. M. Karunanidhi in the chair.

Dynamic approach of the TIIC

The TIIC, during this period of 25 years, i.e., up to 31st July, 1974, has sanctioned gross financial assistance to the tune of about Rs. 94 crores to about 744 concerns, which for a State-level financial institution, is a very commendable record indeed. The total assistance availed of till that date amounted to Rs. 59 crores whereas the outstandings were to the tune of Rs. 33 crores. The Corporation has not been satisfied with being only a Finance Corporation giving loan assistance, but also taken a dynamic approach, quickly adapting itself to the requirements of industrial units in the State. The operations of the Corporation have been much wider in scope and content than those of the other State Financial Corporations, which were set up later, after the enactment of the State Financial Corporations Act in 1951.

In a situation, where the capital market was not well developed and commercial banks were traditionally confining themselves to meeting only the working capital requirements of industrial undertakings, it would have been idle to expect big-sized industries to be set up in the State, without some institution coming forward to provide at least a part of of the required capital.

The Corporation, pioneered to enter the field of underwriting/subscriptions operations in a big way, realising fully that, by this dynamic direction to its operations, it was taking upon itself a great responsibility, which would, in the long run affect its profitability, as during the gestation periods, many companies, in which the Corporation had taken up shares, would not be in position to declare any dividend. This was indeed a major decision taken by the Corporation, and it can be now stated that, but for the timely assistance by subscription to the equity given by the Corporation, the pace of industrial develop-

ment in the State could not have been anywhere near what it is today. Many of the major industries in the State, such as aluminium, paper, fertiliser, sugar etc., may never have been established, except for the dynamic approach taken by the Corporation in the matter of equity participation in those formative years of their existence. The Corporation also pioneered to undertake other types of assistance, i.e., providing guarantees to machinery manufacturers for supply of machinery on deferred payment terms, even in its early stages.

New Socio-Economic Ventures

The Corporation adapting itself to the socio-economic ideas on industrial development of the Country, has been recently laying stress on the specialised development of backward sectors and areas, keeping in special view small-scale units. The vision and foresight of the State Government has enabled the Corporation to evolve several special schemes during the last few years to see that the ideas and the policies of the State Government to have socio-economic development are implemented and developed in the desired direction and to the optimum level in so short a period as possible. These relate to the assistance to technocrats, rural medical practitioners, small scale units, units in backward areas, etc. The concessions include low rates of interest, longer repayment period, relaxed margin on advances, etc.

To provide gainful employment to persons who are technically educated, the Corporation has come forward to assist technocrats to enable them to start industries on their own. Under the Scheme, loans upto Rs. 1 lakh are given without any margin, whereas a margin of 10% only is charged for the further Rs. 1 lakh. Several technocrats have taken advantage of this scheme and started small scale units of their own. Similarly,

as it was felt that doctors should be encouraged to go to rural areas and set up nursing homes/clinics, to provide the necessary medical facilities in these areas, the Corporation should assist them for such purposes, and, therefore, a special scheme of assistance to Doctors, who are prepared to establish clinics in rural areas, was formulated and implemented. Under the scheme loans up to Rs. 1 lakh are given at a low rate of interest with a margin of 10%.

Consortium Scheme

Very recently, the Corporation has entered into a Consortium scheme with SIDCO, under which small-scale units would be entitled to get up to 90% advance at very low rate of interest, depending upon the locations of the industry. This scheme which was given effect to from 1-4-74 has already received wide support and the TIIC are having a steady inflow of applications under the scheme.

The industrial units in the State are now free to approach the Corporation, for their foreign exchange loan requirements also, under the IDA Line of Credit, recently made available to us, which would enable the industries to get all their requirements from the Corporation, without having to approach any other agency, as hithertofore.

The State of Tamil Nadu, which is conservatory of traditional culture, has many spots of tourist attraction and, realising that tourism is an industry with a great potential for earning foreign exchange, the Government of Tamil Nadu and the Corporation have evolved special financial facilities to be made available for the establishment of hotels.

The power cut during the last year, which is continuing in this year as well, which had a crippling effect on the production schedules of assisted and other concerns, would have had a much more disastrous consequences, but for the generous assistance sanctioned expeditiously by the Corporation, for purchase of generators under an emergency scheme framed for the purpose, which is obtaining even now.

In a growing economy, where the development is not an end in itself, but is a means to attain the end, the policies of the State Government have been aimed at the establishment of an egalitarian society and the development and encouragement of backward sectors of society and the State. The various schemes of assistance undertaken by the Corporation has been instrumental in giving direction to the efforts of the State Government in helping such sectors in an active way.

Big Advantage in Dealing with TIIC

Now the TIIC has been authorised to render cash assistance up to Rs. 30 lakhs at a time to a unit. In addition, it can also give guarantee facility to the extent of another Rs. 30 lakhs, besides accepting some underwriting obligations. Thus, the TIIC is in a position to render financial assistance to the tune of about Rs. 60 to 65 lakhs at a time. In the matter of foreign currency loans also, which it is now in a position to grant up to the limit of Rs. 30 lakhs, there is a big advantage in dealing with the TIIC. In such cases, the rupee equivalents of the foreign currencies are reckoned at the current central rates of exchange, which continue to hold good for the entire period of the loan. In simple terms, this means that industries run no risks arising out of foreign exchange fluctuations when they avail foreign exchange sub-loans from the TIIC which is not the position when All-India financial Institutions grant such loans.

Clearance of Applications within 2 months

The TIIC is now gearing itself to render quick and efficient service to the industrialists of our State. Besides fast streamlining and simplifying its methods and procedures, it is also strengthening its financial and technical set up. In view thereof, in the course of the last four months, it has been able to sanction assistance aggregating about Rs. 594 lakhs to 103 units. Many applications have been cleared within a period of a month and other within 2 months. Unless the data and information furnished are found to be incomplete or unsatis-

factory, no application is held over for more than 2 months. The TIIC is also giving a project-oriented approach to the proposals it receives as against security-oriented earlier, and look for a sound debt equity ratio, rather than margin of security. Apart from the Head Office at Madras, the TIIC have branch offices at Coimbatore, Madurai, Salem, Thanjavur, Vellore and Tirunelveli at present. As the economy of the district of Kanyakumari is mainly based on agriculture, the Board of Directors feel that a branch office here would help the growth of the industrial development of the area. So it is that with the opening of a branch at Kanyakumari entrepreneurs in the district will come forward to set up more units, so that this predominantly agricultural area is developed into industrial one. The Corporation has so far sanctioned assistance of about Rs. 688 lakhs to 49 units in this area.

Indeed the State Government has been taking very keen interest in ensuring provision of the various facilities required for the industrial development in the State, by setting up other agencies for development in the State, by setting up other agencies for developing the necessary infrastructural facilities and entrepreneurial skills. In the absence of such facilities by the Government and the various agencies like SIP-COT, SIDCO, TIDCO etc. sponsored by it, in developing the necessary industrial base, the Corporation would not have been in a position to render financial assistance for establishment, development and expansion of industries in the State. It is working in close co-operation with all the said agencies, as also with the All India institutions like the Industrial Development Bank of India, Industrial Finance Corporation of India, Industrial Credit and Investment Corporation of India Limited, Life Insurance Corporation of India, etc.

In all respects, the TIIC, since its inception, has been playing a vital and significant role in the establishment and development of industries as well as broadbasing and intensively promoting a balanced development of industries in the State.

THE TAMIL NADU INDUSTRIAL INVESTMENT CORPORATION, LIMITED, MADRAS-600014

COMPARATIVE STATEMENT OF ASSISTANCE SANCTIONED (GROSS) FOR THE LAST THREE YEARS AND FOR THE PERIOD ENDED 31-7-74.

(Rs. in Lakhs)											
Particulars	1971-72		1972-73		1973-74		For the four months period upto 31-7-74				
	(1-7-71 to 30-6-72)		(1-7-72 to 31-3-73)		(1-4-73 to 31-3-74)						
	Sanctioned	Dis-bursed	Sanctioned	Dis-bursed	Sanctioned	Dis-bursed	Sanctioned	Dis-bursed	Sanctioned	Dis-bursed	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount	BNo.	Amount	Amount
		Rs.		Rs.		Rs.		Rs.		Rs.	Rs.
I. SMALL-SCALE UNITS:											
(a) Loans	92	257.07	96	104.77	122	216.32	76	206.33			
(b) Deferred payment guarantees	..	..	..	2.73	..	..	..	..	..	..	..
(c) Underwriting of Shares and Debentures	..	..	..	..	..	..	1	2.00			
TOTAL I :	92	257.07	96	104.77	122	216.32	77	208.33			
II. UNITS OTHER THAN SMALL-SCALE :											
(a) Loans	19	132.53	27	272.40	35	405.03	20	322.40			
(b) Deferred payment guarantees	8	118.27	6	92.13	1	14.77	3	56.00			
(c) Underwriting of Shares and Debentures	4	17.25	4	21.75	7	28.35	3	7.00			
TOTAL II :	31	268.05	37	386.28	43	448.15	26	385.40			
GRAND TOTAL	123	525.12	133	491.05	165	664.47	103	593.73			

(Total of I and II)
Gross sanctions upto 31-7-74 : Rs. 94 crores to 744 units.
Amount disbursed upto 31-7-74 : Rs. 59 crores.
Amount outstanding upto 31-7-74 : Rs. 33 crores.

Out of the Assistance sanctioned so far, the following are the amount sanctioned and disbursed in respect of Special Schemes (Rs. in Lakhs)

S. No.	Name of the Special Scheme	Upto 31-3-74		For the four months period upto 31-7-74		Total upto 31-7-1974	
		Sanctioned	Sanctioned	Sanctioned	Sanctioned	Sanctioned	Disbursed
		No.	Amount	No.	Amount	No.	Amount
			Rs.		Rs.		Rs.
1.	Technocrats	18	14.41	2	1.66	20	16.07
2.	Rural Medical Practitioners	18	13.27	1	0.10	19	13.37
3.	Transport Operators	19	10.00	1	0.70	20	10.70
4.	Hotel Industry	11	156.70	4	43.00	15	199.70
5.	Generator Loans	36	45.40	..	..	36	45.40
6.	IDA Line of credit	17	53.04	10	37.35	27	90.39
7.	Consortium	..	..	16	50.39	16	50.39

-R. N.

Role Of T.I.I.C. In The Industrial Development In Rural And Backward Areas

The Fifth-year Plan envisages an ambitious programme for the development of industries in rural and backward areas. The draft Plan includes programmes like establishment of large, medium and small scale industries, besides development of existing traditional industries like handicrafts and village industries. Concessions and incentives are offered by way of reduced interest rate through national financial institutions like IDBI, IFCI, ICICI, TRCI and NSIC under special subsidy schemes. Extended repayment periods, import of machinery and raw materials, components and spares etc. and supply of machinery on hirepurchase terms are also provided by the Government in order to encourage the entrepreneurs in the less-developed areas to set up many more industries.

The late Prof: Mahalanobis has stated in his "Approach to Planning in India" that the enduring place for the small industries in the future economy of the country will become clear if we view the industries as being of two types. In one type, production must be concentrated on steel, cement, fertilizers, pesticides, locomotives and heavy machinery, requiring heavy capital where direct employment would be negligibly small. In the second type, small units with the help of modern machinery would be economical from the national point of view, because it would avoid many economic over-heads and social evils of congestion in cities and slums. Obviously, he had in his mind the view that the small industries should be diverted from being concentrated in the big cities which are already congested, to the rural and backward areas.

Reasons for backwardness

The main reason for the economic backwardness of the notified backward areas is due to lack of infrastructural facilities like power, roads, electricity and developed land. It is, therefore, necessary for

the financial institutions at both Central and State levels to liberally consider schemes for implementation of projects for promotion of infrastructural facilities. The regional imbalances in the economy of the country have been increasingly recognised recently both at Central and State levels and it is quite heartening to note that considerable amount of financial assistance is being rendered to promote industrialisation in backward areas.

Though our country has made substantial progress in the areas of foodgrain production, industrial growth, mobilisation of savings and technological developments, the progress is unable to keep up with the requirements of the growing population which is registering an average rise of 2.5 per cent per annum. It is in this context that the financial institution have to play a vital role to augment the food production through agro-based industries and small-scale industries.

An attempt has been made to compare the socio-economic parameters of the leading industrial State of Maharashtra with Tamil Nadu State and all-India in the table at the end of the article.

It will be seen from the above that except for the output per unit of employment, Tamil Nadu is far behind the leading industrial State of Maharashtra though, compared to all-India level, our State is somewhat better.

Role of TIIC in the development of backward areas

The Corporation has already been assisting liberally entrepreneurs from the industrially backward areas. The Planning Commission has notified nine districts

By
R.V. RAMANI,
Chairman, TIIC.

in the State of Tamilnadu (including the recently formed Pudukottah district) in addition to the State of Pondicherry, as industrially backward areas. Including Pondicherry these districts accounted for 63.6% of the area and 67.4% of the total population of our State. Industrialists starting industries in these areas are eligible for concessional finance by way of cash incentives as "subsidies" and concessional terms by way of lower interest rate, longer repayment holiday, etc.

The schemes formulated for backward districts and areas started in the year 1971-72 has been registering a steady progress. During 1971-72, 5 backward districts were financially assisted with a sum of Rs. 105.83 lakhs to 29 units. The main beneficiaries were from Ramnad district for the manufacture of auxiliary parts for a motor-cycle manufacturing unit, surgical dressings, packaging and printing industries, chemicals, Aluminium, Cannings, etc. were the units assisted by the Corporation in other backward districts. During the year 1972-73, including Pondicherry State, nine districts/areas received a total sanction of Rs. 272.03 lakhs to a total number of 56 units. A new unit at Pondicherry for the manufacture of a photograph developing chemical received assistance from the Corporation. Another new project for the manufacture of furfural, a versatile chemical to be made for the first time in the country in the large-scale sector, also found a place during 1972-73. In that year, in the North Arcot district the Corporation assisted another unit for the manufacture of cast tools and precision casting by employing the latest technology of ceramic moulding process for casting of metals. Another unit assisted during the year was for the manufacture of fatty acids and glycerine. During the year 1973-74 just ended, our Corporation sanctioned a sum of Rs. 309.52 lakhs for 67 units. Of these, two units were set up for

manufacture of plain and printed containers and stearic acid together with glycerine for the first time in the State.

The performance by the Corporation during the period of five months (April to August 74) has been unmatched. The Corporation has sanctioned Rs. 366.87 lakhs during the said period for the units in the backward areas.

At this rate, the future performance of the Corporation would definitely put these backward area districts on par with the rest of the districts not at a distant future.

Special schemes by TIIC

In order to encourage doctors to concentrate their services in rural and backward areas, the Corporation has formulated a new scheme during 1971 called "Assistance to Rural Medical Practitioners" meant for all qualified registered medical practitioners for setting up clinics/dispensaries in rural areas with fully-equipped laboratories and other medical facilities like X-ray, refrigerator, vehicles etc. The Corporation has so far sanctioned Rs. 13.27 lakhs to 17 applicants in the rural areas.

Another scheme initiated by the Corporation is termed as "Assistance to Technocrats" mainly to encourage technically qualified per-

sons and persons with experience in the engineering, chemical and other production lines. The beneficiaries who have so far received assistance number 18, for a total sum of Rs. 14.41 lakhs.

Industrialisation of less-developed areas is a challenge to be met by the concerned State Governments. The part to be played by the financial institutions and the entrepreneurs has to be further augmented. The entrepreneurs on their part have to view this problem of bringing about a mere balanced regional development and particularly of the industrially backward and less developed areas as a national problem and a national responsibility. So far as the entrepreneurs from Tamilnadu are concerned, they always can look forward for the active Cooperation and assistance from the TIIC.

T. I. I. C. 'S ASSISTANCE To SMALL SCALE UNITS.

The T. I. I. C. 'S assistance to small scale units has been going up and up year by year. Following are the cumulative figures.

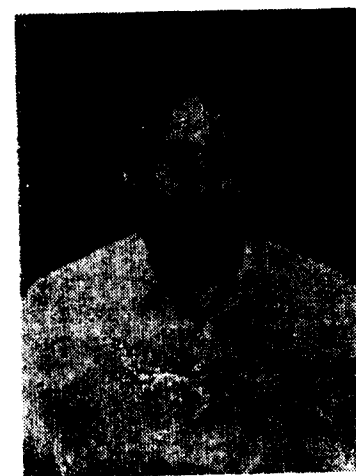
	Rs in lakhs
upto 30-6-1972 ..	490.35
upto 31-3-1973 ..	593.72
upto 31-3-1974 ..	836.44
upto 31-8-1974 ..	1128.53

Item	Year	Tamil Nadu	Maharashtra	All India
Percentage of workers to total population ..	1971	36.7	37.2	33.5
Average daily employment of factory workers per thousand population ..	1970	11	20	9
Per capita gross output in industry ..	1969	Rs. 244	Rs. 466	Rs. 184
Value added per capita ..	1969	Rs. 61	Rs. 146	Rs. 46
Industrial consumption of electricity (KWH) ..	1971-72	77.43	126.50	61.89
Per capita income at current prices (Rs.) ..	1971-72	688	810	645
Output per unit of employment (Rs.) ..		22,563	15,992	..
Per capita financial assistance to industries by major term lending institutions (Rs.) ..	Upto 1973	49	98	39

INVITATION EXTENDED TO THE PUNJABI ENTREPRENEURS

Industries Minister Thiru S. Madhavan hoisted the National Flag on Thursday 15th August, 1974 in connection with the Independence Day Celebrations conducted by the Punjabi Association. He availed of the occasion to invite Punjabis for starting more industries in Tamil Nadu so as to contribute to and help in the economic emancipation.

The Minister praised the zeal and integrity, hard working habits and spirit of adjustments displayed by the people of Punjab for whom Tamil Nadu had shown abundant love and affection. Thiru Madhavan appreciated the work of the Punjab Association in the field of Education, Medical Relief and Social Service and praised them for completely indentifying themselves to the needs of Tamil Nadu. He alluded to several Units started and worked so efficiently and pointed out these eloquent testimony of their usefulness and efficiency. He did not fail to draw a lesson of absorbing interest in National Integration displayed by the success of these endeavours and assured the audience that his Government will continue to extend all possible support to the Punjabi Community who are playing an important role for building bridges of mutual understanding between North and South.



Thiru M. Subramaniam, Junior Assistant of the Office of the Commissioner, Municipality Coonoor, The Nilgiris, has been adjudged as the best Junior Assistant for having maintained the records in Tamil and has also been awarded Rs. 500/- worth of National Savings Certificate by the District Development Council of Nilgiris.

T. I. I. C.

The Fore-Runner of The Development Banks

I must express my thanks to Shri Madhavan for giving me this opportunity to participate in the Silver Jubilee Celebrations of the Tamil Nadu Industrial Investment Corporation Ltd.

You are all no doubt aware that soon after independence, Industrial Finance Corporation was established at the All India level in 1948 by an Act of Parliament. In those days ours was one of the earliest developing countries to establish a chain of Development Banks for financing industries. The IFC at the All India level in 1948 and Madras Industrial Investment Corporation, as your Corporation was then known at the State level in 1949, were the earliest financial institutions established in our country. Thus you will see that the then State of Madras took a lead in establishing a State level financial institution even before the Central passed the State Financial Corporations Act in 1951. I am particularly happy that this first State level Development Banking institution has now completed 25 years of its very useful existence. When the State Financial Corporations Act was subsequently promoted by the Centre and State Financial Corporations were established in the different States, it was again the foresight of your Government to have associated the Madras Industrial Investment Corporation with the family of all the State Financial Corporations and thus enabled it to enjoy all the benefits which the State Financial Corporations are eligible from the apex I.D.B.I. In a way, therefore, the present Tamil Nadu Industrial Investment Corporation Ltd is rightly the fore-runner of the Development Banks in the State field.

As a development financial institution, your role can no longer be confined to that of a mere purveyor of term loans to such industrial concerns that seek them. You have a positive role to play in the development of industries and of entrepreneurial skills in the community,

especially in the backward regions and also undertake a positive programme for the stimulation of industrial growth which would enable the resources of the institution to be fruitfully employed in ever widening fields of activity. Being a member of the IDBI family of institutions, you have to take advantage of the many-sided promotional activities of the IDBI and benefit by the experience of other financial institutions as well.

I find that of the total financial assistance sanctioned by the different State Financial Corporations in the different States and your Corporation, upto the 30th September, 1973 you stand third in order of sanctions. Of the total loan assistance of Rs. 392 crores, the assistance by your Corporation stands at about Rs. 35 crores. However, of this assistance of Rs. 35 crores, I find that small scale industries have received about Rs. 6 crores and medium scale industries Rs. 29 crores. Perhaps you would agree that the small scale industries could be given a little more emphasis in your future operations. I would highlight, in this connection, two important developments in the operations of the SFCs to which family you belong. A foreign line of credit of 25 million dollar has been sanctioned by the International Development Assistance of the World Bank, to the State Financial Corporations including your Corporation for channelling the foreign exchange resources to the small and medium scale industries, through the IDBI. The other development is that the State Financial Corporations have been enabled to create a special class of share capital to be subscribed by the Reserve Bank and the respective State Governments for providing soft loans and equity participation for the weaker segment of small and medium industry. I hope you are utilising the facility of the IDA line of credit to the optimum extent to channelise the foreign exchange resources to your clientele. Though the legal amendment to the State Financial Corporations Act creating a special class of shares is

not strictly applicable to your Corporation, I am glad to know that steps are being taken by you to bring about such changes as are considered necessary in consultation with the State Government, to enable your Corporation also to widen the scope of its operations and thus enlarge your assistance to small scale industries, new entrepreneurs and technologists.

Of the 13 districts excluding Madras city, as many as 8 districts have been declared backward in the State of Tamil Nadu. I hope you are taking good care of the balanced regional development of the whole State. I find that only recently the percentage of assistance to industries established in the backward areas is showing improvement but there appears to be still better scope for further increase. I would urge you to increase your efforts to achieve a more even distribution of assistance amongst the districts. This will be possible only if you have closer contacts with the existing and potential entrepreneurs in the district. As far as I understand, you have only 3 offices outside the city of Madras. There may be need for opening more branches in the near future, especially as the task of your institution is to build up more entrepreneurs and encourage the establishment of industries even in the areas which are relatively under-developed.

The State of Tamil Nadu is endowed with rich natural resources and also with a good network of branches of banks and other All-India and also with a good network of branches of banks and other all-India financial institutions. The infra-structure facilities in the State are also of a reasonable order. Comparatively speaking, therefore, the task of your Corporation in helping industry, particularly the small entrepreneurs, becomes all the more easier compared with other States. As you are all aware, a Bill has been introduced in Parliament to restructure the IDBI to play a more effective role in the field of industrial finance. On this background I have every hope that your Corporation can usefully look forward to play a still more important and effective role in developing the natural and human resources of the State in future when it is passing the mile-stone of its Silver Jubilee Year.

Speech of Thiru Y. B. Chavan, Finance Minister at Tamil Nadu Industrial Investment Corporation, Madras on September 9, 1974.

Srinivasa Iyengar— Governor's Tribute

Starting his career as a brilliant lawyer, Srinivasa Iyengar rose to the position of Advocate-General—a coveted position for a member of the bar in those days. From his apprenticeship under a legal luminary, he soon became a legal luminary himself, an eminent jurist and an authority on Hindu Law. To earn the encomium of C.Y. Chintamani of the powerful paper "Leader" of Allahabad that "he was the greatest Indian Lawyer and one of the world's greatest" or the tribute of Sir Tej Bahadur Sapru that "he was the greatest jurist since Manu", was no mean achievement. How much self-confidence he must have had when he told his junior "If what I say is now law, so much the worse for the law." Srinivasa Iyengar was a many-sided personality. His erudition and knowledge in many subjects earned for him respect from all quarters. His religious attitude was so catholic that he stoutly opposed casteism and untouchability. That is why he was loved and held in high esteem by all communities. His generous heart supported all worthy causes and ran to the succour of the deserving.

Our Freedom Struggle gained new dimensions and gathered momentum after the emergence of Mahatma Gandhi on the national scene. People in all walks of life and of all grades of society magnificently responded to his call. Students gave up their studies. Teachers gave up their profession. Lawyers and doctors gave up their lucrative practices. Srinivasa Iyengar, who had been a follower of Gokhale and enjoyed the patronage of eminent leaders like Vijayaraghavachariar, was totally upset, as many of his contemporaries were, over the Jallianwala Bagh tragedy. He woke up to the serious situation immediately, resigned his office of Advocate-General and renounced foreign title, and started another phase of his brilliant public career. He concentrated on abolition of caste and communal differences in society and promotion of Hindu-Muslim unity. By dint of his hard work and fervent patriotism, he soon secured an important position in the front ranks of national leader-

ship. Srinivasa Iyengar became the President of the Gauhati Congress in 1926 and thereafter Deputy Leader of the Swarajya Party in the Central Legislative Assembly. It is true that later on, there were differences between him and Gandhiji. But it must be said to the credit of Gandhiji's leadership that diverse personalities like Srinivasa Iyengar, Subash Bose, Rajaji, Jawaharlal and Sardar could work together towards one common goal. The differences among these leaders only strengthened our aspirations and intensified the freedom struggle.

Master-Mind in Planning

The peculiar past of the people of India and their innate attitude and their varied geographical and social environments left no doubt in the minds of almost all national leaders about the approach to Indian problems. Srinivasa Iyengar was one of such leaders. He was a champion of planned economic development, strong nationalism, democracy, social justice and secularism. His idea of linking the Ganges with the Cauvery reveals his master-mind as a planner. We have been pursuing the policy of democratic socialism and secularism based on planned development and social justice. The Constitution of India enshrines these ideals. Our gains have been greater than our losses. However it must be admitted that certain weaknesses do persist but they are inherent in a

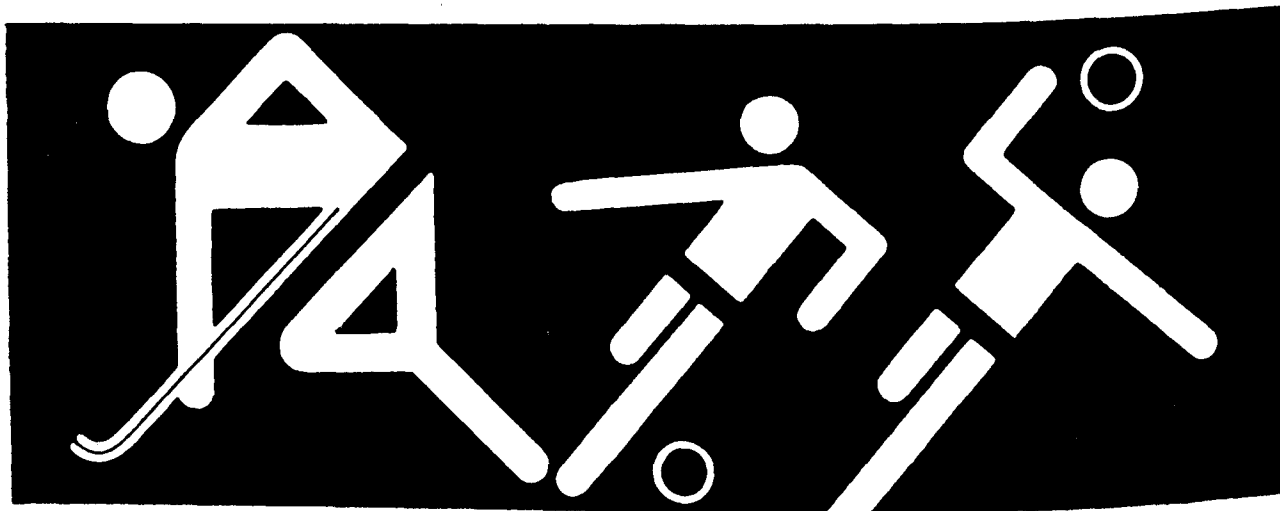
nascent democracy like ours. I have no doubt that by trial and error, we will overcome them.

Free India remembers Srinivasa Iyengar with gratitude. Posterity can never forget this intellectual giant, acknowledged patriot and leader of the people. Especially when we are passing through difficult times, we draw inspiration from the norms he laid down for making democracy a true mode of living. His practical formula to make democracy meaningful and purposeful is worth recapitulation, particularly, as these words have come down to us from a person who rose about personal ambitions, who identified himself completely with the poor and the downtrodden, and who practised detachment in his public life. These are his eloquent words: "It is better to read than to discuss, better to think than to read, and better to act than merely to think."

As we celebrate his birth centenary today, it is our duty to study and analyse our weak spots and go back to leaders like Srinivasa Iyengar to find lasting solutions to our problems. Is it not time to evolve sanctions for standards in public life? Can we not purge public life of credulity, craziness, irresponsibility and slogan mongering? Can we not encourage institutions which will encourage constructive criticism and oppose destructive demagoguery? People with no study pose as experts and indulge in tall talk. Can we not check this malady and encourage depth of understanding and sense of responsibility? If we succeed even partially, it will be the best tribute a grateful nation can pay to her leaders of the stature of Srinivasa Iyengar.

The picture recalls nostalgic memory of Rajaji visiting Mobile Gandhi Exhibition



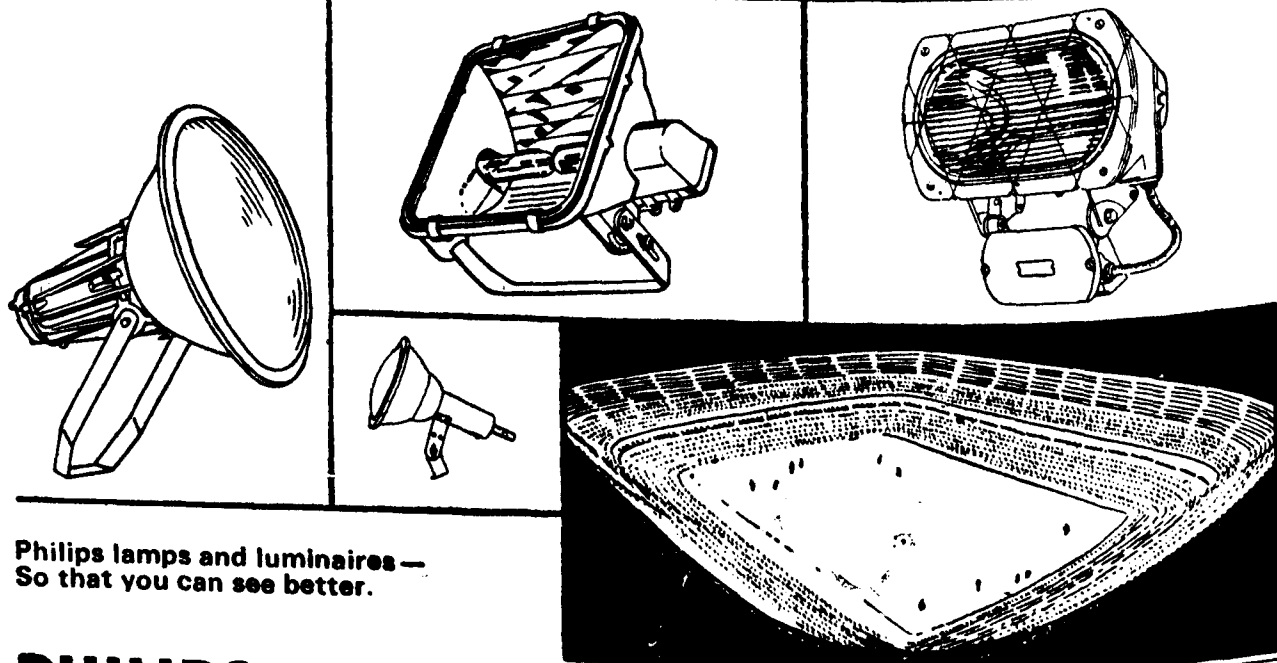


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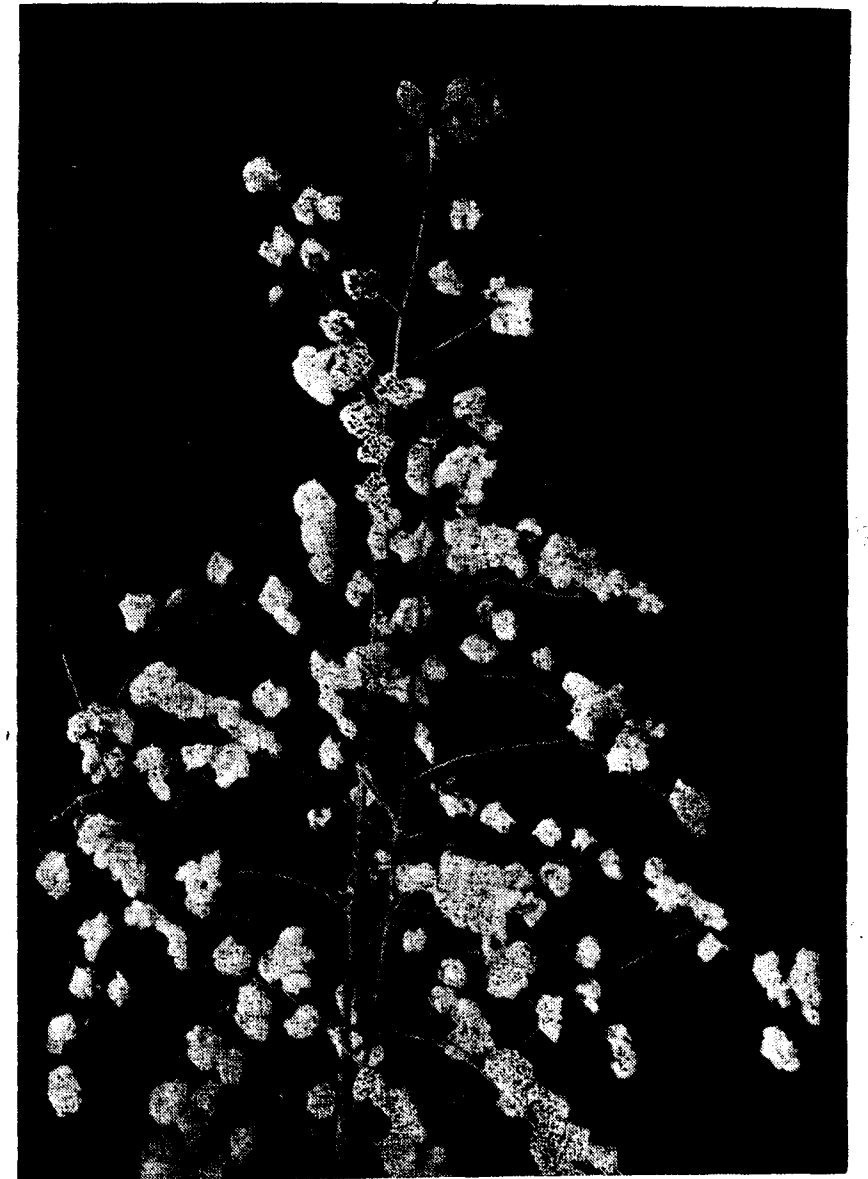
A New Cotton Better Than Sujatha

It is well known that in cereal crops such as sorghum, bajra, and maize, hybrids give spectacular high yields and cotton is no exception. The hybrid cottons, such as 'Hybrid-4' of Gujarat and 'Varalaxmi' of Karnataka are already popular on account of high yield and better lint quality. 'Hybrid-4' is extensively cultivated in the States of Gujarat and Maharashtra and to a limited extent in Karnataka and Andhra Pradesh; while 'Varalaxmi' is most popular in Karnataka and Andhra Pradesh. Of late, 'Varalaxmi' is gaining importance in Maharashtra and in Tamil Nadu too!

Tamil Nadu has not lagged behind in developing a cotton hybrid. The Tamil Nadu Agricultural University has released a new and better hybrid cotton, 'CBS. 156' superior to both 'H'4 and 'Varalaxmi.'

The hybrid cotton, CBS. 156 (derived from Acala glandless, an American cotton as mother and SB. 1085-6, a *barbadense* variety as father) is outstandingly superior in yield and lint quality to MCU. 5 and Sujata, the existing winter sown superfine cotton varieties of Tamil Nadu and to 'H'4 and 'Varalaxmi', the existing two cotton hybrids in the country.

'CBS. 156' gives an additional yield of one to four quintals of kapas per acre compared to the other hybrids in the country. It belongs to the category of extra long staple super fine cotton with staple length of 36 mm. (1.41 inch.) Which, when compared to 50 counts of 'H'4, 60 counts of 'Varalaxmi', 70 counts of 'MCU. 4' and 90 counts of 'Sujata', 'CBS. 156'



CBS 156 Cotton for 120 Counts.

spins 120 counts equivalent to imported superfine Egyptian cottons. Its lint is also finer and stronger.

'CBS. 156' yields, on an average, a net profit of Rs. 7500/- per acre. Instances are not wanting where some cultivators in Coimbatore district have obtained 15 quintals of kapas per acre realising a net profit of Rs. 12,000/-. The crop duration is only 170 days. It is not affected by 'stem-weevil' and also moderately resistant to 'Verticillium wilt' disease. Hence, 'CBS. 156' has a wider adaptability and can be grown in large areas.

At present, India imports annually 2 to 3 lakh bales of superfine

cottons. By growing 'CBS. 156' over an area of one lakh of acres, not only the country is made self sufficient regarding superfine cottons but also the drain on valuable foreign exchange is saved to the extent of Rs. 100 crores to 150 crores every year. In addition, the country stands to benefit by an additional income of Rs. 75 crores by its cultivation.

In short, cultivation, of this new hybrid cotton will improve the economic status of the cultivators, raise the level of national income and also contribute to the prosperity of the country by restricting the imports of superfine foreign cottons.

—oOo—

PLANT CO. 2 TOMATO VARIETY FOR HIGH YIELD



The CO. 2 Tomato

A new variety in tomato with higher yield with semi dwarf plant habit has been evolved by the Tamil Nadu Agricultural University and released as 'Co-2.' Its duration is 145 days and yields on an average 41.0 tonnes of fruits per hectare thus accounting for a net profit of Rs. 9,452 per hectare.

'Co-2 tomato' is superior to the existing variety 'Co-1' with an additional yield of 18.2 per cent. The plants are semidwarf with erect habit and need no staking. The first harvest of fruits can be had 100

days after sowing and be continued upto 145 days. A total number of 8 harvests can be made. The fruits are smooth, medium sized (120 to 140 g) and flat with green colour when unripe and reaching capsicum red after ripening. Fruits are borne in clusters of 4 to 5 thus yielding 20-25 fruits per plant weighing 2.8 to 3.8 kg. The seed content is moderate (0.65 per cent) and 167 kg of fruits give one kg of seed.

The desirable feature of this variety is that its fruits are devoid of cracking which character is help-

ful to stand transport better. The fruit is fleshy with 65 per cent of pulp. Nutritionally the fruits are superior with a higher ascorbic acid content of 19.5 mg/100 g of juice which is about double the content of 'Co-1 tomato.' The sugar acid ratio also is higher i.e. 3:1.

'Co-2 tomato' is thus a high yielding and better quality variety with desirable plant characters. This variety is suitable for cultivation in Tamil Nadu.

—cOo—

CO. 2 PUMPKIN - A NEW INTRODUCTION

A short duration new variety of pumpkin with an improved plant type and high yield potential suitable for monsoon (July to November) and summer (January to May) seasons in all parts of Tamil Nadu has been developed by the Tamil Nadu Agricultural University, Coimbatore and released as 'Co-2 Pumpkin' Its duration is 135 days and yields 22,648 kg/ha, the net profit being Rs. 3,382/-

'Co. 2 Pumpkin' is a small fruited medium spreading variety which

The handy CO. 2 Pumpkin.

could be included for high density planting, with an increased yield of 10 per cent and at the same time with a reduction in duration by 40-45 days.

The vines are moderately vigorous, less spreading than the popular Co. 1 and the local pumpkin types. Plants occupy less space than the other types; fruits small sized; slightly ridged with orange coloured flesh; fruits weighing less than 2.0 kg. (On an average weighing 1.5 to 1.8 kg.).

It is noteworthy that due to its medium spreading habit, the density of plants per hectare could be considerably increased by 150 per cent. The fruits have a high consumer's appeal and also keeps well under storage.

Thus this variety offers a good scope for introduction in kitchen gardens and also for high density planting programmes besides cultivation in the commercial gardens.

CO. 2 RED GRAM—AN IDEAL COMPANION CROP FOR MIXED CROPPING

A short term new variety of red gram with an improved plant type and high yield potential, suitable for both irrigated and rainfed conditions, has been developed by the Tamil Nadu Agricultural University, Coimbatore and released as 'Co-2'. It matures in 110-115 days and yields 1,500 kg/ha under irrigation and 750 kg/ha under rainfed condition, the net profit being Rs. 1,500/- and Rs. 700 respectively.

'Co.2 Red gram' is superior to the earlier released variety 'Co-1', with an increased yield of about 25 per cent and at the same time with a reduction in duration by 20-25 days.

The plants are short (90 cm.) compact and erect with pods in terminal clusters. The grains are bigger in size (100 grain weight -9 gm. and the *dhal* cooks easily. The cooked *dhal* is soft, pleasantly flavoured and tasty. Nutritionally

also it is rich with about 20 per cent of protein. It is noteworthy that Co. 2 is fairly tolerant to wilt disease.

Being non-season-bound, this can be grown all round the year but February-March and June-July are the optimum sowing seasons. The seeds are to be sown in rows with a spacing of 45 cm. x 30 cm, the seed rate being 15 kg. per hectare. A basal dressing with 25 kg. of nitrogen and 50 kg. of phosphoric acid per hectare is recommended for the irrigated crop. This dosage is to be reduced by 50 per cent for the dry crop.

'Co-2 Red gram' is also an ideal companion crop for mixed-cropping with groundnut.

Source : Communication Centre, Tamil Nadu Agricultural University, Coimbatore-641003.

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Increasing Protein Content In Cereals Madurai Research Project Holds Promise

Proteins form an important building block for the human body. Their intake largely depends on the type of food consumed. Cereals such as rice, wheat and sorghum, the main ingredient of food of a majority of Indians, according to nutritionists, are deficient in proteins.

However, you can't ask people to give up eating cereals. Rather it would be more sensible to provide them with cereals rich in protein content.

This is exactly what a group of plant scientists at the Madurai University are trying to accomplish. At the head of this group is Dr. A. Gnanam, Professor of Plant Sciences of the Department of Biological Sciences at the University.

The five-year research programme of the Madurai scientists is supported with a United States government grant of Rs. 3 lakhs. Dr. Curtis M. Wilson of the Department of Agronomy, University of Illinois, Urbana, U.S.A. is assisting them in their work.

Dr. Gnanam points out that his team's approach to the problem is different from the conventional plant breeding and hybridization methods which are generally followed to evolve better varieties of crop plants. "What we're trying to do" he says, "is to enhance the protein synthesizing efficiency of the plant leaf cells and thus increase the protein content of the seed."

It is known that the nitrogen compounds produced by the plant leaf cells during the process of photo-

synthesis go to make proteins. During photosynthesis in cereal crops like rice, wheat and sorghum, the leaf cells normally produce more sugars than aminoacids which are needed for protein synthesis. "We found that by applying nitrogen directly to the leaves, the photosynthetic formation of aminoacids could be increased at the expense of sugars," says Dr. Gnanam. "Hence if we increase the nitrogen supply to the plant leaf cells at the time of grain formation the aminoacid production of the leaves and thereby protein content of the cereal grains can be enhanced."

To achieve this result, Dr. Gnanam and his colleagues prepared a solution of ammonium

compounds like ammonium nitrate or ammonium chloride and suspended the leaf tissues and/or isolated leaf cells into the solution. When they examined the photosynthetic products of the leaf cells after the ammonium treatment, they found that the amino acid content in the cells had gone up—it was much more than what it was before the ammonium application. The ammonium compounds thus help to increase the production of aminoacids by photosynthetic means.

The Madurai scientists have next to apply the results they have obtained under laboratory conditions to the field. "That we should be doing in the next year or towards the end of this year and that itself is an entirely different problem," Dr. Gnanam says.

While involved in the task of enhancing the protein content of cereals, the Madurai team is also trying to find out how the leaf cells convert the aminoacids into proteins. Dr. Gnanam, who worked on protein synthesis in *Euglena*, a pond-growing algae, for his Ph. D. at the North-Carolina State University in Raleigh, U.S.A., says that his present work is an extension of the doctoral studies. He adds, "Our work here has great relevance to our society."



Leaves of cereal plants being treated for increased protein content at harvest

Forestry- (29) A Lonely Profession

BUT VITAL FOR MAN- KIND

The following are excerpts from the speech of the Chief Conservator of Forests, Thiru K. A. Bhoja Shetty I.F.S., when the separate Department of Forestry Education was inaugurated in the Tamil Nadu Agricultural University, Coimbatore on 11-9-1974.

This is a significant landmark in Forestry Research and Education in Tamil Nadu because for the first time Forestry, as a separate department, has been brought under the ambit of an University. Other Universities with separate faculty of forestry in the country are the Agricultural Universities of Karnataka and Himachal Pradesh and the Calicut University in Kerala State.

The starting of a forest school in Dehra Dun in 1878 marked the real beginning, though in a small way of forestry training and scientific forest research in India. Gamble, who was the Director of the Forest School, was in no small measure responsible for the fillip given to research at that time. However, in those early years no systematic attempt was made to organize forest research and thus co-ordinate and integrate the available scientific information. Valuable scientific work carried out from time to time by way of individual efforts on the part of enthusiasts in special branches has been published in many cases but much has been lost due to lack of systematised methods. A beginning to organise forest research was at last made in 1906 by the establishment of a Forest Research Institute at Dehra Dun. R.S. Troup was appointed as the first Silviculturist and during his tenure from 1909 to 1918, the foundation for systematic research in forestry was laid.

In Madras Presidency, part of which forms the present Tamil Nadu, a post of Forest Research Officer was created in 1919 at Coimbatore and this unit was subsequently, at

various stages, expanded and reorganised as the State Silviculturist division, which is now in charge of Forestry Research in the State with headquarters at Madras.

The State also established at Coimbatore a separate college called the Madras Forest College in 1912 for training Forest Rangers from Madras Presidency as well as from other States and Presidencies in South and Central India. Due to financial stringency the Government of Madras closed down the college in 1939 but it was reopened in 1945 as a post-war reconstruction measure. In 1948 the college was transferred to the control of Government of India and it is now designed as the Southern Forest Rangers College.

Forestry for Progress

So far I have briefly recapitulated the history of Forest Research and Education in India. It may be observed that forest research and education in the country have been principally the responsibility of the Governments and largely guided by the Forest Research Institute and Colleges, Dehra Dun. A central organisation imparting a common pattern of education has no doubt served admirably in providing all the States in the country a disciplined and devoted band of technicians to manage the country's forests. It has also served to incul-

cate *esprit de corps* among the Forest Services throughout the country. There is also a broad similarity in the management of forests all over the country, which is no doubt a distinct advantage. However, forestry by its insular existence, suffers several disadvantages and handicaps. Foresters have often been considered by others as persons living outside of time who take no notice of its fleeting passage. Forestry deals with one of the most important natural resources on the earth and it can play its due role in the development of the country and the prosperity of the people only by keeping pace with the general progress in science and technology. As a multidisciplinary science, forestry can benefit a great deal by application and adoption of advances in other biological, physical and related sciences.

These are some valid reasons for introducing forestry into the fold of a University. The National Commission on Agriculture in its interim report on Forest Research and Education has dealt with the entire subject in great deal and has made certain suggestions of far-reaching consequences. If forest education is thrown open to the academic atmosphere of the universities, perhaps the importance and relevance of forestry to human well-being may come to be widely and properly understood not only by those directly studying it but also by others with whom they will come in contact. Thus the advantages that could accrue are amongst others

- to establish a stronger foundation for forest science in India ;
- to disseminate the knowledge of forestry over a wide circle ; and
- to create a condition for growth of local opinion in favour of forestry."

"Forestry research would be enriched, if the facilities and expertise available in the Agricultural Universities are fully utilised to support the research needs in the States."

Therefore it is appropriate that Tamil Nadu Agricultural University should decide to establish the Department of Forestry. This will, no doubt, give forestry a higher academic status and open out vistas for its development as a science.

Pioneer Conservationists

Scientific forestry has been practised in Tamil Nadu for well over a century. A separate organisation for the management of forests was created in 1856 with Dr. Cleghorn as the Conservator of Forests in charge. The early years were mainly devoted to framing of necessary legislation for the constitution and protection of reserved forests. The actual demarcation and notification of forest blocks as reserved forests followed subsequently. Selective felling of timber, particularly teak, was organised on a

large scale to meet the needs of Bombay shipyard and other military establishments. Before long it became obvious that the supplies could not be maintained indefinitely unless plantations are raised to replenish the stock. Evidence of such plantations of teak raised at the end of 19th and early in 20th century exist even now. However, the emphasis was there more on conservation than on production.

It was only from the Second Five Year Plan onwards that a big boost was given to plantation forestry or man-made forests. This was necessitated because of the sharp increase in demand for industrial wood, especially from paper and other pulp industries. The total area under plantations within forest limits in this State at present, is about 2 lacks hectares, which is approximately 1/10 of the total forest area. In addition, about 50,000 ha. of plantations have been raised on village waste lands, tank beds and river and canal banks. The plantation programme have been planned to meet the demand for timber, fuelwood, industrial wood and other forest produce of commercial use.

It is an accepted axiom that any large scale development should be backed by well organised research. The productivity of our forests is low in most areas when compared to the yield obtained in other countries. A forestation technique in arid and semi-arid regions are yet to be perfected. Practically no attention has been paid till now towards improvement of planting stock through selection and breeding.

There are several problems of plant pests and diseases which require further investigation. A problem of special importance to Tamil Nadu is the spike disease of sandal. In recent years there is widespread concern among the people towards conservation of environment. The role of forests in the control of environmental pollution needs to be studied in great detail. I have no doubt that the University and its Department of Forestry can play a vital role in the Development of Forestry in Tamil Nadu and in the rest of the country. I congratulate the Vice-Chancellor for his vision and zeal in establishing the Department of Forestry in the University and I wish the venture all success.

WHY FORESTRY FACULTY IN A FARM UNIVERSITY?

It is natural that many of us may wonder "why forestry in a farm university?". As we all know forests constitute a very important national wealth and this golden resource is being ably managed by the State Forest Departments. In fact Indian Forestry has a hoary tradition and has won world acclaim in the field of forest management.

Nobody would deny the importance of our forests to our national economy. Forests yield us various products of great industrial value—timber, fuel wood, pulp and paper, rayon, tannins, essential oils and so forth. Such an important national resource should be developed to its fullest potentiality taking advantage of science and technology. But are we doing that at the moment to the extent desirable? I believe we are far from this desirable goal.

Take for instance the proportion of the area under forests to the total geographical area of the country. It has been stated that an optimum balance would be obtained when roughly 1/3rd of the total geographical area of any country is occupied by forests or wooded areas. It is saddening to note that in our country we are far from this ideal of 33%; we have only two thirds of this desirable 1/3rd area, under forests—that means to say, a bare 22%. This is just the All India situation. In some states the area under forests is still less. I learn that in Tamilnadu, the area occupied by forests is just 16%. Thus the scope for stepping up the output of valuable products from the traditional forests is seriously limited.

Further, these forests, almost exclusively owned by the Government as real estates and managed as such, are ill distributed and vastly scattered. This is in sharp contrast to the intimate interspersing of wooded areas and agricultural lands as obtained in the western countries, for instance France



Vice-Chancellor addressing the meeting while Union Minister Maurya is seen looking on from his seat nearest to the rostrum

Thirdly our forests are under-productive—terribly under productive. As opposed to the average wood yield of 3 cubic metres per hectare in the United States, our yield is just 0.5 cubic metre per hectare.

To aggravate the already unenviable situation, the demands of the wood consuming industries have been steadily and steeply increasing since the fifties. The demand for paper and pulp for instance has increased phenomenally. In fact, the acute paucity of paper, particularly newsprint in recent times has been brought into sharp focus by the sudden spurt in the prices of paper, books, note books etc., and the discontinuing of some of the journals for some time. The anticipated demands are still more worrying. Over the next decade the demand for paper and pulp alone in Tamilnadu is expected to treble.

Another aspect which has assumed world importance very recently is the energy crisis. As all of us know, the import of crude has been curtailed drastically due to developments in the world situation and our expenditure on this item has soared very high. Above all, fossil sources of energy, be it petroleum or coal, are limited and there is also the problem of air pollution of which we are becoming increasingly conscious. Nuclear fuel technology is yet to develop to the stage of commercial feasibility. Scientists the world over have started thinking of ways and means of harnessing the abundantly available solar energy through photosynthetic

conversion. We have returned to man's earliest fuel—wood, only this time we are thinking of exploiting it most efficiently and scientifically.

Now, what are we going to do to meet all these problems revolving around the products of the forests? In spite of all the heroic efforts of the different State Departments of Forestry, through planned regeneration of forests, resistance to disafforestation, systematic establishment of new plantations and scientific and controlled extraction of wood, we had not been successful in coping with the increasing demands. Of course, we had not been so successful as we ought to have been, because of the vicious circle of low levels of inputs applied to our forests due to paucity of funds which result in low outputs and perpetuating the cycle.

Under these circumstances, we have only one answer to the problem—tap the farming sector. I want to make it clear at the outset, that when I suggest this course, it does not, however, imply that this should be achieved at the cost of our agricultural production efforts. Far from it. It is my firm belief that trees can successfully co-exist with traditional agricultural crops. It is exactly here agricultural universities enter the picture. They have a great role to play in the future development of forestry along scientific lines in this country.

Let me explain why I suggest tapping the farmer for increasing our areas under forests—or woodlots as it would be appropriate to

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call them when they come down to the plains and get adopted by our farmers. There are two important points favouring this course of action. First and foremost, the area under cultivation in this country is indeed very vast, even though the average size of the individual holding is small. There is thus enormous scope to extend the cultivation of useful tree species suited to the conditions obtained on farm lands. Secondly, the farmer with his traditional background of know-how and intensive caring of a smaller operational area is much better fitted to step up the output from useful trees than the State Departments of Forestry managing vast areas of natural forests. In the latter case there is clearly a dilution of efforts and we don't get our money's worth.

It is thus clear that we have to evolve a mixed economy integrating agriculture and forestry for our prosperity. It is true that traditional farmers may be lukewarm to this suggestion if not openly hostile. But it is upto us to allay their fears as unfounded and demonstrate to them the economic feasibility of tree crop farming. It is

exactly here that the agricultural university comes in.

But, before we can persuade our farmers, particularly the farmers of agriculturally marginal areas to take up tree farming as a component of farming itself, we have to answer several questions, solve many problems and demonstrate conclusively its economic practicability. Raising trees in forests is not such a serious problem. For one thing, it is the main concern of the forest officers and more often the climatic environment is favourable. But, attempting tree farming on farm lands is a different proposition. It cannot be the main concern of a farmer who has to produce food, fodder and fibre and all these in a limiting environment and that too at competitive prices.

It is evident that before we can succeed in our attempt to extend tree crop farming in agricultural lands, we have to work out their agronomy in detail and place it on an economically competing footing. The best agencies for achieving this are the farm universities with their rich know-how and expertise in such useful areas of crop production as

agronomy and soil science. I am sure this Agricultural University will be a pioneer in solving the agronomic problems of tree culture.

Lastly, as sustained production is not possible without sustained research, research of enduring value is not possible without an adequate band of highly trained personnel. Again, it devolves on this University to develop suitable courses to produce graduates and post graduates in forestry science as the time has come for scientists to effectively contribute to the development of forestry. Clearly we have to cast away our attitude of managing a real estate property and engender a professional spirit into the practice of forestry by placing it on its right pedestal of a scientific profession like agriculture, veterinary science and medicine.

I wish the newly started Department of Forestry of this University all success.

Excerpts from the speech of Minister of State Agriculture, Government of India, Thiru. B. P. Maurya, on 11-9-74 at Tamil Nadu Agricultural University, Coimbatore.

THE VICE-CHANCELLOR OUTLINES THE SCOPE OF FOREST SCIENCE

In India about 75 million hectares of land is covered by forests. This is about 22.7% of the total land area and equivalent to about 50% of the cultivated land. While crop husbandry contributes to about 45% of Gross Domestic Product of the country and about 72% of the employment of people, forestry contributes only 1.6% to Gross Domestic Product and only 0.2% to employment. In the coming years the pressure on land is bound to mount and we must take necessary steps to improve the productivity of our land, both under the plough and under the forest. Both forestry and agriculture are inter-dependent and should work in close collaboration with each other. The recent achievements in crop production should lead to a breakthrough in forestry. Towards this end, we must undertake intensive research, training and extension programmes.

At least about 20 to 30 million hectares of cultivable lands should be brought under farm forestry. Shelter belts, wind breaks and soil conservation and preventive measures against wind and water ero-

sions of soils through forestry tree species is very important in improving our agricultural productivity. Extension forestry involving mixed forestry and plantations along roadsides, railwayline collars, canal and tank bunds etc. is to be encouraged. All these needs a strong research base. The National Commission on agriculture has emphasised the need for comprehensive training and research programme in forestry and also the role of the Agricultural Universities in this regard.

In Tamil Nadu, forests occupy only about 16% of the total land area and the productivity of these forests is too inadequate to meet the growing needs of the forest-based industries, such as pulp, paper, tannin, timber, cinchona and sandalwood industries.

In Tamil Nadu along the east-coast farmers are able to get by planting fuel trees, an average income of Rs. 10,000/ per hectare in a period of 5 to 6 years representing an annual income of over Rs. 1,000/- per hectare which is more than double what a farmer would get by raising conventional crops. There is need to evolve quick grow-

ing fuel trees which can be planted on marginal lands.

We have to integrate forestry with crop and animal husbandry, agro-based industry, fisheries and agricultural engineering in this regard. The various departments in the University could undertake research projects in collaboration with Tax new Defit of farm forestry and tump such inter departmental and inter-disciplinary approach, could derive mutual benefits.

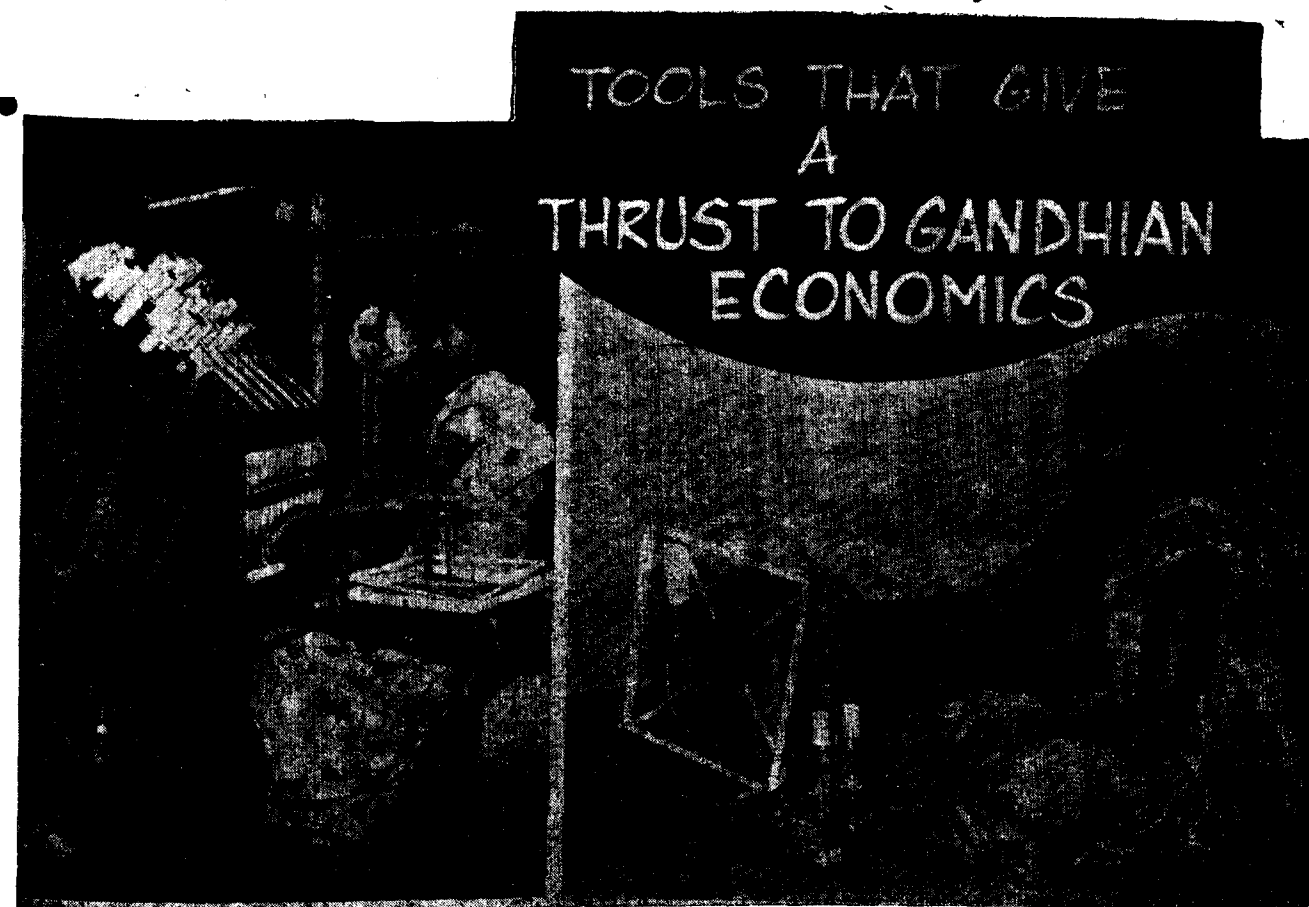
The University needs the support of the State and Centre gifts and the various infrastructures working in problems directly and indirectly connected with Forestry.

The economic prosperity of the country depends on the progress made in efficient utilisation of our natural reforms, for which forestry has to be given importance.

Thiru S. Kondas, Professor of Forestry, welcomed the gathering.

Dr. Gopalakrishnan, Professor of Animal Husbandry, proposed a vote of thanks.

Extracts from the speech of the Vice-Chancellor on the occasion of the opening of the Forest Science Department.



TOOLS THAT GIVE A THRUST TO GANDHIAN ECONOMICS

Mahatma Gandhi once said that one may cheat God, but no one could cheat arithmetic. He was referring to the arithmetic that nearly 80 per cent of the people of India lived and worked and died in the villages and that no programme of economic development could be a national programme unless it took work and wages into the millions of homes in rural areas. It is amusing to look round today and to find out how many of our educated people still labour under the impression that they can cheat this arithmetic of India. Mahatma Gandhi lived in close touch with cities like Bombay and Ahmedabad, full of many big industries. He knew the meaning and challenge of industrialisation. He never, however, sought a confrontation between the big and the small industries. His faith was that cottage and village industries in India, if and when organised adequately, can challenge the big industries not to indulge in profiteering but to serve the rural areas by coming to terms with cottage and village industries. If Gandhiji had lived some years more than he did, he would certainly have shown how this could be done. It is now entirely a matter for wise planning,

this reconciliation of big and small industries in a country like India with its own special conditions and circumstances.

THE REALITIES

No one can run away from the realities of life such as that India is a vast country with the second highest population in the world, now standing at nearly 550 millions. The second reality is that 80 per cent of these millions of our people live in villages scattered over the length and breadth of a vast sub-continent. The majority of them are tillers of the soil. There is no doubt that a few millions of them have come into towns and cities already and will continue to do so. Quite apart from the question whether large migrations of people from rural India to towns and cities are economically sound and worthwhile, it is crystal clear that most of the people will continue to stay in the villages, as far as one can see into the future. The terrific problem as to how adequate work and wages could be taken to the millions of rural homes will therefore continue to challenge

our planners and administrators. It is obvious that the only economic programme which can reach the millions in the rural areas is the programme of khadi and village industries. The Khadi and Village Industries Commission has so far succeeded in taking work and wages to a little more than two million people only. Luckily there are many millions in the rural areas who manage to survive in the area of self-employment. The rock-bottom strength of our nation is still in this vast area of self-employment in the rural areas. But the conditions of life in rural area will deteriorate unless planned and organised work and wages reach them in time. To do this is the challenge before the Government of India and the national planners. **The Khadi and Village Industries Commission has already demonstrated the realistic line of advance in this regard.** The big question is whether the Commission's programme can be enlarged sufficiently and in time to prevent the disaster of a violent revolution. There is enough evidence to show that it can be done. What remains to be proved is that what can be done will be done.



can make some impact on the economic front. Then, village pottery, village ghani and artisans in leather, carpentry and blacksmithy, brick-making, etc. must also get involved in improving the techniques of production, right at the village level. One imperative condition is that improved tools of production should be such, as can be handled by village people without difficulty and served by themselves from time to time. Such tools should not become too big for the village. They have to become as efficient and as big as the village can absorb. More than that would mean that village industries will run away to the nearest towns and cities. This will defeat the central purpose.

BETTER TOOLS

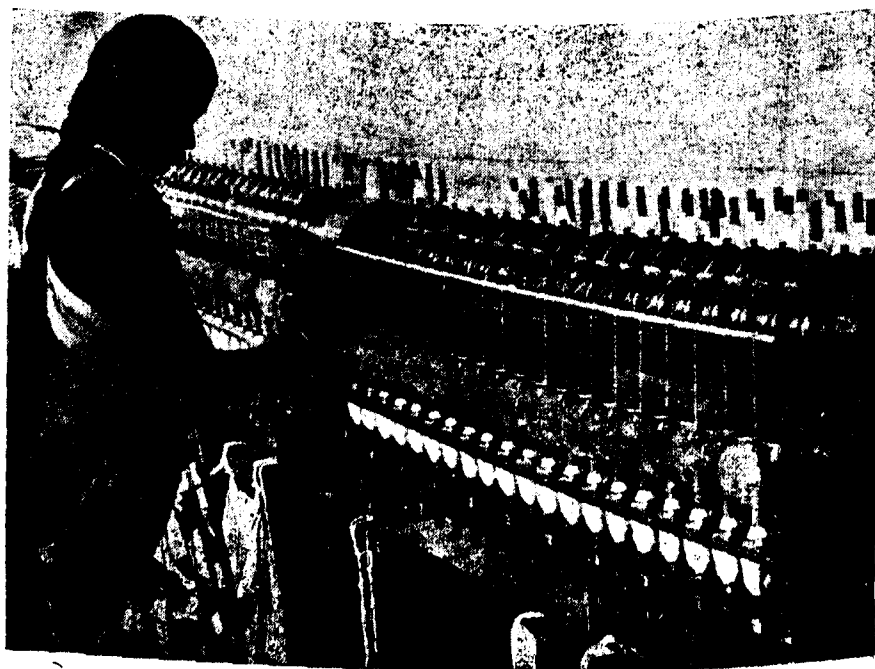
We should cultivate thought and planning to reconcile our big and small industries. We must get rid of the idea that these are essentially contradictory and must weaken each other. We must cultivate the positive idea that the big and small industries can strengthen each other and together can solve the problem of unemployment. We should have the courage to reserve specific areas of production for the big and the small industries. We should not permit the big industries to swallow the small ones. Under wise planning the big industries themselves can strengthen the small industries and vice versa. The late Rajagopalachari's idea that saris and dhotis should be reserved for the handloom was a good one, and was based on the approach that reservation of areas for different types of industries will be more rational than indiscriminate development. The major aim would be employment. But employment has to be at a level where those employed can live a better, richer and fuller life. This means that in the area of small industries, we shall have to evolve better and more efficient tools of production and make these available to every artisan. **There will be no future for cottage and village industries unless improved and more efficient tools reach every village home.** The Ambar Charkha is typical of this effort. The old traditional one-spindle village charkha had to give way to the Ambar Charkha of 6, 12 and even more spindles. We have now nearly two lakhs of Ambar Charkhas in the rural areas. This has to increase ten-fold before we

FREE OF VIOLENCE

Mahatma Gandhi was no enemy of machines. He could not, however, tolerate machines being utilised to exploit labour for capitalist profiteering. He wanted the tools of production to be owned by the producer, either in the cottage or on the basis of village panchayats. **The Gandhian idea of economic development was that no man or woman should be idle, that every village home should produce and become prosperous and happy, and that rural industrialisation should become the biggest prop of agriculture.** This basic idea still remains absolutely sound for a country like India. Big industries must prima-

rily aim at helping the farmer and the village artisan. Farmers and artisans make up the majority of the Indian people. Therefore big industries can have as big a programme of production as they wish, consistent with the imperative that they produce the smaller machines, the consumer goods, etc. which would go into the rural areas. The great reconciliation between big and small industries will save India from the evils both of profiteering capitalism and dictatorial communism. If India succeeds in effecting this reconciliation, she would be holding up the torch for a new social order in the world free of exploitation and violence.

We have had 25 years of Independence. We have done a lot of planning and implementation. We have certainly registered progress in economic development in several directions. We have improved our agriculture and we produce more today in our fields and factories than at any time before in our history. **We knew it before, but we now know it better, that it is not enough to produce somehow but that we should produce in such a way as to enable the millions of our unemployed to get work and wages.**



Rural Textile Loom

* TO HOLD THE WORLD IN SWAY *



The clientele for Khadi has undergone a sea change during the last several years. Gone are the days when khadi was popular with only a particular type of clientele. In recent times, thanks to the constant improvements and innovations introduced in the various stages of the production of khadi, a fresh crop of clientele has grown for khadi which includes trend-conscious teenagers as well as the busy executive and the wear and tear conscious factory hands and the busy housewife. The biggest wind-fall has of course come from the rising export trend established by Khadi Fabrics, which impart a sense of gay abandon in the foreigners induced by their bewitching colours and soft, bady soft texture. Thus the absorption of khadi goods is going up both in home and international markets. The main reason for this revolutionary but welcome change has

been that khadi is now being produced in a very large number of varieties to cater to all types of tastes. Today's khadi is indeed a far cry from the khadi of earlier times. But the fact remains that it is as labour intensive as ever; the difference comes from the fact that a lot more of care and skill as also art goes into the production of khadi fabric.

For those who are already patronising khadi we need not tell them anew about the various varieties of khadi available, but those who are yet to discover khadi in its multifarious hues, exciting textures

By

Thiru M. A. K. TYAB, I.A.S.,

Chief Executive Officer,
Tamil Nadu Khadi and Village
Industries Board.

and tantalizing designs, the basic question that will arise would be 'Is it sensible to buy khadi cloth? Does it suit my pocket?' Further you may ask, 'is the stuff worth what I pay for?' To all these questions the answer is a big affirmative 'YES'.

Regarding the cost of khadi cloth vis-a-vis other clothing material gone are the days when khadi used to be invariably costlier than cloth made in other sectors. In these days of rising prices, if you buy khadi, you do not pay any excise duty and various other taxes, which means a considerable saving to the consumer, because fortunately khadi is exempted from various taxes. In addition to this, there is an element of subsidy allowed to customers of khadi. When both these things are put together the benefit that the consumer enjoys when buying khadi will mean quite a lot.

Wide Product Range

Looking at the wide product range of khadi goods available for the consumer, in addition to all the traditional varieties, there are the finest ones including muslin khadi in all imaginable textures. For men we have pants cloth in various varieties from the ordinary ones like drill, check patterns etc. to eye catching designs and colours which are cheaper than equivalent varieties in mill made cloth. Taking a concrete case khadi drill is available around Rs. 7 and Rural Fabric Centre drill at Rs. 6 per meter, whereas an equivalent mill made cloth may cost Rs. 9 and more per meter. In the case of domestic utility cloth like towels, bedsheets, furnishings etc there are large varieties in khadi which are definitely cheaper than equivalent types made by other sectors. Khadi is easy to maintain, easy to wash and as chic looking as any other cloth. To quote an example khadi readymade slacks are around Rs. 10 and children's baba suit is sold for as low as Rs. 8 and bed sheets (e.g. 6' x 3') start from Rs. 12 and furnishing cloth starts from as low as Rs. 7.50 per meter. You can kindly come and see yourself the amount of saving you can enjoy when you buy khadi slacks, printed varieties like guru shirts and mod jupas which have become the rage among teenagers, both



Ready-made garments at Khadi Kraft, Kuralagam.

boy and girls. They are available in innumerable varieties to suit everybody's imagination and pocket. Regarding the question whether it is worth buying khadi, one can certainly say that it will last as long as any other equivalent mill cloth. The general impression that khadi is costly to maintain and it will not last long is to say the least the figment of imagination of the votaries of 'terylene culture'. We earnestly urge that you may kindly see and discover for yourselves the world of khadi.

See For Yourself

The next question to be answered is that 'Does it satisfy my requirements?' The answer is kindly step into a Khadi Kraft nearest to you where you could see for yourselves innumerable varieties of khadi-designs from modern to the traditional and patterns from classical to upto-date. There are woven designs—prints, checks, plain and dyed—almost all shades of the rainbow. Whether you require a slack or full sleeves it is there. Perhaps your better-half may like to purchase a saree—is it silk or cotton—fancyful readymade garments for your kids—all of them are available in khadi. There is bafta—batic print—kalamkari. For your domestic use, bed spreads, furnishings, towels, dhotis etc.—all these are at your command to satisfy your discriminating taste.

Further, it is no doubt true that the cloth made out of khadi is best suited for the climate like ours. It is comfortable in summer and gives enough warmth in winter. There is absolutely nothing to beat cotton i.e., a neatly pressed outfit to start the day.

ning centres give employment to womenfolk in villages who earn between Rs. 2 to Rs. 3 per day. About 10 to 20% of these artisans are well educated girls who have studied upto S.S.L.C. or P.U.C. for some might have even got a degree but they work in these centres because this work does not uproot them from home and gives them enough to meet the cost of their own livelihood.

As you are well aware, the capital required to offer employment in khadi work is relatively modest and the capital-output ratio is quite favourable. For instance, we run New Model Charkha Units where about 40 persons are employed. At present 400 such units are working in the State. The total production of khadi in the State runs to about Rs. 5 crores which means the per capita consumption is as low as Rs. 1.50. If only everyone buys atleast a dhoti, a slack and a towel per annum costing about Rs. 20 per capita the total production of khadi in the State may have to be raised twenty fold to Rs. 100 crores per annum which will mean that a staggering sum of around Rs. 50 crores could be paid out as wages, which could give gainful employment to thousands of people in the State. So from every angle the use of khadi is very relevant to today's conditions and we are ready to welcome you at any one of our Khadi Krafts and other khadi institutions in the State. There are more than 500 khadi selling units spread all over the State to serve you.



Mobile Khadi Kraft Unit.

A PEEP INTO KHADI PRODUCTION CENTRES



The Government of Tamilnadu took up the Khadi Scheme in 1947 incorporating it as an integral part of the Firka Development Programme with these objects, namely eradication of unemployment and under-employment from the villages, supplementing the income of the agricultural villagers by spinning during leisure hours and thirdly desiring to see that the villagers find self-sufficiency and self-reliance in their cloth requirement.

A statutory Board for Khadi and Village Industries was constituted for the State on 1.4.60. The Department of Khadi of the State Government was transferred to the State Khadi and Village Industries Board on 15-9-60 and since then, all functions of the Department of Khadi are carried on under the purview of the Board. The Village Industries wing of the Department of Industries and Commerce of the Government has also been transferred to the Board and Industrial Co-operative. The Board is now managed by the Chief Executive Officer, Tamilnadu Khadi and Village Industries Board, Madras, with policy guidance from the non-official members, Vice President and President of the Board. For the easy transactions and effective administrative convenience the entire Tamilnadu has been divided into four Regions namely, Madras, Cuddalore, Madurai, and Tirupur and 23 Development Districts in the State. Each Region is headed by a Regional Deputy Director and each district is headed by a District Khadi and Village Industries Officers.

For instance, the Tirupur Development District comprises the following Taluks in Coimbatore Revenue District.

1. Palladam, 2. Udumalpet, 3. Gobichettipalayam. The three Taluks consist of the following 14 Panchayat Unions :—

1. Tirupur; (2) Pongalur ; (3) Palladam; (4) Sular; (5) Sultanpet; (6) Gudimangalam; (7) Udumalpet; (8) Madathukulam; (9) Gobichettipalayam; (10) Thookkanaickenpalayam; (11) Nambiyur ; (12) Sathiamangalam ; (13) Bhavani-sagar; (14) Thalavadi.

FUNCTIONS

The Schemes of the Board are mainly divided into three categories. They are Khadi, Village Industries, and Industrial Co-operative Schemes. The details of the functioning of these schemes are dealt hereunder.

I. KHADI SCHEME

Under Khadi Scheme cotton is made into cloth by various process through Village Artisans such as spinners, carders, weavers, dyers and printers. In the District level, the District Khadi and Village Industries Officer, is assisted by a Centre Khadi Officer in the place of Khadi Inspector in the side of productions and sales of Khadi.

WORK OF TIRUPUR DEVELOPMENT BLOCK

This Development District being a heavy Khadi production areas is consisted of two Khadi Centres, one at Tirupur and another at Perumannallur with separate jurisdiction headed by one Centre Khadi Officer in each. The production and manufacturing units and the Sales Depots in each centre are completely in-charge of the respective Centre Khadi Officers. There are 11 Khadi Sub-Centres and 5 Khadi Krafts in this Development District.

COTTON

Cotton which is the basic raw materials for spinning of yarn, is purchased in the form of lint through purchase Committee of the Board and supplied to the Sub-Centres.

SLIVERING UNIT : TIRUPUR

In this unit, cotton is being carded and readymade slivers are produced for supply to the Kisan Spinners. This unit was started only during January 74.

KISAN YARN

To start with, spinners are controlled for production of the coarse Kisan yarn at their spare time.



To this day Kisan spinners are the largest category of beneficiaries of the Khadi Board's activities. Each spinner gets about Rs. 2.25 to Rs. 3.00 per day.

Yearly about five lakhs of Kisan yarn are produced involving Rs. 1,56,680 as wages paid to 1337 artisans.

FIELD AMBAR CHARKHA YARN

The disadvantages with the Kisan charkhas being unpredictable count, unevenness of yarn and poor output per unit time and the customer preference being for the finer yarned clothes the spindles were increased from one to two and then four. A wooden charkha with 6 spindles called the Ambar Charkhas was introduced later into the field. Each spinner gets about from Rs. 3 to 4.00 per day.

In the following places, field Ambar charkhas are now plying : Sular, Gudimangalam, Perumanallur Getticheyur, Kavilipalayam, and Vemandampalayam.

Yearly about 2 lakhs of Ambar field yarn are being produced involving Rs. 60,200 rupees of wages to 151 artisans.

TWO SPINDLED CHARKHA YARN

This charkha is an improved one from the old traditional Kisan charkha. Two spindle charkha centre is functioning in this District at Kumaranagar. Each set of charkha consists of 75 charkhas. Usually one artisan can spin 3 to 4 hanks per day for 8 hours in the traditional Kisan charkhas. In this two spindle charkha one artisan can spin 6 to 8 per day for 8 hours. Each spinner gets about from Rs. 2 to 3.00 per day.

Yearly about 1.50 lakhs yards of yarn are produced involving Rs. 36,000 of wages payable to 1100 artisans.

RURAL TEXTILE CENTRE YARN (6 SPINDLES)

The main object of the Rural Textile centre is to produce the uniform hanks required for weaving through all metal 6 spindle charkhas in one common place and provide employment to the Village artisans. Each spinners gets about to Rs. 2.00 to 3.50 per day.

There are 24 Rural Textile Centres now functioning in this Development District as follows spinning both coarse and fine count of yarns.

Name of the Place	No. of units
1. Kumara Nagar ..	2
2. Annupparpalayam ..	2
3. Sular I ..	1
4. Sular II ..	3
5. Irugur ..	2
6. Pattanampudur ..	1
7. Palladam ..	1
8. Poolavadi ..	1
9. Periapatty ..	1
10. Perumanallur I ..	3
11. Perumanallur II ..	1
12. Peramasivampalayam ..	1
13. Thulukkamuthur ..	1
14. Kavilipalayam ..	1
15. Appiapalayam ..	1
16. Vavipalayam ..	1
17. Malliampatty ..	1
Total.	24

Yearly about 25 lakhs of Rural Textile Centres yarn are produced involving 3,35,000 rupees of wages payable to 840 artisans.

12. SPINDLE CHARKHA CENTRE YARN

These charkhas are pedalled by legs. There are 12 spindles in this charkha. These charkhas are of an improved one from the 6 spindle charkhas. One spinner can spin 35 to 40 hanks per day for 8 hours. Each spinner gets about from Rs. 3.50 to 4.00 per day.

There are three 12 spindle charkha centres now functioning in the following places spinning only coarse count yarn.

1. Tirupur ..	2 Units
2. Perumanallur ..	1 Unit
Total ..	3 Units.

Yearly about 5.75 lakhs of yarn are produced involving 60,375 rupees of wages paid to 82 artisans.

1. Khadi Production centre

The Main functions of the Khadi production centres are to purchase hanks from Kisan Spinners and Ambar Spinners and to produce Khadi cloth by issuing the purchased hanks to the weavers. Conducting of the Rural Textile Centres is also the main function of this units.

There are 11 Khadi Production centre now functioning in this District in the following places :—

Tirupur, Sular, Pongalur, Amarvathipalayam, Gudimangalam, Madathukulam, Perumanallur, Getticheyur, Kavilipalayam, Vemandampalayam and Bhavanisagar.

Yearly about 8 lakhs of metres of Khadi cloth involving 90,000 rupees of wages payable to 400 weavers are being produced. Each weaver gets about from Rs. 7 to 10 per day.

Tailoring Units—Tirupur

This is one of the two big Tailoring units functioning under Tamilnadu Khadi and Village Industries Board, the other being located at Madras. This unit was started with an idea of converting bits into ready-made garments. Now it is functioning as manufacturing unit of good readymade garments with the modern taste. The ready-made garments produced in this unit are being distributed for Sales through the various Khadi Krafts attached to the Tamilnadu Khadi and Village Industries Board.

Yearly about 50,000 Nos. of various readymade garments are being produced with an average earnings of 9000 rupees by 16 tailors.

3. Quilt Unit—Tirupur

This unit was started on 2-10-73. Attractive Mattresses and Pillows are being produced in Dunlop model using pure silk cotton. There are great demand for mattress and pillows produced in this unit.

4. Banian Unit

A Khadi Banian unit has been newly sanctioned to this Development District. Action is being taken to purchase machines and also to get the yarn of such qualities required for Banian manufacturing through Common spinning centre.

INDUSTRIAL CO-OPERATIVE

Village Oil Industry

Under the Industry there are 5 working societies in this Development District namely :—

1. Kadambaio Oil Producers Co-operative society;
2. Kaduvettipalayam Oil Producers Co-operative Society;
3. Pattampalayam Oil Producers Co-operative Society;
4. Elathur Chettipalayam Oil Producers Co-operative Society and
5. Vemandampalayam Oil Producers Co-operative Society.

These Societies are functioning well and they are producing oil and oil cake by country chekku. By virtue of this fact the villagers (i.e. workers members) get full time employment and earn reasonable wages for their livelihood. These societies are functioning with a paid-up share capital of Rs. 20517. There are 142 members on the roll of these societies. Almost all the members are getting employment from these societies.

Handpounding of Paddy Industry

There are 2 Handpounding of Paddy Workers Co-operative Societies functioning in this Development District on sound line in having a total of 73 members with a paid-up share capital of Rs. 2483. The above members are depending upon these societies for employment and livelihood. These societies are also providing employment to them without any lapse of time. These societies are producing handpounded rice and selling them to the departmental institutions such as Government Hospitals, Jail, Hostels and Gramodyog Sales Depots etc.

Carpentry and Blacksmithy Industry

There are two Carpentry and Blacksmithy Workers Co-operative Societies functioning in this Development District namely :—

1. Sathyamangalam Carpentry and Blacksmithy Co-operative society and
2. Sular Carpentry and Blacksmithy Co-operative society.

There are 210 members with a paid-up share-capital of Rs.22,997. These societies are producing wood-

en articles such as chairs, stools, cots, tables etc., and Iron articles especially trusses. These societies are getting orders from private persons, firms, Panchayat Unions, Municipalities etc. and dispose the orders as early as possible. The Sular Carpentry and Blacksmithy Workers Co-operative society is one of the best societies in this State and carried a profit of Rs. 24,000 in the Audit year 1973-74.

Leather Industry

There is only one Leather Tanners Co-operative society in this Development District namely : Palladam Leather Tanners Co-operative society. There are 29 members with a paid-up share-capital of Rs. 2085. This society is formed only to the welfare of Harijan members. This society provides facilities to the members by purchasing raw materials and giving places to tan the raw hides. It is financed by the Harijan Welfare Department by way of loans and grants in addition to the loans and grants provided by the Board.

Pottery Industry

The Elathur Pottery Workers Co-operative society is the only Pottery Workers Co-operative society functioning in this Development District. There are 20 members with a paid-up Share-capital of Rs. 2,000. This is purely a service co-operative society. The members produces are sold though this society. The members are provided with loans and grants for the purchase of their requisite implements by the Tamilnadu Khadi and Village Industries Board. The society collects commission charges from the purchasing party for the sale of members produces.

Jaggery Manufacture Co-operative society

There are 42 Jaggery Manufacturing Co-operative societies in this Development District The main function of these Societies are of giving employment and livelihood to the Village Tappers. Neera for sale and Jaggery are produced by these societies and sold through the District Federation.

Yearly, there will be a production of Jaggery to the tune of Rs. 13,18,076 and giving full time employment to 12,118 artisans in this Development District. *

ECONOMY IN THE USE OF CEMENT

ORDER REGULATING THE USE OF CEMENT ISSUED

In the context of acute and continuing shortage in the availability of cement, the question of confining its use to the essential sectors of the economy has been under consideration of the Government of India for some time. In the light of the continuing constraints on maximising production it has been considered expedient to restrict the use of cement to the more essential areas taking into account the use of alternative materials wherever technically and functionally possible.

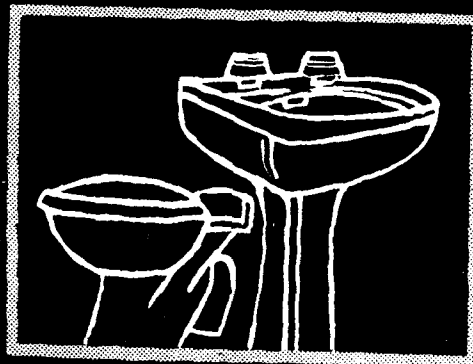
The Government of India have, therefore, issued under the Essential Commodities Act 1955, an order called the Cement (Conservation and Regulation of use) Order 1974 banning the use of cement for the construction of :

- i. building intended for Theatre or Cinema house or an office ;
- ii. Residential hotel, restaurant or eating house ;
- iii. shop and
- iv. any road or pavement.

This order shall come into force on the 22nd day of August, 1974 and remain in force for a period of one year. It has been extended to whole of India.

According to this order the use of cement should be totally banned for a period of one year in the construction of the following buildings, both in the public and private sectors, which had not been started or which had not proceeded beyond the plinth level ; viz.

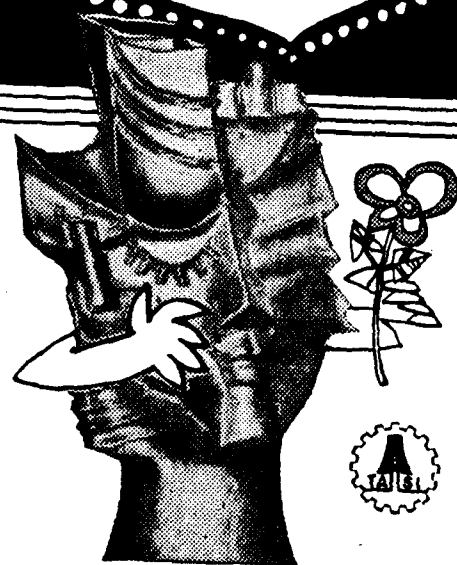
- i. Building intended to be used as an office, theatre or cinema house;
- ii. Residential hotel, restaurant or eating house ;
- iii. Shop ; and
- iv. Any road or pavement.



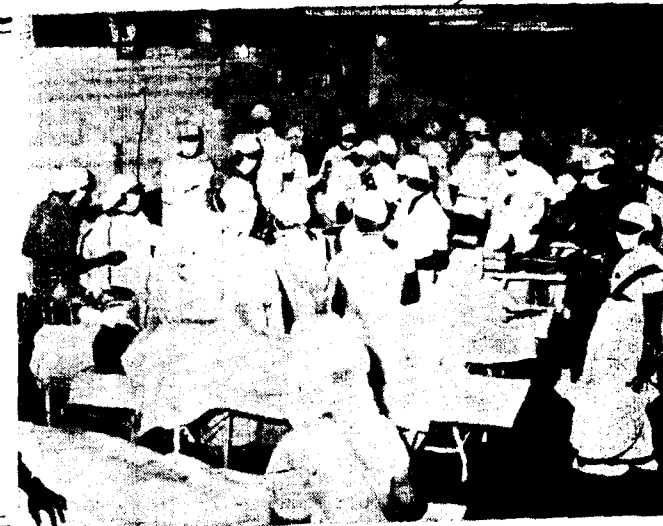
You have a crush on ceramics? TANSI is the place to find them! Dandy flower vases which add beauty to flowers themselves. Decorative ceramic wall hangings, sophisticated tea-sets in vivid or dreamy pastel shades. Lavish your bathrooms with sheeny, shiny sanitary fixtures. Love them - Buy them. Loveliest things would happen at your home.

TAMIL NADU SMALL INDUSTRIES CORPORATION LTD.,
ARUL MANAI 26, WHITES ROAD MADRAS-14.

LOVE ME
TOO, DEAR



ANATOMY OF EYE- CAMP PROJECT IN TAMIL NADU



In recent years revolutions in the ideas about health and medicine are being accepted gradually. It is now considered a fundamental right for any human being in any part of the world to get the basic needs for leading a healthy life. The human body, as any other machine, needs proper food for its working, growth, maintenance and repair. For the maximum use of the human body, proper maintenance is important. Not only the person must be free from diseases, but also must enjoy positive health.

In the last ten or fifteen years, great advances have been made in the field of Medicine to discover diseases early and treat them properly. They are trying to replace the parts of the body like the kidney, heart, lungs, etc., to give longer life to the diseased person. All the modern discoveries in Science and Technology are utilised for the health care of the individual. The West Indians living in the remote areas, of U.S. modern treatment from a city Hospital can be given now by television arrangement. A television camera is at the West Indian's settlement and the patient can be focussed by this camera. An expert Doctor sitting in a Hospital 200 miles away can see what is wrong with him, diagnose the disease and advise treatment.

Countries like India have been following advanced countries in providing hospitals in big cities. The money available in the health budget is mainly spent in urban areas for health and medicine. The great majority of people living in

rural areas have not had any benefit in medical treatment or preventive health measures. In China in the recent years a high percentage of health budget has been used for improving the health conditions of the rural people. Dr. Halfdan Mahler, Director-General of the World Health Organisation, said that China "has shown how much can be done if you put an almost obsessional emphasis on preventive activities, and I really think we have forgotten that a bit in the West".

The Great Awakening

The Chief Minister's Eye Camp Project is a great endeavour to take modern Medicine in eye treatment to the rural areas in the Tamil Nadu State. For a superficial observer it is very difficult to understand the important implications of this programme. This is the first time as integrated effort has been made by the Revenue, Development and Medical Departments to attack this problem of eye diseases and blindness. Specialists who have been mostly in big Hospitals in cities are being mobilised to give their services to the people in the rural areas. A great awareness has been created among all the people that people need not be unnecessarily blind and they can get their sight restored near

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their homes. Also, the eye camps have shown that without spending much capital expenditure needed for building big eye hospitals, eye sight can be restored to thousands of people with the existing buildings like school buildings, college buildings, etc. If we have to build eye hospitals to operate all these patients, it will cost at least ten to twenty crores of rupees. It will take several year also. This is the first time a community approach in Medicine is put into practice on a big scale. Till now the doctor and the administrators were satisfied that people who came to hospitals were given the treatment. The modern idea is that all the people in the community must be cured of their diseases whether they are able to reach the Hospital or not. Then only the working efficiency will be high and the production also will be high.

Not By Hospitals Alone

Providing facilities like building hospitals alone will not make the people healthy. It is necessary to get the people involved in this programme. The person must be made aware of the diseases caused by deficiency and he must be motivated to seek relief. In spite of providing all the modern scientific medical treatment, people still cling on to quack remedies and magic cures. It is essential that people must be educated on modern scientific ideas about the diseases, their early recognition and treatment. For the green revolution, propaganda through radio is given about plant diseases, their causes, signs and their treatment. In the same way, radio and other

A STUDY IN PICTURES OF AN EYE-CAMP



Right:—A young blind girl is led by a volunteer.

Below:—Preliminary preparations for the operation (Left) and Local ANAESTHESIA (Right).



Picture Below:— Operation in Progress (Left) and Transportation of Operated Patient to ward (Right)



mass communications could be used to inform people about the common diseases, their causes, their symptoms and signs and their management. The more the people are involved, the greater is the understanding of diseases. In Europe when discoveries were made about causation of diseases like cholera, typhoid, smallpox, etc., it was the people who decided to prevent them by providing proper water supply, immunisation, etc. So, as it is done for the green revolution, involvement of the people is essential. The leaders of the community must take active part in health campaigns.

TOTAL EYE-RELIEF

Gopichettipalayam in Coimbatore District satisfied all these. Thiru K. Muthuvelappa Gounder, a great philanthropist, has been helping us to conduct eye camps for the last several years. The entire Seetha Kalyana Mahal is given at our disposal for the conduct of the camps and his staff take part in the camp work. The Revenue and Development officials did intense propaganda in villages to screen the patients. Even from remote villages in Thalavadi Block, nearly 100 patients came. This year special emphasis was made to improve the quality of operations, so that complications will be minimised. This year we operated 609 cataract cases and there were hardly more than three cases with complications. Even for a big Hospital, this is a great record. **In the camps, it is not only the patients with cataract we operate, but all eye diseases are treated.** People who need glasses are tested and prescribed glasses. Everybody is screened for glaucoma and patients with glaucoma are given medical treatment. Infections of the lacrimal sac are operated. So, it is a total eye relief that is provided at these camps.

Attempts are being made to train Block Development staff-Gramasevaks, Gramasevikas, Auxillary Nurses, etc.,—to identify people with poor vision. Sometimes a person Nurses, etc.,—to identify people who has got good vision in one eye and poor vision in the other eye is not aware of the defect in one eye. When screening is done by Gramasevaks, these people become aware of their eye troubles and seek eye

relief. The Gramasevaks also have a sense of participation in the eye relief and have the job satisfaction.

Even in teaching hospitals annually the number of operations done and the patients treated each year may not equal this number. **Roughly to maintain a patient as an in-patient in a teaching Hospital, it costs more than Rs. 40/-a day, but in the camp, it costs only Rs. 7/- or 8/- including medicines, etc.**

Sometimes, there is a disappointment in the staff that all patients screened and found to have cataract are not willing for operations. This is a problem seen in all the countries. Anybody will be afraid of operations, especially in the eye. The pain

and discomfort is one of the important factors preventing a man from coming for operation. Also the small amount of failure in surgery may frighten the patient that similar failure may occur in his case also. Persistent propaganda will gradually lessen this fear and more and more patients will come. All efforts are being made to improve the quality of operations and lessen the operative pain, etc.

We are extremely thankful to the Chief Minister, Dr. Kalaignar M. Karunanidhi for starting this massive Eye Camp Project. We are also thankful to all the District Collectors, Revenue and Development Officials who have taken great pains to make this Project a success.

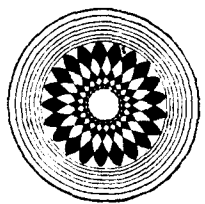
The following table gives the number of cataract operations done and the patients treated each year in Gobichettipalayam

Year	No. of outpatients examined	No. of cataract operation done.	No. of glass prescriptions given.	No. of minor operations done.
1968	3,593	565	982	69
1969	6,532	1,092	853	26
1970	5,438	1,034	540	85
1971	5,875	1,130	898	69
1972	10,655	2,102	1,421	49
1973a	1,628	278	96	—
1973b	5,778	785	789	17
1974	4,444	609	365	34
Total	43,943	7,686	5,944	349

Jobs For Locals



Guide Lines To Employers In Tamil Nadu



Objectives Of National Integration Council To be Fulfilled.

Thiru. R. PASUPATHI,
Secretary to Government,
Labour and Employment Department.

The question of the approach to be adopted in the matter of employment of local persons in the public and the private sector undertakings has figured prominently in the recent past. The National Integration Council's recommendation on this issue is :

"In order that adequate employment opportunities are available to local people and they do not suffer from a sense of injustice, where qualified local persons are available from among the people of the State, they should be given a major share of the employment and employers should be requested to give effect to this objective, as a matter of policy." In pursuance of this recommendation, it is seen that some State Governments have issued appeals to the various employers to recruit only "local persons" to not less than 80 per cent of the jobs.

You may be well aware that the problem of unemployment has of late assumed enormous proportions in our Nation; the large scale increase of unemployment among the persons of this State is a matter of serious concern to the Government of Tamil Nadu. Several schemes have been executed to meet this unemployment problem in this State; but appreciable headway has not been made in this regard. The migration of rural population to urban centres and, in particular, to the urban centres in search of jobs has added to the gravity of the situation and has also tended to complicate the problem. There is a legitimate feeling among the people in this State that whatever employment potential has been generated in the State has not benefited the local population to the extent desirable and necessary.

Such a feeling among the people will have a detrimental effect on industrial relations. If however local candidates having the requisite merit and suitability are given preference in employment in the industries in the State as envisaged by the National Integration Council, not only would this feeling be removed, but it would also create an atmosphere for further development of the industries.

In this background, the need for giving priority to "local persons" in employment has been engaging the attention of the Government. It would be reasonable to say that a person is a "local person" if he has been living continuously in Tamil Nadu for the past fifteen years and more, or can claim his

nativity and origin to the State of Tamil Nadu. There are several persons of linguistic minorities in the State whose mother-tongue is other than Tamil but who have been domiciled in the State of Tamil Nadu for several decades. The mother-tongue of these minority communities may be Telugu, Malayalam, Kannada, English, Urdu, etc. All these persons who would satisfy the qualifications mentioned above, will come under the definition of "local persons".

This Government is of the firm opinion that the above objective of the National Integration Council can be achieved by giving preference to local people in regard to the new employment opportunities that would arise. They, therefore, feel that every effort should be made to recruit "local persons" to not less than 80 per cent of the jobs in the technical and non-technical, supervisory and non-supervisory categories. As there are very good educational and training facilities in the State, it should be possible to recruit local persons from within the State to man the posts upto the above-mentioned per centage.

The Government are aware that in the existing units, it may take some time to bring the recruitment of local persons to the above-mentioned level. It is therefore Government's desire that while making future recruitments, greater preference will be given to the local persons so that the number recruited constitute a per centage higher than what is mentioned above.

To achieve the objective set forth above, Government consider that it will be of great help to the employers and the employees, if the Personnel/Administrative Officer is a "local person", as it will enable a better rapport with all concerned.

It is not the intention of Government to interfere with the internal matters of your concern; but in view of the policy enunciated by the National Integration Council and the larger interests as stated above, we trust that you would co-operate fully in fulfilling the objective referred to earlier in this appeal. The Government expect that over the years, this step would create a greater sense of satisfaction among the people and would relieve the social tensions and would bring out an atmosphere of amity and confidence which is so very conducive to the speedy development of the Nation and they accordingly request your sincere and whole-hearted co-operation in this endeavour.

SPECIAL SCHEMES TO BENEFIT HARIJANS

The newly formed cadre of District Development Officers have been enjoined to devote special attention to local schemes which tend to benefit Harijans in their respective areas. On receiving such an assurance the Secretary of Rural Development Department congratulated them on their enthusiastic acceptance of stipulation.

All this happened during the Regional Conference of Panchayat Union Chairmen, Commissioners, Divisional Development Officers, Personal Assistants (Panchayat Development) to the Collectors of Tirunelveli, Madurai and Ramanathapuram, which was held at Courtallam on 4th and 5th August, 1974, to discuss the field problems relating to Panchayat Development, with special reference to the above three districts. Local Administration Minister Thiru A.P. Dharmalingam inaugurated the Conference. Thiru M. M. Rajendran, Secretary to Government, Rural Development and Local Administration Department presided over the Conference and guided the deliberations on both the days. Panchayat Union Chairmen and Commissioners from 97 Panchayat Unions (Tirunelveli 31, Madurai 34, Ramanathapuram 32) participated in the Conference. Thiru V.D. Durairaj, Collector of Tirunelveli, Thiru U.S. Natarajan, Collector of Madurai, Thiru A. K. Venkatasubramanian, Collector of Ramanathapuram, concerned officials from Rural Development and Local Administration Department of the Secretariat, Directorate of Rural Development and representatives of the Heads of Departments relating to Rural Development, attended the Conference. Thiru T. V. Vasudevan, Director of Rural Development, welcomed the gathering.

Initiating the discussion, the Minister for Local Administration, pointed out that Dr. Anna has already laid down the principle that the policy makers should have free exchange of views and share experiences with the officials of the Government on the programmes meant for the welfare of the people



and to implement them more effectively. The present Chief Minister Dr. Kalaignar is following the footsteps of Dr. Anna and is implementing the various schemes more dynamically, the Minister added. He cited certain orders recently issued by the Government giving more powers to the Collectors for the utilisation of surplus funds of Panchayat Unions suitably in their respective area of jurisdiction.

Thiru M. M. Rajendran, Secretary to Government, Rural Development and Local Administration Department, in his key-note address, pointed out that the Government can now fully realise the day-to-day problems of Panchayats and Panchayat Unions only through such Conferences where the Panchayat Union Chairmen are assembled and hence much importance has been attached to their views and experiences for careful study and implementation by the Government. The Government of Tamil Nadu have the reputation of evolving the development policy only after careful consideration and scrutiny. He explained in this connection that certain States in India have made district level agencies responsible for implementing Panchayat Development Programmes, and this has resulted in many problems. But the Government of Tamil Nadu have been very cautious in this regard and therefore, the District Development Councils have been made only advisory bodies and consequently, the Panchayat Development administration in Tamil Nadu is very smooth and efficient. This has been appreciated by a few State Governments in India.

The Conference made certain suggestions on the following subjects :

1. For more efficient functioning of the newly formed Divisional Development Offices,
2. For fixing the responsibility on all the officials concerned, regarding audit objections,
3. For Co-ordinating the work of officials in the field of Agriculture, Animal Husbandry, Co-operation and Education, etc., and
4. For more dynamic implementation of the schemes, benefiting the Harijans, Family Planning, Small Savings, etc., in Panchayat Unions.

In his concluding remarks, the Secretary, Rural Development and Local Administration Department, pointed out that the suggestions made at the Conference will be considered by the Government. In particular, he appreciated the assurance given by the Panchayat Development Officers for handling subjects like Harijan Welfare, Family Planning, etc. In regard to audit, he has mentioned that a Hand Book giving necessary guidance on audit for Office use will be prepared and supplied.

Hon'ble Minister for Local Administration thanked the officials and non-officials for the valuable suggestions offered by them and added that the Conference of this nature will certainly help those at the helm of affairs to know the problems faced by the executive staff in the field and mutual exchange of views and experiences will pave the way for expediting the implementation of welfare schemes intended for the people.

INDIAN SATELLITE

WILL BE READY SOON

Indian scientists and engineers are making the country's first scientific satellite at Indian Institute of Science near Bangalore City. The Satellite, which is being designed, fabricated, assembled and tested by them, will be launched by a Soviet rocket from the Soviet Union towards the end of this year.

The experience in designing and building this satellite will enable our scientists to undertake the development of bigger and more sophisticated satellites. They will be used for various applications, like communications, meteorology and remote sensing, by which resources on the land and sea can be detected.

The first satellite will have three important experiments of a scientific nature. One relates to the study of X-rays from outer space. Another experiment studies the sun while the third will give data on the ionosphere which reflects radiowaves. These experiments are among the most modern ones of their kind and their results are eagerly awaited by the world's scientific community.

Building a satellite is a highly sophisticated job, since every part of it will have to be tested and re-tested and made space-worthy. For example, the outer skin of the satellite should be able to withstand very high fluctuation in temperature ranging from 150 degree C to minus 100 degree C. But the inside temperature should remain more or less constant. This is achieved by making the inside material of the satellite absorb and reflect the heat produced.

Indian scientists will issue commands to the satellite. The data will be recorded both in the Soviet Union and in Sriharikota in Andhra Pradesh, where a space centre is coming up.

In order to gain time, the Soviet Union has helped India by giving certain parts like tape-recorders and solar cells for the satellite.

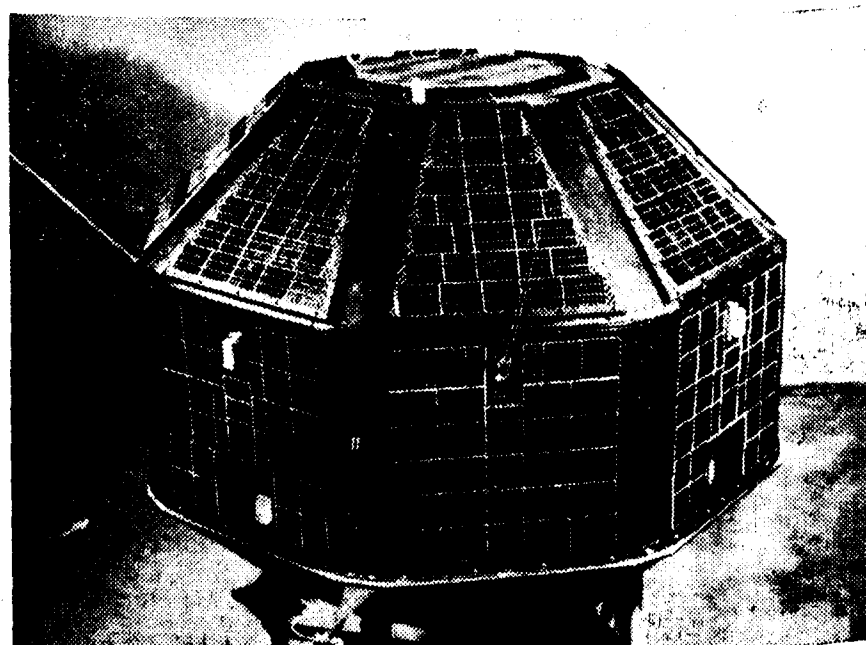
The satellite, weighing about 300 kilograms, will go round the earth in a circular orbit of 600 kilometres. It will take about 93 minutes to complete one orbit.

Communications between the satellite and the ground station have been tested successfully with the help of a helicopter. After mechanical and electrical tests, the flight model will be made and sent to the Soviet launch pad.

ROCKET SUB-SYSTEMS TESTED

Indian space engineers have started testing the sub-systems that would go in the country's first satellite launching rocket, called SLV-3. The payload functioned well. Several more components will be flight-tested from Thumba and the eastern launch centre at Sriharikota, using smaller rockets. The systematic check-out of the sub-systems will ensure the success of the big rocket, SLV-3, due for launch by 1978. It will put a 40 Kg. satellite into a near-earth orbit of 400 Km.

Another interesting development was the inaugural launch of Centaure II B, the first such version of the series known by this name. Made in Thumba, it reached an altitude of about 120 km. It was tracked completely by the radar and other equipment which obtained good signals throughout the flight.



The photo showing satellite design fabricated at the Indian Institute of Science near Bangalore.

The Director of the first Indian Satellite Project Dr. U. R. Rao says : "Generally speaking, this country's space research programme was launched in 1962 with the creation of the National Committee for Cosmic Research. The foundations of the space programme were laid by the late Dr. Vikram Sarabhai, under whose guidance the designing of the satellite was begun."

"From the very first days of our work," went on Dr. Rao, "we have been receiving enormous, I would say, invaluable assistance from our Soviet friends."

Asked about the concrete aims of the project, Dr. Rao said :

"The satellite, weighing 300 kilograms, will be put in an orbit 600 kilometres from the earth. Its purpose is to carry out scientific experiments in X-ray astronomy, solar neutrons and gamma-quantums during different periods of activity of the sun and in ionospheric research. Along with scientific instruments made in India, the satellite will carry Soviet-made equipment which we do not yet manufacture : tape recorders for recording the results of the studies, chemical and solar batteries, systems for spinstabilizing the satellite in orbit. The final results of scientific experiments will be made available to world science."

BOOKS

MAY

BE

YOUR

FRIENDS

BUT

THEY

HAVE

MANY

ENEMIES



By

S. THANGAVELU

The enemies of books and paper materials are many. The deterioration caused by biological agents i.e., insects and micro-organisms is a serious problem. Sometimes the damage caused to the precious book collection is irretrievable, in spite of the most modern restoration techniques. Grave damage suffered by valuable historical documents has forced many scientists to take up scientific investigation of the habits of these insects side by side with methods for restoration of the damages. It is always essential to study the type of damage and its prevention before the actual restoration work could be undertaken.

It is surprising but true that insects have destroyed more books and papers than have fire and water. Insects such as silverfish, cockroaches, termites, booklice, black beetle and woodworm are the worst destroyers of books.

Silverfish.—It is 8 to 10mm long, light-shy, silver or pearly grey in colour. Frequently found in libraries and archives, they show particular affinity for bleached wood pulp paper, flour glue, photographic gelatine and for some textile fibres. Generally they penetrate books through the back which offers them flour-glue as food. These insects do not multiply rapidly but are difficult to eradicate. The life cycle is 2-3 years. Silverfish find ideal conditions for growth and reproduction in places where the temperature varies between 16°C and 24°C and humidity is greater than 55%. On paper they produce superficial erosions of irregular shape. When they are in large numbers they cause considerable damage.

Cockroach.—The cockroach is well known as house-hold pest. It is dark brown in colour having two protruding antennae. It avoids light and hides in dark places during day time, and comes out at night in search of food. Its flat body enables it to creep into narrow crevices. It is omnivorous. It feeds mainly on vegetable and animal matter. It likes sweetened starchy materials. It causes much damage to the wrappers of books, paper, leather, silk, etc. It deposits dark brown egg case, each containing 16 eggs arranged in two rows of eight each. No care is taken by

the parents in guarding and incubating the eggs. The eggs after hatching give rise to small insects which do not resemble the adult. After undergoing several moultings these very small insects attain the adult stage. Cockroaches breed throughout the year but reproductive activity is much reduced during cold weather.

Termites.—The termites are polymorphic and live in communities leading a social life in galleries inside mounds of earth known as termitaria. Of the several types of termites, some are winged and others are not. The winged ones are the reproductive termites, males or females; they are known as kings and queens. Wings are present for a short period, and used only once during the life-time in 'nuptial flight' before mating. The mating however takes place not in mid air during "nuptial flight" but on the ground after the males and females have shed the wings of "nuptial flight". Most of the males perish and the few that survive start new colonies along with other winged females. The wingless ones are the undeveloped males and females, and they are sterile. Among them, there are two well-defined classes called the workers and soldiers. The workers attend to various kinds of work like nest-building, the care of the young, food production and distribution. The soldiers defend the colony from intruders.

Among all the insects that damage wood and cellulosic materials, viz., paper, pulp board etc, termites are the most dangerous. Termites, usually build their nest in the ground and extend them into timber work and buildings. They construct mud covered runways over bricks and concrete, have a marked aversion to light and work in concealment. The infestation of this species is usually detected only when it has become severe and considerable damage has been done to the stored materials. Colonies which have infested beams or bookshelves in libraries soon invade books and documents, generally commencing their devastating work at the surfaces which are in con-

tact with the shelves. Their extreme infestation is indicated by the emergence of a large number of flying termites during rains. A warning that white ants are around, is the branching shelter tubes or mud covered runways on foundation walls reaching from the ground to the wood-work or over the surface of stones, bricks, etc which these insects cannot burrow.

Killing the live insects visible in the material is of little help since the reproductive rate is astonishingly high in this species. A female queen produces thirty thousand eggs a day on an average. Damage to building etc, can only be checked if measures are taken to isolate the buildings by digging a trench outside the foundation wall, and filling it with chemicals like coal-tar and creosote oil. Extermination of the colony itself is also necessary. Such measures for white ant eradication often require considerable experience and have perhaps to be attended to by experts in the line.

Termites in all mediterranean countries constitute a grave and continuing menace to the national heritage of libraries and archives. The struggle against them must be carried out by all rational means, both by preventing their attack with technical devices (anti-termite constructions) and by subsequent extermination (elimination of infested material, fighting by chemical means, etc.) when an infestation of even modest proportions is discovered.

Woodworm.—Certain species deposit their eggs in small hollows in the wood of bookshelves and in the edges and specially the back of books. The whitish, worm like larva which comes out of the eggs excavates galleries perfectly circular in section, having a diameter which varies between 2mm and 5mm (characteristics for each species) and a winding and irregular course. The larva, after having undergone a certain number of changes, constructs with the destruction of the paper or wood, a small cocoon in which it changes first to a nymph and then into adult insect. This breaks the thin wall separating it from the outside world (the back and sides of the book), it then escapes, leaving as traces of its existence

those characteristic round holes which are very often seen in wood and books, makes a brief flight, lays its eggs and after a few days, dies.

The life cycle lasts 1-3 years, and in some cases even more than 4 years. In warm surroundings more than one generation may occur. These insects develop best at temperatures of 24-28°C but can resist temperatures as low as 8-9° and high as 40°C.

Certain other species deposit eggs in sheltered or concealed places from which, after several days, the young whitish worm-like larva emerges to excavate galleries of oval section in wood, paper etc. After a series of changes, the larva first becomes a nymph and then an adult which emerges, makes a brief flight, deposits its eggs and dies. Its life cycle is one year.

Black Beetles.—These insects deposit their eggs in small cracks in walls in dark, warm and damp places. The life cycle lasts for a period of time varying with different species (from a minimum of 5-6 months to a maximum of several years).

In library and archival material they do not excavate galleries but produce superficial erosion of irregular shape. It is good practice when carrying out the annual cleaning to pay particular attention to the walls in order to reveal the presence of possible cracks in which these insects could nest.

Book-lice.—These insects are small 2-3 mm length. They feed on flour-glue paper etc. The changes caused by these insects are minute corrosion limited mainly to the parts of the binding close to the spine where the adhesive is more abundant. Generally book-lice do not cause outstanding damage. They rarely occur in well lit and ventilated surroundings or in books used daily.

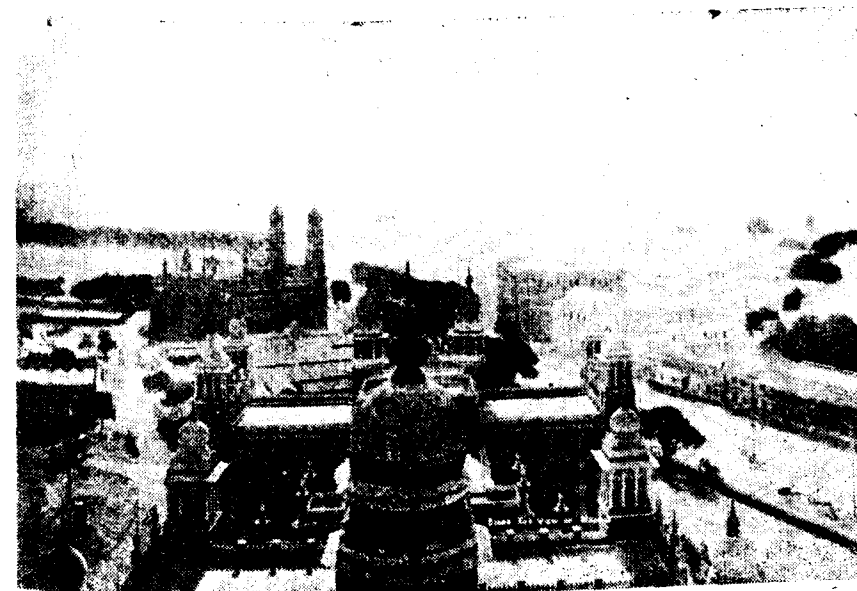
Micro-Organisms.—The problem of microbial changes (mildew or moulds) is particularly serious in countries with warm and humid

climate. Rich and previous collections kept in unfavourable surroundings have been almost destroyed through the deleterious effect of bacteria or fungi.

The infection of library material is more frequently attributable either to microbial spores in the air or dust in libraries or due to contact with objects which carry infection.

While moulds include all kinds of organism which grow on paper, leather, textiles, etc., mildew is the term popularly used to designate a variety of vegetable organism among fungi. These micro-organisms grow very slowly at low temperature 4.5°C (40°F) and rapidly at optimum temperatures, 27-35°C (80-95°F) differing with different species. At his temperatures, above 30°C (100°F), most of these organisms cannot live. The spores of these species remain suspended in air and can be carried over long distances. Growth of these micro-organisms is usually detected by the presence of brownish to green black patches on leather, paper, etc. These species are capable of causing stains on paper, technically known as 'foxing'. It has been found by experience that mildew is coon in volumes and books which remains pressed against each other. This is due to the fact that when books are pressed one against the other, the intervening atmosphere is reduced to a thin flat stagnant air pocket which favours the growth of mildew. Books and volumes loosely shelved are not generally so mildewed.

Temperature and relative humidity in the range 22-24°C (72-75°F) and 45-55% respectively, check the growth of these species. If regulation of temperature and relative humidity within the above limits is not feasible, the growth of these micro-organisms can be retarded to considerable extent by maintaining thorough air circulation in the room with the help of electric fans. In case mildew or mould infestation has already occurred in books and volumes, the only means of eliminating it is to fumigate the infested materials with *thymol*.



A Bird's Eye View of Madras in the 19th Century.

Madras became a city of a million people around 1943. It began as a settlement of the East India Company in 1639 and was soon the commercial as well as administrative centre of the whole of South India excepting the then princely States of Mysore, Travancore and Cochin and reached a population of 4,32,000 by 1871. While it took nearly 300 years for it to reach a population of one million, it doubled its population to two million in the next 20 years. Today it has a population of 2.4 million within the bounds of the City Corporation covering 129 sq. km. and over 3.0 million within the area delineated as the metropolitan area extending over 1,160 sq. km.

The name, Madras, is said to be derived from the name of a local Chieftain, "Madarazadu". Although the settlements of Mylapore and Santhome existed even at the beginning of the Christian era, the seed for the present city was sown in 1639 when Sir Francis Day of the East India Company selected a site for setting up a trading centre around the place now occupied by Fort St. George. The area within the Fort was known as White town and a town was laid out to the north of it for settling local tradesmen, and this area later came to be known as George Town. The Tamil name of 'Chennapattanam' was first applied to this settlement which, in course of time, became 'Chennai' and applied to the whole city. The surroundings of this area, covering nearly 67 sq. km. and containing

within it 16 hamlets, was constituted as the city of Madras in 1798 and subsequently enlarged further from time to time. Between its founding and close of the 18th century the site was the scene of many battles between the English, the French and Hyder Ali of Mysore. With British supremacy over the area firmly established by the end of the 18th century, the development of the city progressed faster. To facilitate trade a harbour was completed in 1896 just to the east of George Town. Railways were built radiating from the centre in three principal directions to connect the north, west and southern parts of the Presidency. The principal roads leading out of the area also followed these three principal directions and together they still remain the main transport framework for the city.

The building of the harbour was responsible for sand accretion to the South of it and the sea, which was washing the ramparts of the Fort at one time, is now 2.5 km. away with a wide beach between the land and the sea. A number of public buildings were constructed fronting this beach early in the 19th century, which still add dignity to the city.

The city in 1901

The city extended over an area of 70 sq. km. with a population of 553,000 in 1901. The demographic growth during the previous two decades were 5% and 6%. Important buildings and structures, which are the landmarks of the city, had

The Plan For A BETTER MADRAS

By

G. Dattari,

Senior Planner,

M.M.D.A.

already been built. The Port, Marina—the road parallel to the sea and the fronting public buildings, the High Court, Moore Market, the Connemara Public Library and other public buildings around it already existed. George Town was the main business centre but substantial residential areas were also present. The main residential areas were Chintadripet, Triplicane, Egmore, Mylapore, Purasawalkam, Vepery and Royapuram. Most of the area outside these settlements were covered by gardens and agricultural lands interspersed with bungalows of the elite. Nungambakkam, Chetpet and Kilpauk were such areas. Saidapet, in the South-West, was a separate small settlement. Either side of Mount Road to a distance of five to six km. from Fort St. George was occupied by large business houses, clubs and hotels. Industries were few and were located in George Town or Perambur area. The west of Nungambakkam was covered by the Nungambakkam tank and the long tank which extended in the form of a crescent for nearly six km. The city was served by the three railway lines from the north, west and south-west. The city was mainly a commercial and military centre.

The city in 1941

The population of the city increased to 8.81 lakhs by 1941, the previous two decades recording increases of 24.01% and 20.17%, the highest for any previous decade. The city occupied an area of about

80 sq. km. its boundaries having been extended in 1923. The important developments during the period 1901 to 1941 were the commissioning of the electrified suburban meter-gauge railway between Beach and Tambaram in 1931, which gave a fillip for the development of the outlying suburban areas as far as Tambaram and the development of the area occupied by the long tank as a planned residential neighbourhood by the Corporation. There was also considerable infilling within the developed areas. The city had a good water supply system and most of the areas were sewered. It had quick and cheap modes of transport by trams and electric trains. By 1941, Madras had developed into a provincial metropolis enjoying the best of both worlds—rural atmosphere and urban amenity. It was still primarily an administrative and commercial centre.

The city in 1971

The 30 years between 1941 and 1971 saw tremendous growth in population and economic activity in and around the city. The population first passed the million mark in 1943 and then doubled itself in a short span of about 20 years to cross the two million mark. This happened in spite of two events of importance, viz. the threat of Japanese invasion to Madras in 1942 and the division of Madras Presidency on a linguistic basis in the fifties, when Andhra, Mysore and Kerala States were formed. Early during the period the boundary of the city

was extended to cover about 129 sq. km. by the inclusion of Saidapet and Sembium. This period also saw the growth of new residential as well as industrial suburbs, particularly in the west and south, which trend is continuing.

The main reasons for this fast growth can be attributed to the forces of economic activity released by the independence of the country. The Five-year plans and the impetus given by the industrial activity in the public sector changed the structure of the city from that of an administrative and commercial city to a national metropolis. The major developments in the industrial field during the post-independence era have been the location of a number of public sector undertakings. The Integral Coach Factory at Perambur, the Madras Refinery and Fertilizers at Ennore, the Tank Factory at Avadi and the expansion of the Harbour are worth mentioning. This was followed by many private sector undertakings important among which are Ashok Leylands at Ennore, Standard Motors at Vandalur and the Simpson and T.V.S. Groups of companies at Sembium and Ambattur respectively. Two large well-planned industrial estates were established, one at Guindy and the other at Ambattur, which helped in the expansion of accessory, medium and small-scale industries. Concurrently this period saw the deterioration in water supply and drainage services and mushrooming of many slum areas all over the city. The setting up of the Housing Board, however,

helped in the creation of large residential areas like Anna Nagar to the west and Shastrinagar to the south and Vyasarpadi to the north. The city's boundary no longer remained well defined. The developments flowed into the adjoining areas particularly in the north up to Ennore, west up to Avadi and south up to Vandalur.

This growth did not take place in a regulated manner nor corresponded to the available infrastructure facilities. This fact coupled with the fast growth of population on the one hand and motor vehicles on the other has given rise to the many problems faced by the Metropolis today.

TABLE 1

Madras City Population Growth 1901—1971

Year	Population ('000)	%decennial increase
1901	553	12.56
1911	575	4.07
1921	592	2.81
1931	734	24.01
1941	881	20.17
1951	1416	60.64
1961	1729	22.11
1971	2469	42.90

Source: Census of India, 1971.

Problems and Planning

The problems of the metropolitan area stem from the rapid growth of population, inadequate control over private development and administrative and financial constraints of local Governments in the area. Efforts in meeting the growing problems are in fact today directly undertaken by State Government departments or through financial grants from the State Government. The critical sectors which require immediate attention are water supply and drainage, traffic and transportation, housing and land use.

Population

The population of the metropolitan area, which stands at 3.2 million today, is anticipated to rise to 4.15 million in 1981 and 5.3 million in 1991. This increase in population would result in a four-fold increase in the number of motor vehi-



Picture proves how far the sea has receded after construction of the harbour.

cles and increase in the number of commuting trips from 150,000 to 600,000 trips/day.

Water supply and drainage

The water requirement of the metropolis is estimated at 204 million gallons for the 1981 population and 313 million gallons for the 1991 population but the present supply is barely 67 m.g.d. inclusive of 30 million gallons of subsoil water tapped for the use of the new industries at Ennore.

There is no perennial source nearby to supply this quantity of water. The only source is Cauvery, which is about 250 k.m. away. In addition to the fact that the distance over which the water is to be carried is long and would add to the cost of water, there is not adequate water to spare as the Cauvery is one of the few rivers of India which have been fully exploited. The Veeranam scheme designed to augment the city's water supply, which is already in progress, will add only 40 m.g.d. Any additional water to the city would be at the cost of established irrigation uses. Bringing of Krishna water from Somasila would be cheaper but this is beset with inter-state problems and may take some time to materialise.

The distribution system inside the city was designed in 1914 for an ultimate population of 6.5 lakhs to be reached in 1961 and periodical extensions have reduced the tail

end pressures and the system has become liable to pollution. The improvements underway or proposed to be carried out are mostly within the city and based on a supply of 25 g.c.d. with a tail-end pressure of eight metres and would not be able to carry 55 g.c.d. Most of the extended areas have only an apology of distribution net work, even the more recently created systems in these areas being capable of delivering only 10 m.g.d. It is, therefore, evident that to ensure adequate water supply, first enough water should be found and next an integrated distribution system designed.

As has been seen earlier, 40% of the city is still unsewered and there is no under-ground drainage system in the outlying areas. The unsatisfactory drainage system poses serious health hazards and many areas, particularly those inhabited by the economically weaker section, are surrounded by dirt and cess-pools of sullage water. Inadequate water supply has been one of the main reasons for not extending the sewage system. Even where they have been extended it does not function properly due to absence of water for flushing the system.

Lack of control over density has resulted in increase in population even in planned areas, such as Theagarayanagar and has resulted in costly water and drainage distribution and collecting systems getting outmoded in a short time. It is, therefore, necessary to consider the

water supply and drainage problem together in relation to the land use and density.

Traffic and Transportation

The main problems in this sector arise from the fact that most industrial areas as well as the central business district are located on the north while the residential areas are to the south and west, most of the commuters have to use the bus system which is much less efficient for mass movement than the railways and there is a considerable extent of slow moving vehicles on the roads. The absence of ring roads beyond the old area of the city, particularly in the northern part, has been the cause of traffic congestion around the central business district through which all north-bound traffic has to pass. The traffic congestion within the central area is itself due to narrow roads, high intensity of land-use particularly for commercial purposes and mixture of whole sale and retail trading, lack of loading and unloading space for goods, absence of offstreet parking facilities and encroachment of pavement space by hawkers and houseless people. The improvements underway are mostly palliative in character and the findings of the comprehensive traffic and transportation studies just completed are yet to be made use of.

Housing

While the housing condition in general is very unsatisfactory due to the rising cost of development of land and construction and consequent shyness of private investment in housing, the problem of slums has assumed serious proportions. Many valuable lands in the heart of the city as well as along the famed beach have been occupied by squatters who refuse to move elsewhere. These areas are mostly occupied by single storey huts packed closely with very little space in between for movement and without the basic requirements, water supply and latrines, not to mention other amenities like parks and schools. The available space is shared by cattle, goats and other animals kept by these people. The densities here are so high that it is not possible to rehabilitate all the families even if housing is to be in four storeys. The low income of the slum dwellers and their living habits have made it impossible to resort to high rise buildings.



Part of the Black Town—present George Town.

Most of the efforts to alleviate the housing shortage is being done through the statutorily constituted State Housing Board and Slum Clearance Board and these bodies have taken up large scale programmes recently, but greater efforts than providing about 3000 houses and house sites/annum at the current rate would be required to make an impact on the housing shortage.

Social amenities

Lack of finance and lack of leadership at the local level have led to a low standard of development in social amenities, particularly in the matter of development of schools and parks, garbage collection and maintenance of burial and burning grounds.

The primary schools run by the local Government are used only by those who cannot afford to spend even a small amount for the education of children, so much so only the children of the poorest section of the locality attend these schools. This situation has led to the proliferation of a number of private schools. Adequate efforts have not been made to establish new parks and playgrounds. Even small parks and play grounds provided in public housing are ultimately converted into building plots due to the heavy demand for housing. Many parks and play spaces developed earlier have been encroached upon by squatters.

While garbage collection is hampered by inadequate finances, conditions causing accumulation of garbage continue to be aggravated by increase of population, absence of well-maintained and conveniently located public conveniences, lack of civic sense and lack of restriction on the keeping of cattle and poultry.

Land use

The city and the surrounding areas lack strict land-use controls. There is no master plan in force although some loose zoning and building control regulation exist under municipal laws and land use in certain areas within the city are controlled through the detailed Town Planning schemes prepared under the Town Planning Act of 1920. The result of this has been increase of congestion within the city and sub-

standard land development in suburban areas. Even the developments undertaken by the Housing and Slum Clearance Boards, department of industries of the State Government tend to conflict with each other in the absence of an integrated land-use plan. The land-use plan prepared earlier is yet to be brought into effect.

Administrative and Financial Capacity of Local Government.

The responsibility for administration and provision of urban services within the metropolitan area is very diffused. Besides the city Corporation there are eight municipalities and townships, a number of town and village panchayats. Although legal documentation has given these local authorities an impressive range of responsibilities, in most cases, their real potential for participation in urban development is severely limited by their financial resources. The major share of fiscal resources is controlled by the Central and State Governments leaving the local bodies with a few inelastic sources, such as property tax and profession tax. The fact that the per capital annual income within the metropolitan area is less than Rs. 450 indicates the narrow tax base, at least so far as property and profession tax are concerned.

Public health services which include conservancy and preventive medicine, communication which

includes mainly maintenance of roads maintenance of water supply and drainage services, education, principally primary education are the chief items of expenditure.

Planning

The need for quick and co-ordinated action to make the metropolis an efficient place to work, a pleasant place to live and make it a dynamic and living force contributing to the nation's welfare has been engaging the attention of the State Government who in 1971 commissioned the preparation of a comprehensive plan for the metropolitan area. This plan titled, "Madras Metropolitan Plan 1971-91" has brought out the problems of the metropolis entirely and suggested the approach to future action. This plan, among other things, recommended the setting up of a Metropolitan Planning and Development Authority to co-ordinate the various development programmes underway and to implement the policies and programmes now laid down. This authority has been set up recently as an ad-hoc body under the Chairmanship of the Minister for Health and Town Planning, pending assent of the President for the new legislation.

After examining the metropolitan forms suggested for various international cities, viz. London, Washington, Paris, Copenhagen, Delhi, Bombay and Calcutta and the present structure of the city, the above plan has suggested a form of development termed, "Satellite towns linked

to radial corridors" as the strategy for physical growth. This concept combines the advantage of a radial corridor of development and satellite towns. While developments along the radial corridors will be permitted, new developments will be encouraged outside in satellite cities along these corridors. These cities will not only be designed as self-contained communities in the matter of employment, commerce and housing but also provide for the requirements as major city facilities for the communities nearer them. This would prevent congestion in the centre of the parent city, the main drawback of radial corridor development. Unidirectional flow in peak hours would be eliminated along the corridors thus utilising the transport services to the optimum extent.

This concept has been considered in the words of the Madras Metropolitan Plan 1971-1991-most suitable easy of direction and less costly of adoption as it recognises the present trends of development. Since transportation lines have produced the present pattern of development, the control of future development would be easier since future transportation development can be planned and directed. Future investments in railways or highways can be exploited with advantage if developments are guided along the corridors. There is also the additional assurance of decentralising industry or other economic activities into the proposed nodes and satellite towns since these go along with the observed tendency of people and activities to move outwards along radial lines.

Each corridor leads to a counter-magnet where important developments are expected or planned. The existing developments along the corridors will be grouped in well-organised urban nodes which are, to a large degree, self-sufficient with their own centre of employment, housing and commerce and the future development organised likewise, along the three main corridors, to the west, south-west and north. A pattern of growth based on this system would provide for extremely rapid access along the main radial lines and greatly extend catchment areas within any given time distance. Provision of services, like water supply and drainage, would be simpler and communication costs would be limited only to the improvement of the radial roads and railways and construction of regional

peripheral communication links. The countryside would be within easy reach as the green wedges penetrate the urban development."

Based on this strategy the plan has recommended the building of three satellite towns, one on each of the three corridors at a distance of about 50 km. from the city and restructuring of the suburbs in the metropolitan area into six urban nodes, two on each of the major corridors. The plan has also suggested a number of projects, chief among which are :—

- Construction of a mass rapid transit system from Ennore in the north to Tiruvanmiyur on the south, a distance of about 30 km.
- Electrification and creation of suburban mass transit lines along the existing long distance lines on the west and north
- Conversion of the arterial roads (viz. Ennore Road, Calcutta Trunk road, Poonamallee Road, Mount Road and Lattice Bridge Road) into expressways and construction of two-ring roads and a ring railway.
- Land development for integrated housing in the six urban nodes and three satellite cities.

The Madras Metropolitan Development Authority was set up as an *ad hoc* authority in December, 1972 and was charged with the responsibilities of planning, funding and co-ordinating all developmental activities in the Madras Metropolitan Area which comprises the Madras City Municipal Corporate Area, besides half a dozen Municipal areas and Township areas and rural settlements. It extends over 453 square miles. I have the privilege to head this Authority, which in the period of its short existence of about a year, has formulated Master Plans for three of the several urban nodes identified in the Metropolitan Area besides half a dozen civic development projects.

v. increasing water supply by bringing in additional water from Krishna or Cauvery river

vi. covering the entire metropolitan area with underground sewers and

vii. limited programmes in the sectors of housing, education, public health and open spaces.

The Madras Metropolitan Authority has commenced work in one of the satellite cities at Chingleput named after the Tamil saint Maraimalai Adigal, and in one of the urban nodes. It is also taking action to notify the land use plan which would be the basis for planning control. Simultaneously the State Government through its Town Planning Department has launched upon a Regional Planning programme to channelise urbanisation more equitably over the entire State. The statutory backing needed to put through the above schemes has just been passed and the future of this metropolis appears to be bright.

Proposed Distribution of Population

Area	Population in '000'
Madras city	3000
Ennore-Manali	300
Minjur	200
Ambattur	300
Avadi	300
Alandur - St. Thomas Mount	200
Tambaram - Pallavaram	300
On Calcutta Trunk Road	200
On Poonamallee Road	100
On Mahabalipuram Road	200
Rest of the Metropolitan area	240

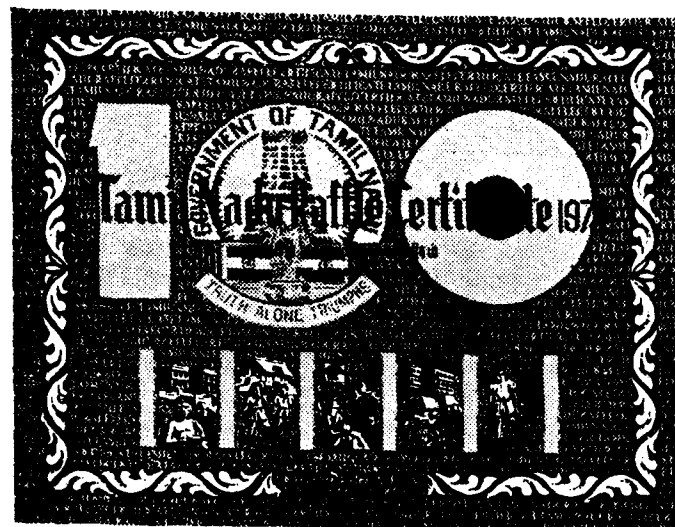
Note : The three satellite towns of Gummidipoondi, Tiruvellore and Chingleput, outside M.M.D.A., are proposed to be developed initially with a population of 100,000 each.



Assembly rooms in Guindy out of which has grown present day Raj Bhavan

Unique scheme - Big money to win! Money back guarantee too! Buy Tamil Nadu Raffle Certificates

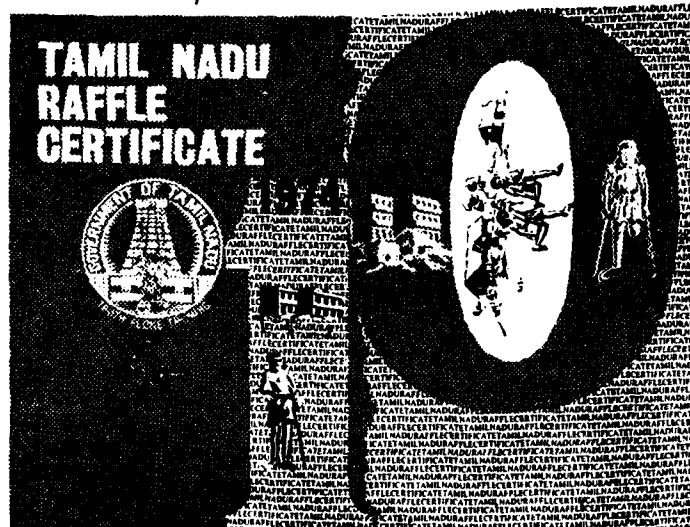
Rs. 100/- CERTIFICATE



Prize	Number of prizes	Individual prize amount Rs.	Total prize amount Rs.
I Prize	1	1,00,000	1,00,000
II Prize	1	50,000	50,000
III Prize	10	10,000	1,00,000
IV Prize	100	1,000	1,00,000
			3,50,000

**Special prize for last draw
Rs. 5,00,000**

Rs. 10/- CERTIFICATE



Prize	Number of prizes	Individual prize amount Rs.	Total prize amount Rs.
I Prize	1	50,000	50,000
II Prize	1	10,000	10,000
III Prize	20	5,000	1,00,000
IV Prize	200	500	1,00,000
			2,60,000

**Special prize for last draw
Rs. 2,00,000**

- Tamil Nadu Raffle Certificates, available in denominations of Rs. 100/- and Rs. 10/- are eligible for six four-monthly draws during a period of two years.
- The Certificate could be exchanged for a prize within three months from the date of winning the prize or for cash within one year after a period of two years from the date of first draw. The winning Certificate shall not be eligible for further prizes except the special prize.

- Each Certificate is eligible for one prize only. If the same number wins more than one prize, the holder of the prize winning Certificate will be awarded the highest prize amount drawn against the Certificate.
- Tamil Nadu Raffle Certificates will be available from 1st October, 1974. Certificates will be sold through Nationalised Banks, Sub-Treasuries and authorised agents appointed under Tamil Nadu Raffle Scheme.

Issued by Director of Information & Public Relations, Government of Tamil Nadu, Madras-600009
All correspondence should be addressed only to the Director of Small Savings (Raffle), Madras-600002.

N. S. K. A PRICELESS PEARL OF TAMIL NADU



Some of the surviving Co-workers of N. S. K. were given grants on N. S. K. Birthday this year.

Music and Drama elevate man to a higher level. They are fabulum for head and heart of human beings to draw inspiration. If an artiste identifies himself with the theme of his play or music and carries the millions of audience with him, by the spell of ethos and pathos of the message that the play puts across, he is acclaimed as a celebrated artiste. One such well-known comedian of South Indian Film World was the late Thiru N.S. Krishnan who, along with his wife Tmt. T.A. Mathuram, revolutionised the Tamil stage, films and Katha Kalashepam with his original wit and ballads full of inspiring imagination and dynamic approach to social problems of the ailing modern society.

Thiru Krishnan was born in November, 1908, in a poor vellala family in Nagercoil. His schooling stopped with the Fourth Standard. He sold sweets and vegetables in his village for about three years. He then went to the stage from where he gravitated to the films which provided an excellent opening for his talents. His first appearance on the screen was in Sati-Leelavathi in 1936.

While acting in Vasanta Sena, he met Tmt. Mathuram, his future partner in films and also in life. Among the numerous films, numbering over a hundred, in which he acted are Ambikapathi, Thulasidas,

Tiruneelakantar, Sakuntala, Ashok Kumar and Mangamma Sabatham. He also produced films under his own banner.

N.S.K.—A Humorist

For many years Thiru Krishnan dominated the stage as humorist. His humour was ebullient, rich sometimes edged with sarcasm but never with bitterness, always meaningful, for Krishnan the comedian was twin-brother to Krishnan the moralist who concentrated his fame as fire to a better social order. All progressive ideas, such as prohibition constructive work for the development of the nation, had his support. His 'Fifty and Sixty' was as fine a conception of a brighter future for the country as any placed before us by politicians. He and Tmt. Mathuram together have pleaded in hundreds of reels of celluloid for a proper status in society for the Indian women.

A Down-to-earth Realist

Krishnan was never obscure or grotesque in his wit and there was down-to-earth realism in it. His humour went directly to the hearts of the people as he was quite natural in his approach and avoided superficiality or artificiality. He shunned exaggerated gesticulation and melodrama. His popular *Kathas* (discourses) reformed the unlettered and the ignorant.

Thiru Krishnan's broadcasts, wise and witty on the Tamil New Year Days, would be long remembered. Along with Tmt. Mathuram and Thiru K. Subramaniam, he visited Soviet Russia as a member of a cultural film delegation in 1951.

A Man of Conviction

An anecdote from his Moscow visit is cited to prove his integrity and principles in life. At a tea party at Moscow, he is reported to have said: "India adopts non-violent method to establish a new social order. But Russian approach to this task is hasty and violent." When the Russian language translator refused to translate this portion of Krishnan's speech, he expressed his inability to continue his speech if his speech was not translated without distortion. The USSR Deputy Minister of Cultural Affairs regretted the incident and directed the translator to apologise to Krishnan. He then joined the tea arranged in his honour. Our former President Dr. Radhakrishnan who had at that time been our Ambassador there is reported to have conveyed his congratulations to Krishnan over the phone, saying: "It is a victory for India. I congratulate you; and your honesty, as shown by you at the tea, has earned a name for India." This incident demonstrates the strength of his convictions.

There is still richer humanitarian side to his life. Krishnan donated a major portion of his income to many public and charitable causes. He constructed a mandapam at Nagercoil in memory of Mahatma Gandhi. He also popularised the teachings of Gandhiji through Villupattu. I have always felt that Gandhiji is nearer to Tamil Nadu than any other part of India. The devotion of Krishnan to Gandhiji and his philosophy provides demonstrative proof of Tamil Nadu's love for Gandhian approach. We cannot forget his fraternal outlook towards fellow-artists and deep sympathy for the suffering brethren. It is a matter for supreme satisfaction that his memory is perpetuated in Tamil Nadu in several ways. This Kalaivanar Arangam where we are gathered was once called Children's Theatre and now bears his name. This is a standing monument to the popular comedian in the City. There is a statue at Thyagarayanagar which was opened by our former Chief Minister respected Anna. In his own life-time, he received honours and titles. I have no doubt that he will continue to live in the memory of Tamil-speaking people all over the world.

He was honoured by his admirers with the titles of "Kalaivanar" and "Nagai Chuvai Arasu". In his later years he ran a dramatic troupe.

What more glowing tribute can be paid to N.S. Krishnan than what Anna said in his funeral oration in 1957 when Krishnan died :

"Kalaivanar is no individual; he is an epoch. A priceless pearl of Tamil Nadu; a rare son; a great treasure unearthed; a nectar that the South was given; a wealth of the art of Tamil Nadu. If it is naturally possible for him to get up alive, in case some one is prepared to lose his life, I have no doubt that a long queue will stand from Madras to the Cape Comorin."

The people of Tamil Nadu are in deep debt of gratitude to Thiru N.S. Krishnan. His films, villupattu, his comedies and above all his incessant efforts to maintain decency in public life and uphold the principle of integrity in the cine world earned him name and fame,

besides the love and affection of the people. His fraternal outlook towards fellow artists and deep sympathy for the suffering brethren will ever remain green in the minds of people of Tamil Nadu.

His latest films 'Nalla Thambi', 'Panam', 'Raja Rani', and 'Mana Magal' are highlights of social philosophy that the Nation has accepted. Thiru N.S. Krishnan died at the age of 48 on 30-8-1957 at Government Hospital, Madras. Rajaji described it as irreparable loss to Tamil Nadu.

I have no doubt that N.S. Krishnan will be a source of inspiration to cine artists of all categories and will be an ideal for generosity and purity in personal and public life.

(Speech of Thiru K.K. Shah, Governor of Tamil Nadu, at the 17th death anniversary of Thiru N.S. Krishnan on 4th September, 1974.)

AWARD OF "PATTAYAMS" TO THE PARTICIPANTS OF ANTI-HINDI AGITATIONS AND MERGER OF TAMIL SPEAKING AREAS IN KANYAKUMARI AND TAMIL NADU.

The Government of Tamil Nadu have decided to award 'Pattayams' made of copper, to those persons who took part in the Anti-Hindi Agitation from 1937-1965 and to those who took part in the agitations held for the merger of the Tamil speaking areas in Kanyakumari and Tiruttani with the then Madras State. All the living persons who had participated in the above agitations and convicted and imprisoned irrespective of the period of imprisonment and all those who were maimed are requested to apply to the Collectors of the Districts concerned for inclusion of their names in the list for the award of 'Pattayams' furnishing particulars of their imprisonment immediately, supported by extracts of jail records or certificates from Co-prisoners who are M.L.As., M.L.C.s., or M.P.s., former or present. In the case of maimed persons other valid documents will be accepted. Income of the applicant will not be a factor for the award of Pattayams.

Schemes for Rehabilitation of handicapped projects get under way

The Rs. 1 crore Chief Minister's Birthday Scheme for rehabilitation of physically handicapped was inaugurated formally on 15th September, the birthday of Anna. This scheme follows a systematic survey of the Physically Handicapped in Tamil Nadu on a census basis. This survey covered the Orthopaedically Handicapped, Deaf and Dumb and the Blind. The survey has revealed that there are 2.34 lakhs of physically handicapped persons in Tamil Nadu of whom 1.15 lakhs are Orthopaedically Handicapped, 72,745 persons deaf and dumb and 46,118 blind. The survey has also revealed that about 84% of them are unemployed. It was in the light of the survey that the Government have decided to launch a massive Socio-Economic Programme costing nearly one crore of rupees for the training and rehabilitation of the physically handicapped in Tamil Nadu which will enable them to lead a life of dignity with economic independence, without their being a burden on society or the despair of their kith and kin. It is proposed to give training, employment facilities for a large number of physically handicapped persons throughout Tamil Nadu. As part of this programme, it is proposed to establish a Training-cum-Production Workshop for the Physically Handicapped near Madras city. It is also proposed to give old-age pension to 10,000 physically handicapped persons in respect of whom the age-limit will be relaxed to 55 years as against 65 years for others.

Under this programme, free wheel chairs/Tri-cycles is being given to 2,000 Orthopaedically handicapped persons and free hearing aids to 1,000 needy deaf children, in the first phase.

**Despite these achievements
Rising Population Raises Problems**

**SURELY YOU CAN
BY PLANNING YOUR FAMILY**

DEPARTMENT OF HEALTH SERVICES AND FAMILY PLANNING

VISIT Poompuhar

FOR A REAL
INSIGHT INTO

Tamil Culture

Kaveripoompattinam, known as Poompuhar in its more fortunate days was a well laid out port town which boasted of a separate settlement for the foreigners. Much of the archaeological remains still are there for us to see.

In addition, the recently constructed art gallery is the first attempt, after many centuries, at group-sculpture for which Tamil Nadu is justly famous. In the form of group-sculpture and also in individual figures a remarkable edifice to recreate the life and times of the Tamil classic "Silappathikaram" Story of of the Anklet has come up at Kaveripoompattinam in its art gallery.

FOR FURTHER DETAILS
CONTACT:
RECEPTION OFFICER,
Poompuhar Art Gallery
(VIA) Sirkali, Thanjavur Dist.



Tamil Arasu

NOVEMBER 1974,
50 Ps.

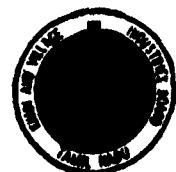
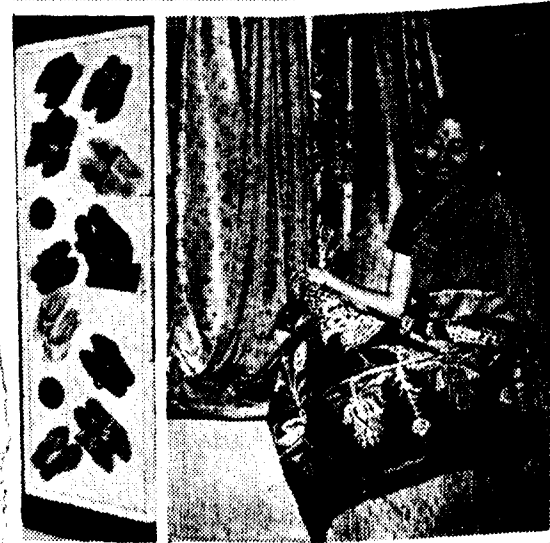
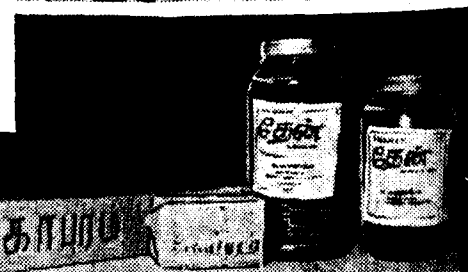
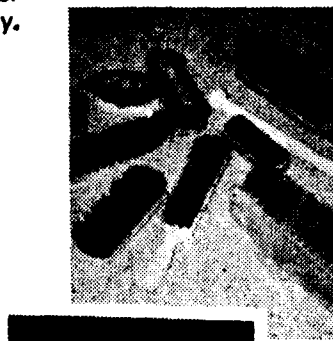
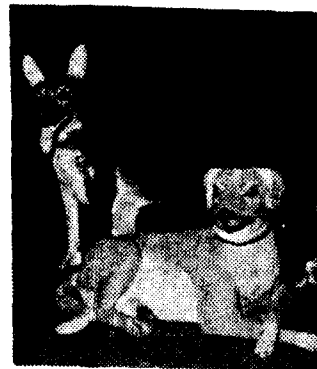


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Tamil Arasu

R. R. R. R.

First 8 pages and last 8 pages
of this Issue is a
Pictorial Supplement of
Jain Monuments
and Temples
in Tamil Nadu.

an important adjunct of Jain Temples.

The Manasthamba is

NOVEMBER 1974.

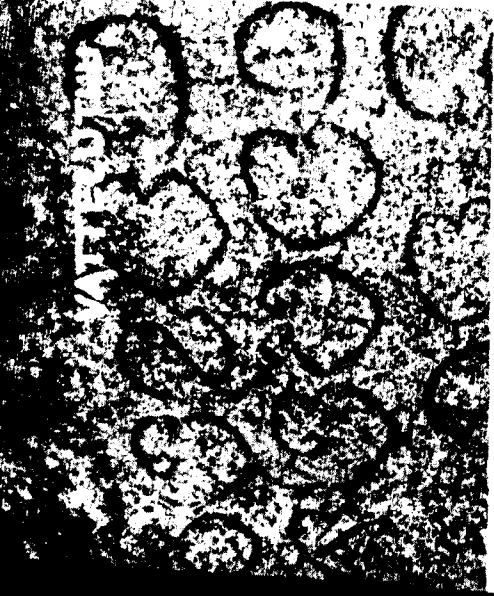
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The Samavasarana consists of two words, Sama and avasarana and it is, according to Jain mythology, a pavilion made by Indra, for the Tirthankara to sit in the midst of a huge congregation consisting of all the gods and other forms of creation and preach the Truth, immediately after he attains Kevala-jnana. The Samavasarana is a favourite theme found in most of the Jain temples, as all the twentyfour Tirthankaras have their own Samavasaranas. Sometimes, even temples are built dedicated to Samavasarana. The Lotus Tank Painting of Sittannavasal is also another medium depicting Samavasarana.



The many
APHATS who
are worshiped
in Jain Tem-
ples in Tamil
Nadu





The Mahaveer temple at KARANTHAI (North Arcot)

The PARSVANATHAR temple at MELCHITHAMUR (South Arcot)

TEMPLES OF JAINS

The dilapidated Jain temple at TIRAK-KOIL (South Arcot)

The PARSVANATHAR temple otherwise known as KUNDAVAI JEENALAYAM at Tirumalai (North Arcot District)



A study of Jain monuments and inscriptions reveals that Jaina centres grew up generally in and around hills which served as monasteries.

Jainism lays emphasis on the four fold dana of food, shelter, medicine and knowledge. This led to the establishment of almshouses, schools and other charitable institutions which received regular grants from kings, social groups, corporations, political or economic and private individuals alike. The piety and liberality of the people made no distinction between Jaina, Saiva or Vaisnava institutions. The cultural life of the people centered



The Gopuram of PARSVANATHAR temple at TIRUNARUNGUNDRAM.

The TRILOKYNATHAR temple at TIRUPPARITHIKUNDRAM

IN TAMILNADU

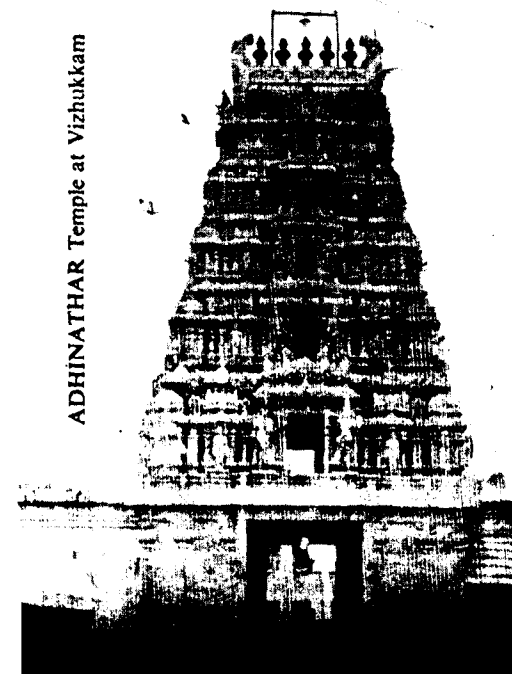
A few of the large number of Jain Temples found all over Tamil Nadu are reproduced in these pages.

round these religious institutions and the Jainas did not fail to contribute to the general progress of the people. Art and literature were developed by them in equal measure. Tax free grants were made as palliccandam and pallivilagam for specific occasions, ceremonies as well as for permanent worship.

In Tamil Nadu, the Jaina monuments evolving in style from monolithic to lithic have survived the onslaughts of time and prejudice alike and can still be seen in large numbers.

The ADHINATHAR temple at KARANTHAI (North Arcot)

ADHINATHAR Temple at Vizhukkam





The Jain Temples evolved from inaccessible caves and caverns where the Jain ascetics had withdrawn for their austere life. But even these far off retreats were evidently chosen deliberately for the splendid scenic views they afforded. Here is the view from the Kundavai Jeenalayam in North Arcot District.

GOVERNOR'S MESSAGE

I am glad to know that the November issue of "TAMIL ARASU" will commemorate the 2500th Nirvan Anniversary of Bhagvan Mahavir.

Jainism with its strong emphasis on asceticism, and moral and spiritual values in life, has flourished in the South as well. Jain munis who lived in Tamil Nadu have contributed a great deal to Tamil literature, and their works, particularly on the ethical side of life, are still studied by the youth in schools and colleges. Lord Mahavira prescribed five big vows for those desirous of beatitude — non-violence, truth, non-stealing, celibacy and non-possessiveness. Not to torture any creature by mind, speech and action and not to kill is non-violence. Not to tell a lie in any situation whatsoever is truth. Not to indulge in any kind of theft is non-stealing. To consider all men and women of the world as one's own brothers and sisters is celibacy. To whatever religion we may belong, these are cardinal virtues in daily life, social life and national life.

K. K. SHAH,
Governor of Tamil Nadu.

Tamil Arasu

Vol. V

November, 1974

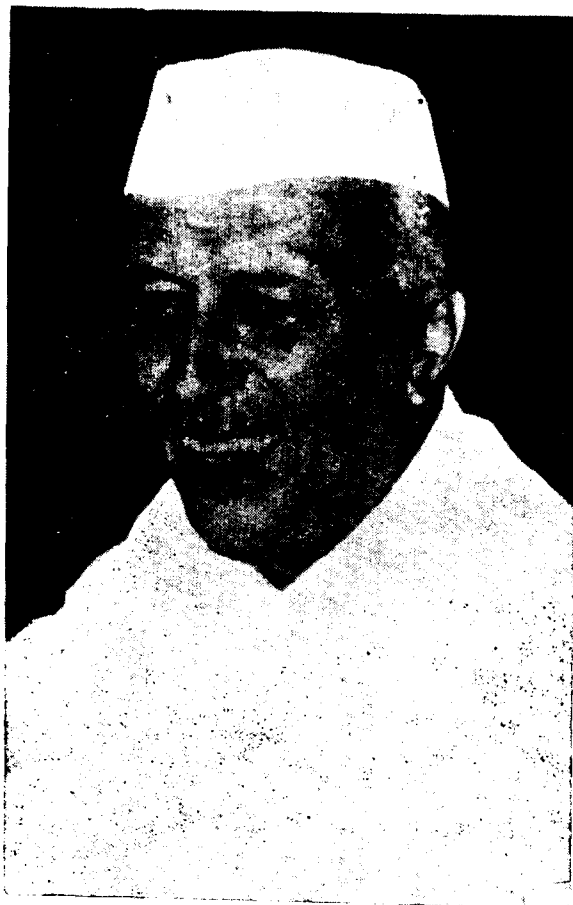
Issue 5



To Commemorate Bhagwan Mahavir
2500th Nirvana Celebrations.



Late Dr. Arignar Anna with Acharya Tulsi



IN HONOUR OF NEHRU'S BIRTHDAY

++++

SOCIAL SECURITY SCHEME COMES INTO FORCE IN TAMIL NADU

This scheme will benefit all classes of people in Tamilnadu. It will be inaugurated on November 14, 1974, the birthday of Jawaharlal Nehru.

Wage earners and the self-employed can both benefit from the scheme. In return for a small and steady monthly payment, subscribers to the scheme will be able to get a substantial monthly pension from the Government.

The pension will be available throughout the life time of the subscriber. If death occurs within 30 years of the beginning of the pension period, the family will get the pension for a period of 30 years.

NEHRU'S CONCEPT OF SOCIALISM

Pandit Nehru's concept of socialism was largely guided by the essential needs of democracy in an economically backward country like India. Its root was the product of his minute observations of the functioning of democracy in free countries and socialism in Communist and Scandinavian countries. His keen intellect did not take time to realise that unless conditions were created in which people were able to understand the implications of exercising their vote and unless they had the capacity and ability to study and freedom to act, democracy would be a cover for exploitation of ignorance, incapacity and inability by vested interests. He also realised that socialism to be effective must be backed by the free will of the people; otherwise it was likely to be the henchman of political power.

From the day Panditji became the Prime Minister of India and from the time he charted planning

by

THIRU. K.K. SHAH,
Governor of Tamil Nadu

for India even before independence, he was confronted with difficult alternatives. He supported freedom of action but was particular to see that somebody's freedom did not become a danger to the freedom of others. He believed in freedom of speech but did not want one's freedom of speech to be a cloak for freedom of speech being abused for personal and ulterior motives. In choosing his options, difficult as they were, he exercised the greatest restraint on himself. He knew that without incentive, enterprise cannot grow and industrialisation cannot be stepped up. But he also knew that lopsided industrial growth and concentration of incentives for a few would weaken democracy and substitute the will of the people by

machinations of a few. In a country where distinctions of caste, community, religion and language could be handmaids of wily politicians and where fissiparous tendencies can be supported on empty slogans, unless care was taken to avoid concentration of economic power in a few hands, the will of the people can become a cover for the designs of those who wield big purse.

It is, therefore, that in planning, he was cautious enough to avoid upheavals but was prudent enough to control economic power by slowly controlling the means of production.

It may be that on occasions, compulsions of international pressures and internal compulsions of paucity of resources might have caused delays but his fingers were always on the pulse of the nation and never allowed his policy to falter in creating conditions for healthy growth of democratic institutions.

BHAGAWAN MAHAVIR

A TEACHER OF ALL TIME A SOLUTION TO ALL CONFLICTS

"The life of Bhagawan Shri Mahavira was full of compassion, truth, Ahimsa and austerity which, aided by transcendental meditation of the highest order and of the purest form, culminated in the attainment of Nirvana. In the doctrines preached by him lies the path of salvation. What is needed is its proper assimilation and translation into actions. His message of practice of Ahimsa in the field of action, reasoning with the aid of Anekant or Syadvad, and acceptance of spirit of austerity on the planes of mind, speech and action can usher in the era of eternal bliss. Herein lies truly the answer to all the conflicts, either individual or group. Considering the universal application of his message, it will be necessary to bear in mind that he belonged not to a particular sect or province or country. His message is for the mankind as a whole."

When Munishri Yashovijayji writes thus about Bhagwan Mahavira it reflects not merely the catholicity of the Muni's outlook, but the earning of every Jain that the tenets by which the Twentyfourth Tirthankar lived and which he preached 2,500 years ago should be accepted by all.

About the middle of the sixth century B.C. a boy was born to a wealthy and noble Lichchavi family in a suburb of the city of Vaisali. His parents, King Siddhartha and Queen Trisala, belonged to a sect that looked upon rebirth as a curse, and upon fasting unto death as a blessed privilege. When their son Vardhamana attained the age of thirty one years, they ended their lives by slow starvation. The young man moved to the depths of his soul, renounced the world and its ways, and divested himself of his clothing and wandered as an ascetic, seeking self-purification and understanding. After thirteen years of such self-denial he was hailed by a group of disciples as 'Jina' the conqueror i.e., one of the great teachers, whom fate, they believed, had ordained to appear at regular intervals to enlighten the people. They rechristened their leader "Mahavira" or the great Hero. Thus began the epoch of the 24th Tirthankara of the Jains, Bhagwan Mahavira.

The concept of time in Jainism is cyclic with the cycles of ascendance and descendance, each of uniform duration. Upto now, twenty-four

great teachers were born in our country. They attained perfection by rigorous practice of non-violence, self-control and severe austerities. They are omniscient, omnipotent and are absolutely free from passions. They lay down the path for the spiritual uplift of humanity and hence are known as Tirthankaras. They are highly venerated and worshipped by all the Jains. After annihilating all karmans, they get rid of the cycle of births and deaths and attain siddhi — a state of complete spiritual bliss. They are also known as Arhats, Arihantas, Vitaragas, Jinas, etc.

Strongest Doctrine

By the teachings and precepts of Mahavira, the Jains developed one of the strongest bodies of doctrine in all the history of religion. They began with a realistic logic, in which knowledge was described as confined to the relative and temporal.

Jainism does not restrict the right of attaining perfection to any individual. An individual, irrespective of his caste or creed, can aspire to this status provided he has the will to follow the path. But samyaktva or righteousness must

first be born in him. It may well be that the soul has to pass through a series of births before this lamp of spiritual discretion is kindled, but once it is kindled, the march of progress is assured, though it may be frequently hampered and impeded by numerous obstacles.

Jainism was widely prevalent in North India. When a famine struck North India, a number of Jains with their guru Badrabaghu came South and stayed at Sravana-belagola. From there they spread Jainism all over the Deccan. The Gangas, Kadambas, Chalukyas and Rashtrakuta dynasties supported the religion. In Tamil Nadu Jainism reached the peak under the patronage of the Chera, Chola, Pandya and Pallavas.

Contribution to Tamil

The Jains have contributed a great deal towards Tamil literature. The writers did not use Sanskrit words widely but instead introduced new Tamil words. They adapted Sanskrit words suitably. The following literary works were written by Jains. Neminatham, Nannool, Aymporul; these were grammatical



The Religious Head of Jains in Tamil Nadu at Melchittamur in South Arcot Dt.

works. Epics like Jeevaka Chintamani, Valayapathi, classics like Yasodara Kaviyam, Sudamani, Neelakesi of which Neelakesi is an outstanding work.

"Their temples were situated at places where two or three roads meet; they erected their platforms or pulpits from which they generally preached their doctrine. Side by side with their monasteries there also existed nunneries showing thereby the vast influence exercised over the Tamil women by Jain nuns. There were Jain monasteries at Kaveripoompattinam, the capital of the Cholas, and at Uraiyur at the banks of the Cauvery. Madura however, was the chief centre of Jainism.

The Jains in this period, we further learn from the epics, worshipped the resplendent image of Arhat who is generally represented as sitting underneath the Asoka tree with the triple umbrella held over him. That these Jains were the Digambaras is clearly seen from this description. Judging from the account of the society as depicted in Manimekalai, the Tamil sovereigns appear to have been generally tolerant towards all the foreign faiths in the country.

The simplicity of Jain worship made the Nigrantha system more popular. The fact that the Jain community had a perfect organisation behind it shows that it was not only popular but that it had taken deep root in the soil. The whole community, we learn from the epics, was divided into two sections, the Sravakas or laymen and the Munis or ascetics.

Jain tradition also lends support to the prosperous state of Jainism in the South. The famous Jain author Samantabhadra is associated with the town of Kanchi. The earliest Prakrit writer of the South, Kundakunda, a famous name in Digambara literature, is brought in relation with a ruler called Sivakumara Maharaja, whom tradition makes his disciple, and it is suggested that he was one of the Pallava kings of the Prakrit charters. From a later Sanskrit translation it is known that Savyanandin, a Jain Scholar, wrote his Prakrit work Lokavibhaga in A.D. 458 at the time of Simavarman, the ruler of Kanchi.

The Jain community of the South formed what is known as the Mula Sangha (original group) Devasena tells us that one Vajranandi, a pupil of Pujyapada, founded in A.D. 470 at Madura, the Dravida

Sangha, which allowed greater scope and freedom in the observance of the rule of Ahimsa. According to a later tradition from pupils of Abrahadli, a pupil of Bhadrabahu II called Maghanandhin. Jinasena, Simha and Deva, founded the four Ganas of the Mulasangha, known respectively by the names of Nandigana, Sanagana, Simhagana, and Devagana.

SWETAMBAR AND DIGAMBAR

Jainism has never been torn by philosophic dispute, but in the 4th or 3rd century B.C. the Jains began to split into two sects on points of rules and regulations for monks, a rift which was complete at least by the end of the 1st century A.D. the Digambara and the Svetambara.

Literature :—According to the Svetambara the sacred literature preserved orally since Mahavir, was systematized and written down by the Council at Patiliputra about the end of the 4th century B.C., but it was generally agreed that it was not given its present shape until some 800 years later (About A.D. 454). It consists of 12 Angas the last of which is subdivided into 14 purvas and 5 prakaranas, along with other sutra literature. Among later works, mention may be made of Lokaprakasha, an encyclopaedia in Jainism compiled by Vinai-Vijai in A.D. 1652.

The Digambaras hold that the entire literature was destroyed about A.D. 789. Some of the books, however, were saved in Nepal and in Sravanabelgola, the Jain headquarters of South India. The language of their canonical literature was originally in Ardha Magadhi, a blend dialect of the province of Magadha, but as the texts are largely rewritten it would be better to call it Apabramsha or Jain and in Prakrit. From at least the 9th century, Jain texts were also written in Kanarese.

Philosophy :—Jain metaphysics is a dualistic system dividing the universe into two ultimate and individual categories, living beings or souls (Jiva) which permeate natural forces such as wind and fire as well as plants, animals and human beings, and non-living entities (ajivas), which include space, time and matter.

The next most important, concept that of Karma, a subtle invisible substance composed from one of the types of matter which flows into and clogs the jiva, causing the bondage of life and transmigration. This inflow can be stopped by many

lives of penance and disciplined conduct, resulting in the final moksha or liberation, the ultimate goal of human endeavour. Karmic matter is elaborately classified according to its effect; for instance, one type is that which prevents true knowledge; another, that which causes pleasure or pain. Since God has no place in Jainism, Karma comes to occupy a very central position, for most of the functions of a God are appropriated by the soul and its potential power. Souls are divided into those that have attained perfection are those still in bondage. Of the former, there are five classes in order of merit, the five lords of Jainism.

Ethics.—The Jain ethic is the direct consequence of faith in soul and karma. Since the primary duty of man is the evolution and perfection of his soul, and that of his fellow creatures, ahimsa or "non-hurting" of life, irrespective of its distinctions into higher and lower, is the cardinal principal. Hurt no one is a positive injunction enjoining love and compassion toward all creatures; Jains alone build asylums and rest houses for old and diseased animals, where they are kept and fed until they die a natural death. The three ideas of Samyag-Darsha or right faith, Samyag-Jyana the right knowledge, Samyag-Charitra or right conduct are known as the "three jewels", or the triratna.

Jainism also prescribes most elaborate rules for every day conduct; for example for guidance in the practice of Ahimsa, cruelty is analysed into as many as nine kinds, each subtler than the last.

Logic.—A distinctive contribution of Jainism lies in its doctrine of Naya, which means "point of view". According to Jainism, the Buddhist doctrine of change and nothingness, which postulates that all things are transitory, was contrary to facts, and so was the Advaitic theory of absolute identity. Their foremost logical position is what is called Anekantavada or the theory of many sidedness of reality and truth.

Position in the 20th century.—Jainism preaches universal tolerance, and its attitude towards other forms of religion is that of noncriticism; it is not competitive and has never cared for the spread of its faith. Its followers totalled just over 1,600,000 in the early 1960s, with the Digambar majority in the South and the Svetamabara in the North.

(Compiled from various Sources)

The origin of Jainism may be traced back to a protest movement started sometime before Vardhamana Mahaveera and represented by a sect called the Nirgranthas (unfettered). It has been historically proved that a teacher called Parsvanatha (now counted as the twenty third Tirthankara), was the founder of this sect and that he probably belonged to the 9th—8th centuries B.C. Later, in the 6th century B.C. the Nirgrantha order was reformed by Mahaveera, who originally belonged to it, and thus evolved what came to be known as the Jaina faith. Mahaveera was an elder contemporary of the Buddha and his itinerary in the middle Gangetic valley brought in a large number of adherents to Jainism, particularly of the Kshatriya and Vaisya groups, the latter represented largely by traders.

Atheistic in its origins, the deification of its founder led Jainism towards a theistic character and the evolution of a large pantheon. The cardinal doctrine of Jainism is *ahimsa* or non-violence, often carried to extremes by its early followers. Yet, it is this principle of *ahimsa* that has elevated this faith to a highly ethical and moral standard, which has often been the source of considerable inspiration and solace to the modern upholders of this religion. Its historical development has, however, depended not so much on rulers, but more upon the support of a moneyed class, particularly traders. The contemporary position that this faith enjoys i.e. the large following it has among the West Indian trading communities (from Gujarat down to Kanara), can be very well understood against this historical background.

The early spread of this faith in the centuries before the beginning of the Christian era, has often been ascribed, by tradition, to a series of migrations which carried the religion in different directions from the middle Gangetic valley. These movements of the Jains (both ascetics and lay followers) must have followed the important trade routes and brought them to the coastal areas through the interior trade centres such as Mathura (south of Delhi) and Ujjain (ancient Malwa region). The movement towards the east took them to Orissa (the Khandagiri—Udayagiri hills near Bhubanesvar). Southwards from Malwa, they also moved into the

Historical Evidences of Jainism in India and in Tamil Nadu



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Deccan (Aihole) and to Karnataka (Sravana Belgola) and thence to the Tamil country.

The last mentioned movement is important for the study of the history of Jainism in South India. As early as the end of the 4th century B.C., a group of Jains, according to the Digambara tradition, migrated under the Srutakevalin Bhadrabahu (a Srutakevalin is one of the six immediate successors of Mahaveera). He is believed to have been accompanied by Chandragupta, the first Maurya ruler.

When the migrating Jains reached Sravana Belgola near Mysore, Bhadrabahu stayed back with a single disciple and the rest of the community moved on to "the Chola and Pandya countries" under a teacher called Visakhacharya. Evidence of this migration and Bhadrabahus associations with Sravana Belgola is available only from A.D. 600 in the form of inscriptions and from about the 11th century A.D. in the form of Kanada and Sanskrit texts.

On the other hand, there is clear evidence of the movement of the Jains from Karnataka through the Kongu region (Salem, Erode, Coimbatore areas), the western fringes of the Kaveri delta (Tiruchirappalli), southwards into the Pudukkottai region (Sittannavasal) and finally into the Pandya country i.e. Madurai, Ramanathapuram and Tirunelveli districts. Early Jaina inscriptions in Brahmi characters of about the 2nd century B.C. to 3rd century A.D. occur in these areas in a series of hills. These hills contain natural caverns, with rock cut beds and Brahmi inscriptions, occupied by the Jaina ascetics. In most cases, the caverns with beds were "donated" to them by lay devotees belonging to the Chera royal family, officers of the Pandya kings of the Sangam age and members of the trading and artisan classes. However, a curious tradition associates these hills and caverns with the Panchapandavas and calls them after these epic heroes.

The Sangam works, with which the Brahmi records are contemporary, show a general acquaintance with the Jains and their religion. In the epics like *Silappadikaram* and

Manimekalai, there is evidence of the increasing knowledge of its tenets and doctrines. In all probability the *Silappadikaram* is a Jaina work and Ilango Adigal, its author, was a Chera prince, who renounced worldly claims and entered the Jaina orders and finally retired to Kunavayir-Kottam, a Jaina institution.

Peaceful Co-existence

In the early centuries of the Christian era the spread of Jainism appears to have been slow, gradual and peaceful. Followers of the Jaina faith and those of the others (Buddhist and Hindu) seem to have lived amicably. A generally peaceful coexistence of different religions is indicated by the references in the Sangam works and the epics. The epics throw welcome light on the life and activities of the Jains in this period. The Nirgranthas (Jains) lived outside the towns "in their own cool cloisters, the walls of which were exceedingly high and which were surrounded by little flower gardens." Nunneries also existed by the side of the monasteries. The two epics depict society on the whole at its best, tolerant, votaries of different sects showing mutual respect. Members of the same family followed different faiths, yet lived amicably under one roof. Describing the religious condition in Puhar, the *Manimekalai* says that the 'Hindu' temples, Buddhist *viharas* and garden retreats of the Jaina saints existed not far from each other and were generally located just outside the inner city and the fortress. Learning was highly respected and learned men, whatever their ultimate convictions, were honoured wherever they went.

In the *Manimekalai*, however, there is some indication of a spirit of enquiry into the relative merits of religions and an attempt to establish the superiority of Buddhism. Even the story of Sutamati is introduced to show how the Jains refused to give asylum to this companion of Manimekalai in their hermitage, while the Buddhists did.

The *Silappadikaram*, on the other hand, presents a more favourable picture of the state of Jainism. Kavundi Adigal, the Jaina nun, is seen preaching the principle of *ahimsa* as carried by the Jains to its utmost limit. Kovalan and Kannaki meet her on their way to Madu-

rai and accompany her. On the way, they listen to the Charanas' exposition of the Jaina law of Karma (destiny). The theme underlying this epic itself is destiny. Kovalan and Kannaki appear to have been lay worshippers of the Jina. It may be noted that they belonged to the merchant class.

Thus the two epics reflect the progress made by the Jaina faith in Tamil Society. There were Jaina temples and monasteries in important cities like Madurai, Puhar, Uraiyur and Vanji.

KARNATAKA PROVIDED RESOURCES

The Jains of the Tamil country continued to look upon Sravana Belgola as the principal seat of their religion. The activities of some of the celebrated Jaina teachers of Karnataka and their achievements in the field of religion and philosophy brought the Tamil country into close touch with Karnataka. The necessary resources for spread of Jainism seem to have come from the Mysore region. Famous teachers like Kundakundacharya (1st century A.D.), Samantabhadra, (2nd century A.D.), Pujyapada (5th century A.D.) and Akalanka (8th century A.D.) were some of the Karnataka teachers responsible for the diffusion of Jainism all over the south.

Kundakundacharya, who is said to be the first in all the genealogies of the southern Jains, is believed to be the greatest disseminator of Jain ideals in the south. He is even believed to be of Tamil origin and is assigned to the beginning of the Christian era. Jaina tradition would identify him with a Helacharya, who is supposed to be the teacher of Tiruvalluvar, the author of the *Kural*. While the *Kural* does exhibit considerable Jaina influence over its ideas and provides some evidence for describing it as a Jaina work, the identity of Valluvar as a disciple of Helacharya has not been established beyond doubt. Kundakundacharya also seems to be associated with the Jaina monastery at Padirippuliyur in the South Arcot district.

Samantabhadra is said to have visited Kanchi and perhaps challenged religious disputants inviting them

to debates. He was also the author of an important religious treatise, the *Apta Mimamsa*, the most authoritative exposition of the Jaina doctrine.

Apart from individual Jaina teachers, the ruling families of the Kongu country and the Mysore region such as the Gangas, also helped the spread of Jainism in the southern regions.

Jainism attained considerable influence through the 'royal' patronage of a people called the Kalabhras, who for a time, practically wiped out the Chola and Pandya powers from the Kaveri delta region and Madurai respectively. There are no authentic records to connect the Kalabhras with Jainism but later sources of information like copper plate records and Tamil literary works would indicate that the period after the Sangam and before 7th century A.D. witnessed the progress of Jainism, both in the number of its followers and in the power it wielded, at Madurai. The 5th—6th centuries represent a flourishing period for the Jains and it was the period when the Kalabhras seem to have been in occupation of Madurai and other Tamil areas. The heights of popularity reached by Jainism is evidenced also by the establishment of a Dravida Sangha of the Jains at Madurai by one Vajranandhi, a pupil of Pujyapada, in A.D. 470. Pujyapada may have been the famous grammarian of that name mentioned earlier as one of the chief propagators of Jainism in the South.

NETWORK IN TAMIL NADU

A Jaina monastery of considerable importance had also come up in Pataliputra (Tirupparippliyur near Cuddalore in the South Arcot district). At this monastery a Jaina teacher called Sarvanandin copied a work called *Lokavibhaga* in 458 A.D. This work, which was originally written in Prakrit, had been translated into Sanskrit by a teacher called Simhasuri.

Around A. D. 550, Jaina teacher, Vajranandi belonging to Jina Kanchi (Tirupparuttikkunram near Kanchi) received grants of land on behalf of the local Vardhamana temple from a Pallava king, Simhavarman and his son prince Simhavishnu.

Thus it appears that in the Pandya country and the Pallava country, the Jain faith had acquired great numerical strength and important centres of worship and learning and monastic establishments. It is quite likely that the Dravida Sangha was established more or less as a proselytising centre with links all over the Tamil country, almost like a network.

At the beginning of the 7th century A.D. the Jains must have wielded vast influence over the royal Courts at Kanchi and Madurai. The Pallavas had close alliances with the Gangas and the latter, who were patrons of the Jaina faith, may have introduced considerable Jaina element into the Pallava royal Court. Mahendravarman I, the Pallava (A.D. 580—630) is said to have been initially a follower of Jainism and later converted to the Saiva faith, apparently inspired by the marvels associated with the story of Appar or Tirunavukkarasar. Appar himself was at first a Jaina and was the head of the Jaina monastery at Pataliputra under the name of Dharmasena. His conversion to Saivism was achieved by the staunch devotion of his sister Tilakavati and in turn changed the religious predilections of king Mahendravarman.

BEGINNING OF DECLINE

Similar stories are narrated about the conversion of the Pandya king Kun Pandya or Ninra Sir Nedumaran (Arikesari Parankusa Nedumaran—c. (A.D. 670—710). The Pandya king's faith in Jainism was shattered by the failure of the Jains to cure him of a terrible disease and by the miraculous cure brought about by the Saiva saint Tirugnana-sambandar at his Court. The royal conversions are often taken as the beginning of the decline of Jainism in the Tamil country. Underlying these stories is a strong movement to root out the so-called heretical sects viz. Jainism and Buddhism. Historically, the loss of royal patronage may be ascribed to a powerful move to introduce Brahmanism on a large scale all over the Tamil country, both by the Pallavas and the Pandyas of the 7th—9th centuries A.D. It took two forms i.e. of the revival of Brahmana land grants and settlements, wherever they had been replaced or preceded by Jaina (or Buddhist) ones, and by a definite increase in the land

grants to Brahmanas and temples by the creation of new *Brahmadeyas* and *Agraharas*. As a result there was considerable extension and intensification of cultivation with the help of the new donees i.e. groups of learned Brahmanas. Such grants were made either voluntarily by the ruling families, who were eager to establish themselves as an important and leading social elite by giving themselves a rich lineage, composed by Brahmanas in Sanskrit, or, on occasions, the grants were also made on a special application made to the kings by learned Brahmanas.

The opposition to Jainism came not only from the Brahmanas and their new settlements, but also from the exponents of the Bhakti cult i.e. the Saiva Nayanars and the Vaishnava Alvars, who came from both Brahmanical and non-Brahmanical groups. Thus arose a religious conflict in which the Bhakti movement, headed by Saiva saints like Appar and Sambandar and Vaishnava saints like Tirumangai and Tondaradippodi Alvars, posed a serious threat to the survival of the Jains by directing its attack openly against the Jains and Buddhists.

The *Periyapuranam* stories of Murti Narayanar, Nami Nandi Adigal, Dandi Adigal, Appar and Sambandar are replete with the accounts of the rivalry and make very interesting reading from the point of view of the tremendous influence enjoyed by the Jains and the eagerness of the Saivas to root them out. The hostility of the Saiva saints is revealed in every one of their hymns (*Tevaram*) and of the Vaishnavas (*Divyaprabandham*).

The Bhakti movement centred round temple worship and in effect gave a tremendous impetus to temple building activities, both of the Saiva and Vaishnava sects. The real basis of the Bhakti movement was social, an attempt to give a moral and 'spiritual' uplift to those classes and castes who were socially and economically in the lowest rungs of the ladder. While it is true that Jainism had started off as a protest against social inequality, it had later inevitably been drawn into the vortex of a caste-oriented society, of which it was itself a product.

The religious conflict of the 7th-9th centuries A.D. no doubt led to a general decline of Jainism, the latter having stood for the recogni-

tion of occupations other than Brahmanical priesthood and the material basis of its patronage viz. the agricultural occupation and the land owning class. Yet, Jainism has survived in the Tamil country down to the present day. The factors that contributed to its survival are evident from the nature of the subsequent trends in Jaina fortunes. Jainism seems to have changed its complexion by modifying and adapting itself to the new situation. The Jains began to pay increasing attention to temple building activities and making it the central institution around which all their cultural and social activity revolved even to the extent of making the monasteries (*mathas*) a part of the temple or by attaching them to it. Thus Jaina temples were built in existing and new centres and they began to acquire land (*pallichchandam* in inscriptions) and to act in every way like the temple of the Saiva or Vaishnava sect. A kind of caste hierarchy was also accepted by the Jains, in which the temple priests were equated with the Brahmanas, the household ceremonies were conducted by the same caste, and the rest were classified or fitted into the framework of the usual fourfold division.

Nevertheless, Jainism retained its unique moral hold over the people, through its ideals, particularly *ahimsa* advocating strict adherence to certain dietary habits. It would not be wrong to attribute the vegetarian habits of some of the other religionists, the Brahmanas in particular, to Jaina influences.

Jaina centres, which developed after the 7th century A.D., were either new ones marked by temples as their nuclei or grew up around existing Jaina retreats like caverns, cave temples, huge rocks with sculptures of the Tirthankaras and their attendants—yakshas and yakshis. To such caverns or rock sculptures structural additions were made and thus temple complexes came up.

PERSECUTION AND RETREAT

It is often said that the royal conversions at Kanchi and Madurai led to the persecution of the Jains by the Pallava rulers Mahendravarman I and Nandhivarman II and the Pandya king Nedumaran. The latter is even said to have impaled the Jains at the instance of Sambandar,

who was responsible for his conversion. The memory of this incident has been perpetuated to this day in the annual festivals at Madurai, Suchindram and other places. Persecution of the Jains is also believed to have taken another form viz., the destruction of existing Jaina structures and the erection of Saiva one, e.g. the Gunadara vichchuram is said to have been erected at Tiruvadigai (South Arcot district) by the Pallava Mahendravarman out of the materials obtained by the destruction of the Jaina monastery at Patalipura. At Tiruvarur, the Jains were driven out of their *palia* and *pallis* (schools and monasteries) around the tank and these structures destroyed. It is interesting that evidence of these activities by the Saivas comes from their own works, the *Tevaram* and the *Periyapuranam*.

The Jains seem to have retained their earlier resorts on hills (of which eight are often mentioned as sacred to them) to which they retired after the loss of royal patronage and revival of the Brahmanical sects. In these hills some of the celebrated institutions i.e. Jaina monasteries survived even down to the 15th—16th centuries A.D.

Since Jainism was no longer the faith of the ruling families, the erection of *pallis* or temples may have been mostly the work of the Jaina sangha, sometimes drawing financial assistance from the ruling classes. The Sangha of the Jains was a well-knit organisation and the monks and nuns as well as lay followers formed integral parts of it. Hence, the lay worshippers and the members of the orders co-operated in such efforts. Local assemblies and merchant guilds also provided the necessary assistance. Some of the rulers of the Pallava, Chola, Pandya and Vijayanagar dynasties continued to extend their benefactions to the Jains.

Rise of Jain Centres

Centres like Jina Kanchi, Vadal (North Arcot district) and Perumandur (South Arcot district) were recipients of grants from the Pallavas in the 8th—9th centuries A.D. At Vadal, there was a nunnery in addition to a monastery, and the former boasted of five hundred members.

Jaina centres which either continued to flourish or came up under the patronage of the Cholas are Jina Kanchi, Tiruppanmalai (Vilappakkam in North Arcot district), Tirumalai (North Arcot), Tirakkol (North Arcot), Chittamur, Perumandur and Tirunarungondai in the South Arcot district, Vijayamangalam (Coimbatore district). Kundavai, the elder sister of Rajaraja I, a princess of remarkable piety, built a Jaina temple at Dadapuram (Rajarajapuram in the South Arcot district) and made endowments to it. However, this temple fell into decay not much afterwards.

Narttamalai, Sittannavasal (Pudukkottai area), Singikulam, Kalugumalai, Eruvadi, all in the Tirunelveli district were some of the other Jaina centres, where the temples and monasteries received endowments from the Pandyas. A large Jaina monastery known as the Kurandi Tirukkattampalli existed at Samanarmalai near Muttupatti in the Madurai district. This monastery was headed by a series of Jaina teachers, mentioned in several inscriptions of the 8th—11th centuries A.D. One of the famous Jaina teachers of the Tamil country was Ajjanandi, mentioned in the inscription of the 8th—9th centuries A.D. all over Tamil Nadu. Several other centres may be thus listed as enjoying considerable importance down to the Vijayanagar and post-Vijayanagar period.

In the 12th century A.D. two major events occurred, which caused a further decline in Jaina centres and neglect of their monuments in the Tamil areas. One was the conversion of the Hoysala ruler of Dvarasamudra (Halebid near Mysore), from Jainism to Vaishnavism by the famous Vaishnava teacher Ramanujacharya. The other was the general religious intolerance that set the Saivas and Vaishnavas against each other and also indirectly caused the neglect of all other religious centres to the exclusion of Saivism.

The period of the Muslim incursions, 13th—14th centuries A.D. also witnessed the general ruin of Jaina institutions in common with those of the other sects. There was, however, a partial revival of some of them in the Vijayanagar period i.e., 15th—16th centuries. Centres like Jina Kanchi, Tirumalai, Karandai (North Arcot), Chittamur

(South Arcot) and Hanumantagudi (Ramanathapuram district) were kept alive by royal patronage.

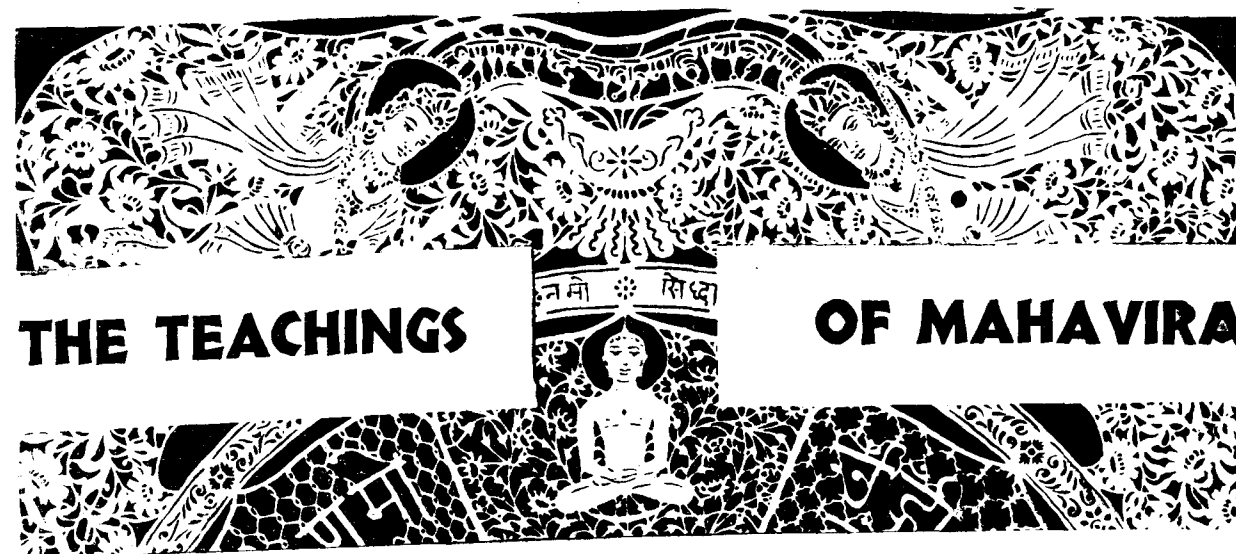
Jaina—Vaishnava conflict became so acute in the 14th century that Bukka Raya I, the Vijayanagar ruler had to issue a *Sasana* (edict), on a representation made by the Jains against some injustice alleged to have been committed by the Sri Vaishnavas. A compromise was brought about and the king called upon the Vaishnavas to protect the Jaina *darsana* (faith).

The Nayak principalities of the 16th—18th centuries neglected Jainism which thus disappeared as an important faith in the Tamil country. However, the Jaina centres in the Chingleput, North Arcot and South Arcot districts have survived down to the present day and the headquarter of the religious head of the Tamil Jains, Chittamur, is one of them.

Apart from royal patronage and benefactions, mercantile communities contributed in a large measure to the sustenance and progress of the Jaina religion. Some Jaina institutions were even named after merchant corporations like the temple at Tiruvannayil (near Pudukkottai—now called Kayampatti), which was built in the 10th—11th century A.D. and called Ainnuruvapperumpalli after the merchant corporation “the Five Hundred.”

The Jains of the *Pallichchandam* generally conducted the administration of temples through a committee, usually a committee of twenty four, twenty four being a sacred and auspicious number. *Pallichchandam* areas had separate local assemblies (*ur*) like the *devadana* and *brahmadeya* villages, which had their *urs* and *sabhas*.

Grants to Jaina *pallis* were as sacred and irrevocable (in theory) as *devadana* and *brahmadeya* lands. This is proved by the careful exclusion of *pallichchandam* lands in sales or gifts of villages to Siva or Vishnu temples and private individuals. The *pallichchandam* lands were demarcated by stones carved with the triple umbrella, which is the chief emblem represented above Tirthankara figures. Sometimes they were also carved with the pitchers of the ascetic.



The birth of Lord Mahavira into the world paved the way for a society built upon dharma. The land of Videka where his holy birth has taken place became a blessed and prosperous country. His birth brought immense joy to his parents, Siddhartha and Tricilaipriyakarini. Indira gave him his special name ‘Vardhamana.’ It means one who is the cause for prosperity.

In his youth itself Vardhamana displayed valour and heroism. Therefore the Deva Sangaman praised him with the honourable title ‘Mahavira.’

Vardhamana who was honoured with the title ‘Mahavira’ when, later in his life renounced the world and became a Sanyasi (sage) did qualify himself for the honour. It is indeed very difficult to bring under control the five senses which are the enemies within one’s self than the enemies without. The following proverbial statement of Auvaiair will corroborate :

‘The vision of equanimity is the real vision
And the conqueror of the five senses is the real hero.
—Tamil Navalar Saridhai, 69.

Vardhamana who overcame the five senses and got deliverance from Karma attained godhood (Kevala) and viewed the humanity with the unified vision of equality. He considered every living being like his life, and thus becoming compassionate, he stressed that other beings must be helped.

Valluvar declares that one must forbear the sufferings befell him and should reach out to help the others ;

only such a person can be called a sage. The following couplet of Valluvar :

“To endure all the pains that comes while harming no creature
Doth constitute the truest form of Penance of good feature”
(Tr. K.M. Balasubramaniam, Kural, 261)

seems to have taken its form from the life of Vardhamana Mahavira.

St. Mahavira suffered untold miseries, yet he did no harm to any living creature. He undertook severe penance for twelve years and reached the State of Perfect Knowledge. Without hatred or love he looked upon all the living creatures of the world alike.

The saints, sages and the householders worshipped him and listened to his holy teachings. Having heard his glory even the gods came to serve him.

“Mahavira was seated in the ‘Samavasaranam’ that the Gods erected, and taught. Let us see some common principles of his teachings.

The teachings of the Thirthankaras were considered as dharma or law. The following phrases from the epic Jivakachinthamani :

“Iraivartham Arattai nokka-kadalām Adigal.”—Jiva. 2653.

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‘Nallarama Ninaimin’ (—Jiva. 2633-2634 ‘Tiruvaram valarga’ (Vazthu) well explains this truth The teachings of Mahavira are the guides for the people to live in ‘Dharma.’

The verse line : “Arunthavanai Arampakarntha Arivan” tells that Vardhamana who became God taught dharma to mankind.

Now, let us specially note some important teachings given by Lord Mahavira :

Soul’s constituents :

Every soul is potentially divine having the innate qualities of infinite knowledge, infinite perception, infinite power and infinite bliss.

Soul’s power :

Soul can expand or contract according to the shape of the body in which it dwells.

The soul’s state :

The soul exists in the body of the living being just as butter in milk, oil in oil seed, fire in wood, flavour in flower.

Self help :

Every soul is the architect of one’s own life ; He is the cause of his own happiness or misery ; He is his own friend or foe.

The four seeds of Karma :

Anger destroys love ; Pride puts an end to modesty ; Deceit takes away friends while greed destroys everything.

Deeds follow the doer :

A worldly man commits the worst sins for the sake of his dearer ones, but when the time for reaping the bitter harvest thereof arrives he alone has to suffer painful punishment. None of his dear relatives shares it with him.

Karma follows as shadow :

Karma follows invariably the doer as the shadow accompanies the man.

Birth is the result of Karma :

Every soul, because of its own actions is born as a celestial, human, sub-human, or hellish being.

Liberation leads to Moksha :

When the mud covering of the gourd is washed off gradually it gets lighter and goes upto the surface of the water ; so also a soul that is freed from Karmas rises upto the summit of the universe and there rests enjoying eternal beatitude.

The soul in bliss :

The soul after attaining complete salvation will never take birth or change its present state of pure, divine and fabulous bliss.

The five vows :

The worldly man has to follow these five vows namely non-violence, truth, non-stealing, observance of celibacy among ladies except his wife, limitation of possessions and belongings.

The life of non-violence :

Those who follow non-violence will show pity on petty living beings. The followers of non-violence should divide and limit their time and income, the excess being paid to the welfare of the living beings.

Seven crimes :

It is not cowardice to be away from and afraid of karma " Drinking beverages, cheating, eating meat, stealing, possessing relation with prostitutes, hunting animals, misadvances with others' wife are the common seven crimes from which one should keep away oneself.

Attaining high knowledge :

Superstitions arising on God, world, saints will poison the knowledge. Right knowledge which is achieved by destroying these three tigers—like ideas will lead to Dharma.

The Brahman :

He is a brahmana who has no love or hatred, who practises penance and who has absolute mental peace.

Who is the gem ?

One is not a brahmana by simply having clean shaven head ; one is not a brahmana by merely reciting sacred texts ; one is not a muni by merely residing in a forest, and one is not a hermit by using sacred grass, garment made of barks. One who is devoid of all possessions and vice is really the gem among men.

The Real Hero :

One who conquers his own self is mightier than one who has conquered thousands of warriors in battle field.

Be unattached :

In the same way as a lotus is unattached to water though it lives and grows in a pond, a righteous man is always free from all forms of attachments though living in the family surrounded by relatives.

The balanced man :

Try to be patient as the earth, calm and cool like water, without attachment like air, regular as the sun, firm as a mountain and deep and profound as the ocean.

Gods adoring man :

The highest and the greatest possession is religion. The characteristic tenets of religion are non-violence, self-restraint and penance. One in whose mind dwells and rules this noble principled religion is worthy to be adored not only by men but even by gods.

Love all :

All creatures of this world hold life and happiness dear, and dislike death and misery. Since all like to live, and love life dearly, never therefore will insult any creature.

Self injury :

He who injures any life injures his own self first.

Harm no life :

Life is dear to all and every living being desires to live happily its span of life. Therefore harm no living being.

Causes of suffering :

The living beings suffer in the ocean of life because they commit insults and injuries to others.

The essence of all knowledge :

Even a little thorn that pricks you causes immense pain ; how much greater then must be the suffering of creatures when their bodies are stabbed and slaughtered with sharp weapons? Keep this thought for ever in your mind. Non-violence is the essence of all the knowledge of the known wisdom.

Kindness to oneself :

Non-violence and kindness to living beings is kindness to oneself. For thereby one's own self is saved from various kinds of sins and resultant sufferings and is able to secure his own welfare.

The best shelter :

For living beings carried away by the rapid current of old age and death, it is religion that serves as an island, firm ground, refuge and as well as the best shelter.

When to practice Religion :

Before old age commences to give trouble, or diseases begin to attack, or senses fail, one should practice Religion (Dharma).

Towards Real Religion :

Proper Religious training cannot be had due to five reasons namely egoism, anger, carelessness, illness, and laziness.

Easy enlightenment :

Enlightenment is easy for those who have devotion to true faith, entertain no results for their actions and abstain completely from injury to living beings.

The merciful man :

A wise man ought to obtain the proper knowledge, in all its aspects, of the Shad-Nikaya and should not torment any living being, knowing that all creatures are averse to pain. Thus man must show mercy for all living beings, whether they be suitable organism (invisible) or coarse (visible), small or great one-sensed or five sensed. How noble an ideal of non-violence and mercy!

Self-control :

Just as a tortoise withdraws and conceals its limbs in its body, so should a wise aspirant turn his soul inwards or achieve introspection, by means of spiritual mentality and thereby save himself from uncontrolled wantonness.

Superior saints :

Householders who have self-control are superior to saints who have no self restraint.

Social behaviour :

Always move with good people. Speak mildly. Try to reform the bad and troublesome people. Be merciful even to your foe so that he will repent and reform himself.

Desire like space :

Desire is veritably limitless like space. A greedy man will have no satisfaction eventhough mountains of gold and silver as big as Kailas are offered to him.

Words sharper than arrow :

Iron weapons give us pain only for a short time ; but injurious words torment us always.

Imitate and counterfeit not :

By merely adoring great people, you cannot become great. You should study their lives and walk the same path which they have trodden.

Region of gods :

Equanimity of mind lifts a man to the region of gods.

Universal brotherhood :

Human birth is glorious. Common to all. It is illegitimate and illegal to divide people according to their professions into different sects leading to differences in their status. The sects destroy the idea of oneness and co-operation and so do not even think or dream of it. Following the Universal brotherhood is necessary.

Reform oneself :

One is responsible for one's own pleasures and worries, fame and fall. No external force will change them. So reform thy thoughts, words and deeds.

Mundane Existence :

Body is like a ship ; the Soul is the sailor ; Mundane existence is the great ocean which has to be crossed.

Soul's journey :

What is said to be a family is only like a group of persons living in a rest house. As persons in a rest house have come from different places so also the members in a family have come from different births. In the same way as the persons leaving a rest house go in different directions similarly the members of a family go to different births after death.

The Immortal world :

The Universe is immortal. The living beings undergo the cycle of qirths and deaths. Even the body is perishable. Knowing this, follow the prescribed laws to attain full liberation.

Be alert :

Even in the midst of worldly men sunken in the deep sleep of ignorance and infatuation, a wise man should remain wide awake ; and knowing that time is ruthless and the body is perishable, must always be on the alert like the fabulous Bharanda bird.

Things to attain :

Four things are difficult to attain. Human birth, knowledge, of the law, belief in it and strength to put the law into practice.

Act accordingly :

Human birth has complete knowledge. Rationalise things by means of that knowledge and act accordingly.

Use it best :

Life cannot be prolonged. Therefore make use of it as best as you can for your own betterment and for the welfare of others.

Self purification is penance :

Penance performed with the desire of earning fame etc., is not pure penance. That is to say selfpurification must be the only purpose of penance.

Karma, the real enemy :

One who wants real happiness, should fight against the enemies that are in his own self. What is the use of fighting against external things ?

Outward appearance :

If the monk is ill-behaved neither his garments made of bark or hide or pieces of cloth nor his nakedness nor his matted hair nor his shaven head can save him.

Penance to reveal Self :

Penance is the best means of destroying the vasanas (the instincts which are vestigial mental imprints) of times without beginning, and of evolving and opening up the innate potentialities of the soul. Therefore the very aspirant must perform penance to his utmost capacity.

The Path to Moksha :

Right faith is absolute faith in the nature of realities as they are; Right knowledge is true knowedge of the characteristics of realities ; Right conduct is pure and harmless way of life.

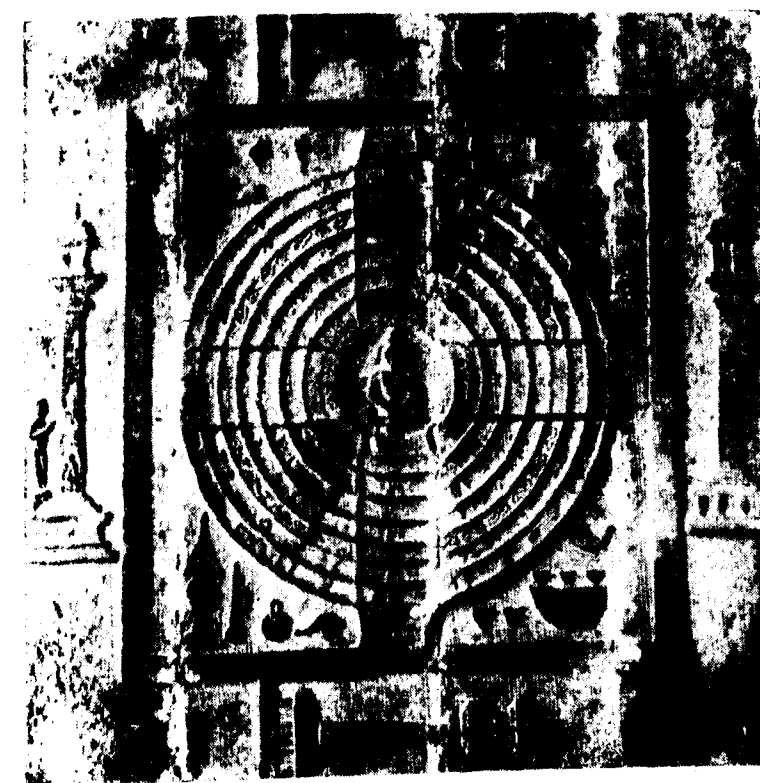
The Precious Gems :

The path of liberation consists of right faith, right knowledge and right conduct.

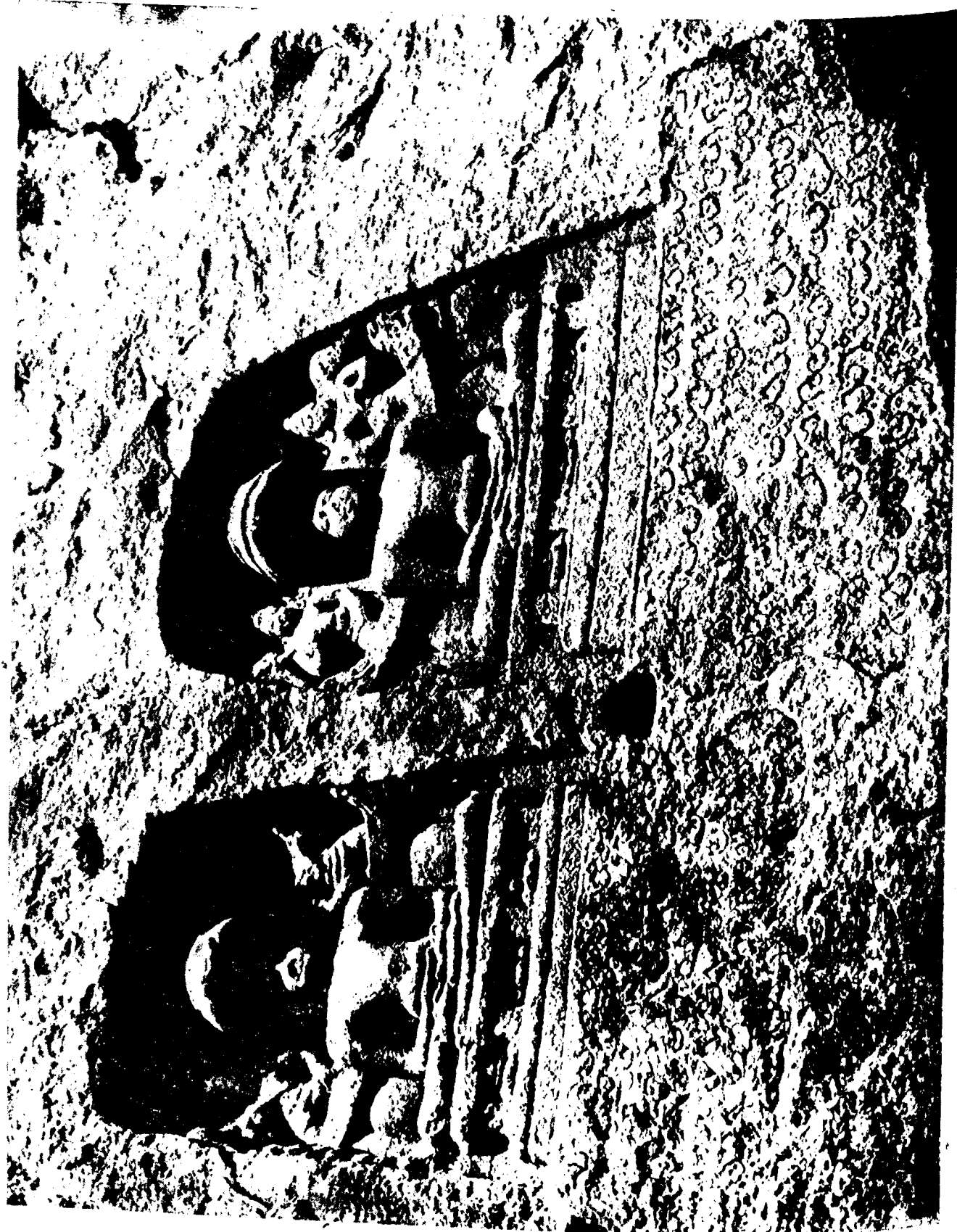
Right faith, Right knowledge and Right conduct altogether represent the path of liberation.

To reach Heaven :

Those who possess right faith, Right knowledge and right conduct can reach heaven and sumith of the Universe or Moksha.

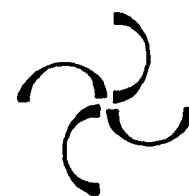


SAMOVA SARANAM a sculptured representation in Ilangadu Temple ceiling to indicate that Mahavira's Teachings are for the Universe.



Jain Sculptures and Vattezhuthu Stone inscriptions near Madurai.

JAIN MONUMENTS OF TAMIL NADU



A SURVEY



By

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The contribution of Jains to the development of Tamil Art and Culture has been considerable. Various monuments and relics found all over Tamilnadu bespeak of their greatness. They have enriched Tamil language and literature by their monumental works.

From the beginning of the 3rd Century B.C., evidences of Jain settlements are found mostly in natural caverns found in hills and hillocks. The choice of such abodes seems to be deliberate. The Jaina ascetics had resorted to these secluded places to pursue their penance and study of Dharma. Most of these hill abodes have good drinking water nearby. Kings, nobles and merchants have carved stone-beds for monks to recline and in doing so have left their inscriptions recording the dedication of these abodes to Jain monks. These help us in reconstructing the history of Jainism in Tamil Nadu in pre-Christian era.

A careful study of the location of the hill abodes show that they were centred around ancient capitals of the Tamil kings. Madurai, Uraiyur, Karur and Kanchipuram were the main centres around which a number of Jaina abodes are found with inscriptions. Another characteristic is the complete absence of any sculptural representation of the Tirthankaras, which shows that the Tamil Jain Community had not taken to image worship in the earlier phases of its history.

A hillock now called Ovamalai near Madurai which can be approached from Meenakshipuram, carries an inscription of 3rd Century B.C. which is of historic interest. It records the creation of the abodes, by Pandian Nedunchezhian for a Jaina ascetic who belonged to a particular *Gana*. On paleographical grounds the inscriptions have been assigned to 3rd Century B.C. This is perhaps the earliest epigraphical record found so far in Tamil country, which incidentally shows the royal patronage to Jainism in such an early period. Besides, the Pandya ruler, a certain Nigama (mercantile guild) from Tiruvellarai has also gifted some provisions for the same Jaina retreat.

Almost all the hills and hillocks around Madurai were frequently visited by the Jaina monks and in a number of places we find rock beds, sometimes, with inscriptions, dating

back to 3rd, or 2nd Century B.C. Azhagar Malai, now famous for its Vishnu temple, was once a favourite centre of the Jains. In the long hill range, a Jaina abode is to be seen even today about 6 miles away from the present Azhagarmalai village. On the top of the hill, in a natural cavern are found rock beds and on the overhanging rock is a long inscription recording the donations made by a number of merchants from Madurai. Merchants dealing with grains, iron, salt, gold etc., are thus represented in the inscription, which again shows that the Jaina religion secured not only the patronage of the rulers but also of the rich merchant community in Tamil Nadu.

The Anaimalai hill at the outskirt of Madurai was another famous retreat of the Jains. At the top of the hill is a natural cavern where there is an inscription of the Jain ascetic Kayapan, probably of the Haritha Gotra, who had the elephant hill as his abode. On account of its resemblance to a reclining elephant the hill seems to have been called by this name from the beginning of the Christian era. Gnanasambandar, who lived in 7th Century A.D., refers of this hill as Anaimamalai and makes particular mention that this was a sacred abode of the Jains. Tirupparankundram where we have the famous temple of Muruga was also a Jaina Centre in the early centuries of the Christian era. At the top of the hill is to be seen a natural cavern with inscriptions dating back to pre-Christian and the beginning of the Christian eras, carved on rock-cut beds. One of the inscriptions mentions a certain Antuvan as a donor and the owner of the rock beds. In Sangam literature we have a poet named Antuvan who sings the glory of Tirupparankundram. We are not sure whether this Antuvan is identical with the poet of the Sangam age. However, it is interesting to note that the name Antuvan occurs in Parankundram, which has been sung by the poet of the Sangam age. Similar Jain settlements are found in hills like Muttupatti, Mettupatti, Kongarpuliyankulam, Karungalakudi, Varichiur, Kizhavalavu and other places.

Pre-Christian Era

A number of hillocks around the present town Karur in Trichy District show evidences of Jain settlements. They carry rock-beds and

in some instances inscriptions of the beginning of Christian era. One of the most important of these Jaina abodes is to be found in a hill called Arnattar Malai near Pugalur, about 10 K.M. from the present town Karur. There are two sets of inscriptions in this hillock. One is to be seen on the northern side of the hill in a cavern which carries a number of rock beds. The inscription is to be assigned to pre-Christian era and mentions a certain Perungeeran, son of Nagan, probably the donor of the beds. The other group of inscriptions and more important to the history of South Indian Jainism and Sangam literature, comes from the cavern on the southern side of the hill. It records the dedication of the abode to a certain Jain monk, Sengayapan of Yarrur by a Chera prince, *Ilamkadungo*, the son of *Perunkadungo*. *Perunkadungo* is mentioned as a son of *Ko Adan Seral Irumborai*. The inscription is to be assigned to the beginning of the Christian era. It is for the first time we come across three generations of a ruling dynasty the Chera dynasty, who ruled with Karur as their capital. These three Chera rulers are mentioned in Sangam poems. A certain *Perungadungo* is known to have sung the desert and land hence earned the title, *Palai Padiya Perunkadungo* and another Chera prince *Ilankadungo* was known as *Maruthampadiya Ilankadungo*.

The credit of having successfully deciphered this important epigraph goes to Thiru I. Mahadevan who has rightly identified these three rulers as *Sellakkadungo*, his son *Peruncheral Irumborai* and *Ilancheral Irumborai*, the heroes of the 7th, 8th and 9th decades of the *Padirrupattu* respectively. The Chera prince *Ilankadungo* is said to have gifted the abode when he was crowned as young prince, *Illango*.

Besides these important inscriptions, there is another epigraph which relates to a gold merchant from Karur, making donations to the Jain retreat. As mentioned earlier, this epigraph lies only about 10 K.M. from the modern town of Karur in Trichy District. It is therefore evident that this Karur in Trichy District was the capital of the Sangam Cheras.

Carved Musical Notations

Not far away from this Pugalur hill is another hill of sufficient historic importance. It is located in a

village called Arachalur, where there is also a natural abode with rock-cut beds, bearing some inscriptions. Of the three inscriptions found here, two of them seem to refer to musical notations, composed for dance performances and the third inscription gives the name of the composer as *Devan Sattan*, evidently a Jain. These inscriptions are to be dated to the end of the 2nd or 3rd Century A.D. It is of interest to mention that one of the finest epics in Tamil literature *Silappathikaram* is assigned to the end of 2nd Century A.D. and it refers to dance and music masters who were capable of composing musical notations to suit various dance themes. The words used in this inscription tend to corroborate the expressions in *Silappathikaram*.

In the hillock now known as Rock Fort in Trichy, ancient Jain settlements are noticed. About 15 K.M. from Kanchipuram a Jain settlement is noticed in a hillock in the village of Mamandur. The inscriptions in the Mamandur caves are also assigned to the beginning of the 2nd Century B.C.

The above relics ranging from the 3rd Century B.C. to 3rd Century A.D. show that Jainism has received uniform support from all the rulers of the Tamil country.

The Pallava Period

In the Pallava period, we have greater revival of Jain religion, not only with the support of the rulers but also of the people generally. The earliest reference to Jains in Pallava period seems to be of a certain *SimhaNandi* who is said to have posed *Loka Vibagha*, a Jain text in Saka era 380 (455-AD) corresponding to the regnal years of the Pallava ruler *Simhavarman*. A copper plate inscription from Pallan Koil, now in the custody of Shanthi Sadan Trust, Madras, records the gift of the village *Paruttikundru* to a Jaina monk *Vajranandi*, belonging to the Gana of Nandi Sanga. The village where he resided was called *varahamaneswara Dharmathirtha*. Another record called the *Hose kete plates* of Ganga king, *Avineetha* records the gift of a land by a Pallava Queen, the mother of *Simhavishnu*, to a temple of *Arhadeva*, maintained by the *Yapaniya Sanga*.

The Pallava ruler *Mahendravarman* is said to have followed the Jain religion before his conversion to

Saivism by the Saivaite saint *Appar* in the beginning of 7th century A.D. There is a direct reference to the conversion of *Mahendra* to Saivism in his inscription found at the rock-cut cave in Trichy. In Tamil work *Periyapuramam*, *Mahendra* is said to have built a temple to Siva in *Triruvathiga*. In the village of *Tiruvathigai* two Jain sculptures are to be found even to this day and they are undoubtedly of the period of the Pallavas. *Narasimhavarman II*, the Pallava ruler who was a great devotee of Siva and a great builder of very many temples, is seen erecting a temple to the *Chandraprabha Tirthankara* at *Tirupparuthikundram* now called *Jaina Kanch* near *Kanchipuram*. The temple, though has undergone some modifications in later times, still exists. Almost at the same time another centre of Jain worship which came into prominence was the *Tirumalai hills* in North Arcot District. Three rock-cut images, among which one represents *Bahubali* with two attendant figures, are excellent specimens of Pallava Art.

An unfinished rock-cut cave temple in *Panchapandavar Malai* also in North Arcot District belong to this period. Towards the end of 8th Century, an image of *Yakshi* of the Jaina religion was carved in the same hill in the 50th regnal year of the Pallava ruler *Nandhivarman Pallavamalla*. In *Arnamalai*, also in North Arcot District, in the middle of the 8th Century A.D., a natural cavern has been converted into a Jaina temple with brick structures where we find some traces of paintings in the best South Indian traditions still surviving. One of the main themes in this cavern seems to represent the directional deities (*Dikpalas*) riding on their respective mounts among whom the figure of *Agni* is fairly well preserved. Scroll designs and swans and ducks are also found in *Sittannavasal* are also seen in the ceiling of this cavern. A group of 24, seated *Tirthankaras* figures, shown in two rows on the hill of *Tirunatharkundru* is also to be assigned to the end of 8th Century A.D. An inscription probably of somewhat earlier date recording the death of a Jaina Acharya *Chandra Nandhi*, who fasted for 57 days, shows the importance of the hillock as a Jain Tirtha from early times.

Another important Jaina settlement has been recently located by the Tamilnadu State Department of

Archaeology at a place called *Sattamangalam* in North Arcot District. A number of inscriptions dating from the reign of *Nandivarman Pallava* to the end of *Raja Raja Chola*, record the building activities and gifts of money and lands to the Jaina Pallis in this village. One inscription of the reign of *Kampagavarman* records the installation of a *Yakshi* image by a lady and gift of a Bell for worship in the temple. Another recent find of Jain sculptures show 2 sculptures, one representing the figure of *Tirthankara* flanked by an attendant and the other an image of *Parsvanatha*, cut in a deep niche in a hillock called *Karuppan Kundru* near *Tindivanam*. Besides these a number of loose sculptures found scattered all over *Tondaimandalam* clearly show the popularity of Jaina cult among the population in the Pallava period.

Sittannavasal Paintings

Just as the Pallavas gave their patronage to Jaina ascetics and their creed the Pandyas have also given enough support to this religion in their territories. Some of the Pandyas were themselves followers of Jain religion. *Arikesari Maravarman* who won a signal victory at *Nelveli* and assumed the title the conqueror of *Nelveli* and who ruled towards the latter half of the 7th Century was said to be a staunch follower of Jainism who was later converted to the Saivite faith by the Saint *Gnanasambandar*. We have mentioned earlier that almost all the hillocks around *Madurai* bear witness the Jain creed during the beginning of the Christian era in the Pandyan Kingdom. In almost all these places, we find a revival which is evidenced by inscriptions, recording the gift of land or gold for purposes of worship. In *Anaimalai*, *Tirupparankundram*, *Azhargamalai*, *Kizhakuyilkudi* and in all other places, we have the images of *Tirthankaras* carved with *Vatteluttu* inscriptions mentioning dedications.

One of the most outstanding contributions of the Pandyas to Jain art, is to be seen at *Sittannavasal* where there is a cave with excellent paintings identified with the *Samavasarana* episode of the Jain mythology. A portrait of a royal person accompanied by his queen and two female dancers, also

found in this cave are of exceptional beauty and are one of the landmarks in the history of South Indian paintings. Formerly it was held that this cave and the paintings were executed by the Pallava ruler *Mahendravarman*. But subsequent researches have proved that these were the contributions of the Pandyas. An inscription dated in the reign of *Srimara Srivallabha Pandya*, in the cave, clearly establishes that the cave temple was enlarged and beautified by a Jaina Acharya named *Ilam Gowthaman* hailing from *Madurai*. In the same hill a natural cavern, bearing the inscription of the 3rd century B.C. shows that this hill resort was a famous Jaina centre from the *Maurayan* Period. Among a number of rock-cut beds found in the cavern a few inscriptions giving the name of the ascetics and inscribed in Tamil and *Vatteluttu* characters of 8th Century A.D. are found inscribed, which shows that *Sittannavasal* has been a very important place of worship for the Jain population of the region.

The Kazhugumalai Sculptures

Another important group of sculptures which show the impact of Jain religion on Tamil culture is to be seen on the top of *Kazhugumalai* in *Tirunelveli* District, where over 60 images of Jaina *Tirthankaras* and a few representing Jain *Yakshis* are carved with *Vatteluttu* inscriptions below each sculpture. These are not only of historic importance but also of high artistic merit worthy of visit by those who are interested in Tamil Art. From the inscriptions we learn that from various Jain centres in *Tamilnadu* teachers disciples and their lay followers have thronged to the hill of *Kazhugumalai* and have dedicated number of sculptures in honour of their dead. One of the inscriptions in the village is dated in the reign of *Pandya ruler, Paranthaka Nedunchadai*. Evidently during his reign that this hill retreat seems to have served as a very important Jaina settlement.

Besides these places mentioned, a number of loose sculptures and in some cases rock cut images found all over the *Pandiya* territory which are to be assigned to the 8th and 9th Centuries, show unmistakably that Jainism had a prosperous life and

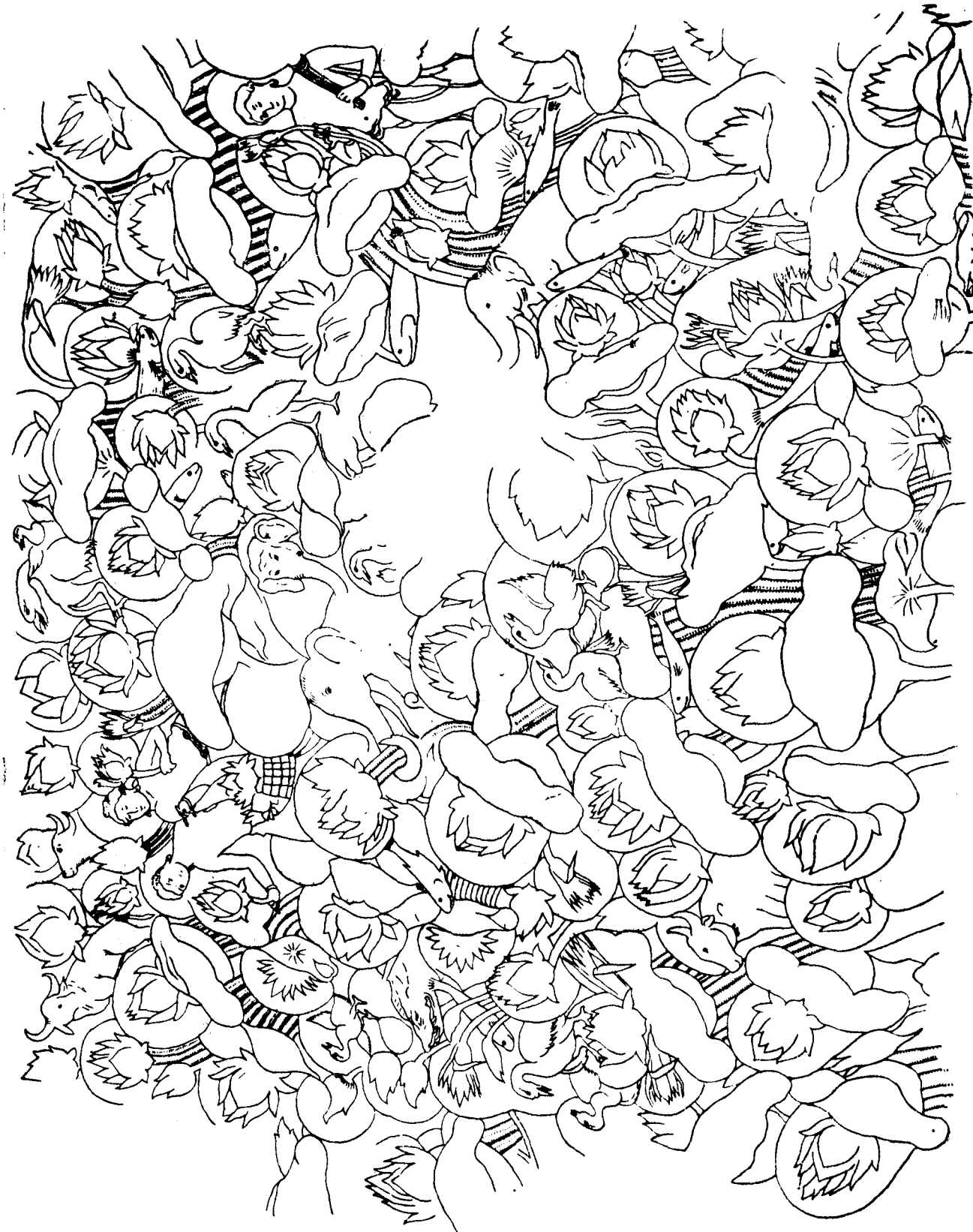
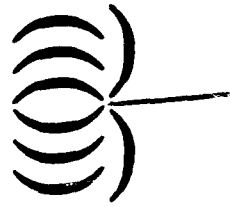
vast following even after the crusade against them by the Saiva revival.

When the Cholas conquered the entire Tamil country defeating the Pallavas in the north and the Pandyas in the South, they continued the patronage to Jainism. We have a number of inscriptions recording the gifts of lands and villages to Jaina Pallis. Inscriptions dated in the reign of *Paranthaka Chola* in the beginning of 10th Century show that the royal patronage to Jainism continued. *Gandaraditya Chola* who has immortalised for his songs dedicated to Siva, seems to have erected a Jaina Palli in *Chingleput District*. The Palli itself is called *Gandaradithya Perum Palli*, after his name. *Kundavai* the elder sister of *Raja Raja*, who was responsible for building a number of Siva Temples herself, has erected three, Jain temples after her name, at *Tirumalai Dhadhapuram* in North Arcot District and *Tirumazhapadi* in *Tanjore District*. Of these three, the one she caused to be made at *Tirumalai* still exists. It consists of a 16 feet tall rock-cut image of *Neminatha Tirthankara*, which in all probability had a structural temple in front.

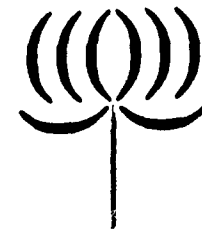
This structural temple has now disappeared. But the beautiful image of *Tirthankara* with majestic beauty still stands as a witness to the patronage given by the Chola princes. The temple according to inscription was called *Kundavai Jinalaya*. *Raja Raja's* inscriptions refer to *Raja Raja Perumpalli*. *Raja Raja*, though a Saivite, was a patron of Buddhism and Jainism, and his records show his outstanding catholicity towards all religions.

In Jaina Kanchi, we find the *Adinatha* temple receiving great attention in the hands of the Chola rulers. We have the inscriptions of *Kulottunga* and *Vikramachola* recording certain additions to the temple and gift of lands for purposes of worship. Besides structural temples, the Cholas seem to have gifted a number of bronze images of *Tirthankaras* for worship in these temples. A few beautiful images of Jain deities are now preserved in the *Madras Museum*. Some of these bronzes were originally inscribed. A recent find from *Tindivanam* now in the *Madras Museum* gives the name of the donors.

The Lotus Wall-Painting at Sittannavasal



THE WALL PAINTINGS OF JAINS IN TAMIL NADU



The Lotus Pool Wall-painting in the Jain cave temple at Sittannavasal in Pudukottai district dates back to the post Gupta period in origin. It perpetuates, in drawing and colouring, the style of the world-renowned Ajanta wall-paintings of the late Gupta and early Chalukya periods. The composition represents a celestial region in the form of a pond in which apsaras, geese, elephants, etc are sporting in a thicket of enormous lotus blossoms and fronds. The lotus-pool has been painted beautifully upon the ceiling of the front hall with fine mineral colours. In the painting water-lilies and lotuses light the tank; geese waddle and fishes swim and buffaloes wallow with gay abandon while some pious men of Jain order—Bhavyas—are plucking and gathering the water flowers and leaves. In short, the fanciful and intricate setting is portrayed with the greatest clarity and a feeling for the decorative possibilities of the multiple lotus-flower buds set-off against the enormous leaves. The direction of the lines in the composition inevitably suggests a movement across the panel, as though a wind were bending the heavenly blossoms.

The lotus pool represents the holy place "SAMOVASARANA" As soon as a Jain becomes a Kevalin—the status of attainment of supreme knowledge—he, out of religious need and necessity, comes here to deliver the truths he has realised. Like other auspicious symbols, this too is an important sign for Jains as they have become accustomed to having Samovasarana in their temples, either in the form of sculpture or of painting.

The frescoes in Jain temples in Sittannavasal near Pudukottai are much more famous than other Jain frescoes of the early medieval period. Here, the rocky surface was at first covered with a 0.5 cm layer of pounded stones, clay, cowdung and rice husks. Later, a thin layer of white gypsum was superimposed and the painting was done on the moist surface of this white gypsum.

Painting on the walls and ceilings of temples in Kanchipuram and Tirumalai are distinguished for high workmanship and skill.

R.N.

Jainism was spread by the monks, who had an austere life and who generally lived in rocky caves. They learnt the language of the people and attained proficiency in it. They preached their faith and wrote many books in Tamil. So much so, though the names of the kings in Tamil Nadu, who were Buddhists, are not available, we are fortunate in having the names of some kings who adopted Jainism. Particular mention may be made of Mahendravarman I and the Pandya king, Ninrasir Nedumaran, who were later converted to Saivism by Appar and Sambandar respectively. The sources for the history of Jainism in Tamil Nadu are exceedingly rich and abundant. The literary works in Tamil, the cave inscription in Brahmi characters and the Jain vestiges in the form of temples, sculptures and paintings, are our sources for the study of Jain's contribution to Tamil Nadu.

Jaina poets and scholars have made invaluable contribution to enrich the Tamil literary heritage and their literary output may be conveniently divided into four broad groups.

(1) Didactic works, (2) Epics, (3) Minor poems and (4) Grammatical works.

The authors of **Naladiyar** and **Pazhamozhi** respectively dealing with ethical subjects and social life of the ancient Tamils were Jains. As regards **Tirukkural**, opinion is divided as to the religious faith of its author. Every religious sect in Tamil Nadu has claimed the author of **Tirukkural** as belonging to his faith.

Of the five great epics, known as **Aimperm Kappiungal—Manimekhalai, Silappathikaram, Valayapathi, Chinthamani** and **Kundalakesi**—the Jains were responsible for three works. The references to Kavunti Adigal and to innumerable Jain temples at Poompuhar (Kaveripattinam), Uraiyur, and Madurai in **Silappathikaram** clearly indicate the Jain origin of the book. **Valayapathi**, another Jain work, treats about the lives of Jain sages. The greatest in importance of the **Aimperm Kappiungal** is **Jivaka Chinthamani**. The author, **Tiruthakka Devar** treats "the life of a king Jivakan from his birth to the attainment of bliss. It has been said: "Jains care only for serious

poetry and that their religion would not permit of such contemptible things as love and luxury being made subjects of literary compositions."

Among the minor poems mention may be made of **Neelakesi**, a treatise on logic, **Perungathai** or **Udayanan Kathai, Choolamani** by Tola-molittwar and **Tirukkalambagam. Kalin-gathupparani** by Jayamkondar describes the battle between the forces of Kulothunga Chola and the Kalinga King. Perhaps it is the only work written by the Jains pertaining to war.

Equally the Jains were best in the field of grammar and lexicons.

The Jain Contribution To Tamil Literature

Tholkappiam, the ancient Tamil grammar, is attributed to Jains but "this view has not found general favour among scholars." Pavananthi, author of **Nannool**, the work on Tamil grammar, seems to have lived in Chinapuram, a village near Vijayamangalam in Coimbatore district. Gunaveerapandithar, author of **Neminatham**, a treatise on grammar and **Vachanandhimalai**, being a Jain hailed from Kongu country. The earliest **Neghantu** (Lexicon) in Tamil, **Divakaram**, is a Jain work. Mention may be made of other **Nigantus** such as **Pingalanthai** and **Choodamani**. Amithasagarar, a Jain, was a Sanskrit

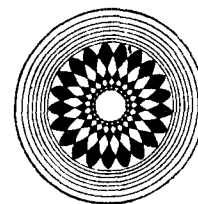
as well a Tamil scholar, and wrote **Karikkai**, a grammar on Tamil words.

The life and activities of the Jains in Tamil Nadu could be gleaned from the hymns of the Saivite Nayanmars and Vaishnavite Alwars.

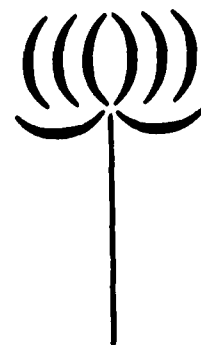
We have yet a different category of sources for our study of Jainism in Tamil Nadu and they are the Brahmi inscriptions found in the caverns containing beds in the districts of Tiruchi, Madurai, Ramanathapuram and Tirunelveli. As already stated, the Jain monks generally lived in rocky caves. These caverns are generally situated on mountain slopes in accessible heights. The caverns as a rule are provided with the convenience of natural water supply. These caves with inscriptions were probably the abode of the Jain ascetics, who performed the **Sallekhana**, a Jain ritual for self destruction and finally gave up life. The inscriptions at the head of the beds are the names of ascetics who performed **Sallekhana**. These records are Jaina in character, for not far off from those places, we have ruins of Jain temples. The caverns with Brahmi inscriptions ranging from about 2nd century B.C. to 6th century A.D. so far noticed include such as Arachchalur, Alagarmalai, Anaimalai, Kongarpuliangulam, Sittannavasal, Tirunathakunru, Tirupparankunram, Pugalur, Mangulam, Tiruchirappalli, Karungalakkudi, Arittappatti and other places.

Regarding the distribution of Jain vestiges in the form of temple, sculptures etc., in Tamil Nadu, it may be said that Jain rock cut sculpture is profuse in the districts of South Arcot, North Arcot, Tiruchirappalli, Pudukkottai, Madurai and Tirunelveli. Sculptures in local style such as Pallava, Chola, Vijayanagara etc are available in districts of Chingleput, North Arcot, Pudukkottai and Tirunelveli. Structural temples are found in Tiruparuthikunram in Chingleput district, Vijayamangalam in Coimbatore district, Tirumalai in North Arcot district. Of the bronzes, we have from Chingleput, North Arcot, South Arcot and Ramanathapuram districts

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Govt. Museum.)



THE STAMP OF JAIN CULTURE IN TAMIL LITERATURE



The literature of any country is the expression in memorable poetry and prose of the life and character of the people inhabiting it. Tamil literature is no exception to this. The whole of Tamil literature may be divided into the Sangam age, the period of Saiva Nayanmars and Vaishnava Alwars and the modern period. The life and activities of the Jains in the Tamil kingdom are recorded in all these epochs.

The Sangam period

According to Tamil writers there were three Sangams or literary associations. The last of the Sangam Age has approximately been fixed as the second century A.D.

Kural is quoted in **Silappadhikaram** of Ilangovaligal; he is the brother of Senguttuvan whose date is said to fall in 2nd century A.D. It is contended that Kural must have been written earlier. There are strong reasons for believing Valluvar as a Jain. Valluvar was a follower of Arhat.

Certain reference in Kural, "Malarmisaiyeginan," and "Yengunathan" are held to be sufficient evidence to prove that the author was a Jain. "Malarmisaiyeginan" i.e., He who walked on lotus is a very common epithet applied to Lord Arhat. A beautiful lotus forms under the feet of the Jina, which moves along under his feet as he goes to several places to preach his doctrine. This is the special significance of the expression "Malarmisaiyeginan". Yengunathan i.e., he who has eight qualities has a special significance to the Jain. God, according to Jainism, has the following qualities: 1. Perfect faith, 2. Infinite knowledge, 3. Infinite cognition, 4. Extreme fineness, 5. Interpenetrability, 6. Stationariness (quality of being neither light or heavy) and 7. Undisturbable bliss.

The first two centuries of the Christian Era saw, therefore, the appearance in the Tamil countries of this new religion which, with its simple moral code devoid of elaborate exegetics, appealed to the Dravidian and was destined to play an important part in the religious history of South India. It was through the fostering care of the Jains that the South seems to have been inspired with new ideals and literature, enriched with new forms and expressions.

The non-Aryan races began to cultivate a contempt for the Brahmins whose worship of the elements did

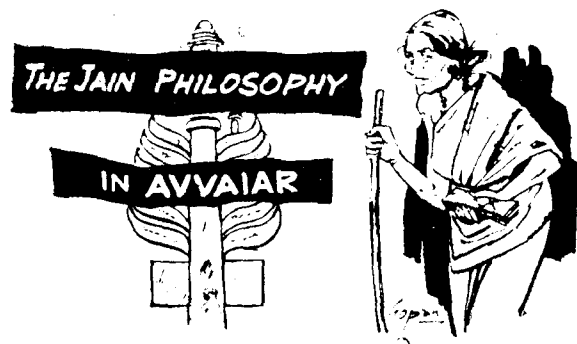
not find favour with the masses. It was at this period that the non-Brahminic orders, Jainism and Buddhism entered the country, and no wonder that with their less complex forms of worship and embodying in their doctrines some of the highest and noblest principles of human conduct, found favour among the ancient Dravidians who not only tolerated them in their midst but even accorded them in their religious life a position of great honour and trust.

The period immediately following the age of Kural is characterised by the growth of classical literature, mainly under the Jain auspices. This age is generally called the Augustan Age of Tamil literature, the period of the predominance of the Jains in intellect, and learning, though not in political power. It was during the 2nd century A.D. that the famous epic **Silappadhikaram** and **Manimekalai** were written. A graphic account of the state of the Dravidian society at that time could be gleaned from these epics. There was perfect religious toleration, Jainism advancing so far as to be embraced by the members of the royal family. Religious conversion did not, as it does now, destroy the bonds of society and family.

In South India the earliest literary movement was predominantly Jaina. In Tamil literature from the earliest times for many centuries Jaina poets held a great place. The Jeevaka Chinthamani, perhaps the finest of all Tamil poems, is a Jaina work.

Eight thousand Jainas, it is said, each wrote a couplet, and the whole when joined together formed the famous **Naladiyar**. Today, this consists of only four hundred verses, but the discrepancy is accounted for by the action of a hostile monarch who flung the whole multitude of poems into a stream and destroyed all but four hundred particularly good ones! Each of the verses is quite unconnected with the other, but has a most unimpeachable moral.

Another name that adds lustre to these times is that of Avviyar, the 'Venerable Matron'; one of the most admired amongst Tamil poets, who is claimed to have been a Jain Monk. Nor was it only amongst the field of poems that the Jaina gained renown; a famous old dictionary and the great Tamil grammar are also accredited to them.



The Jains in Tamil Nadu take great pride in citing Avvaia, the great Tamil poetess of unique aphorisms, as a Jain ascetic.

Courage, nobility of conduct, spirit of sacrifice, gentleness and an ever-ready willingness to give relief to the distressed are the constant guiding principles enshrined in Jain Philosophy.

As most of her didactic couplets and sonnets bear the distinctive stamp of Jain Philosophy, the Jains aver that Avvaia was one of the many women Jain ascetics. Be that as it may, let us see Jain Philosophy through Avvaia.

Regard for Renunciation

To the soul, blessed with the spirit of munificence, gold is trinam (a mere nothing);
To the hero, death when it comes is trinam;
Woman is trinam to the wise;
And the king is trinam to the sannyasi.

போந்த உதாரனுக்குப் பொன்றுரும்பு; குரனுக்குச்
சேர்ந்த மரணம் றுதுரும்பாம்—ஆர்ந்த
அறிவோர்க்கு நாரி யருந்துரும்பாம்; இல்லத்
துறவோர்க்கு வேந்தன் துரும்பு.

Help the Poor

There are no castes but two, if you want me to tell;
One, the good men who help the poor in distress.
The other, that will not so help.
These are the low-born.
And those are the true high caste; this is scriptuer true.

சாதி இரண்டொழிய வேறில்லை சாற்றுங்கால்
நீதி வழுவா நெறிமுறையின்—மேதினியில்
இட்டார் பெரியோர் இடாதார் இழிகுலத்தோர்
பட்டாங்கில் உள்ள படி.

Belief in Karma

All religions say but this,
Do good, refrain from evil.
The good you did in your past lives
Is the wealth you inherit on this earth.
Therefore sin not; do good.

புண்ணியமாம் பாவம்போம் போனநாள் செய்த
மண்ணில் பிறந்தார்க்கு வைத்தபொருள்—அவை
எண்ணுங்கால்
சுதுழிய வேறில்லை; எச்சமயத் தோர்சொல்லும்
திதுழிய நன்மை செயல்.

No Discord in Faith

The Thevaram of the Three (Shaivite saints)
The Tiruvaimozhi of the (Vaishnava) sage,
The Tirukkovai, the Tiruvachakam,
The Tirumantram of Tirumalar,
All are but one and the same teaching.

தேவர் குறளும் திருநான் மறைமுடிவும்
மூவர் தமிழும் முனிமொழியும்—கோவை
திருவா சகமும் திருமூலர் சொல்லும்
ஒருவா சகம் என்(று) உணர்.

Effulgence of Saintliness

True love makes a maiden pine and waste away
But she grows more and more beautiful for all that.
Saintly men waste their bodies away by fasts
But emaciation increases the effulgence of their
countenance,
Bounteous alms consume a good man's wealth
But such waste adds and nought diminishes.
So do the wounds and scars that brave men bring
From the field of battle make them handsomer still.
And the sculptor's blows that carve on the rugged
stone
The hero's glory on the gory field
Give life and beauty to dead matter.

சுரதந் தனில்இளைத்த தோகை—சுகிர்த
விரதந் தனில்இளைத்த மேனி—நிரதம்
கொடுத்துஇளைத்த தாதா கொடுஞ்சமரில் பட்ட.
வகுதுளைத்த கல்அபி ராமம்.

Be Unattached

Consider it well, this body is but a worthless home
For poisonous worms and diseases numberless
The wise know this and so like the water on the lotus
Without attachment pass their lives in silence.

எல்லாப் படியாலும் எண்ணினால் இவ்வுடம்பு
பொல்லாப் புழுமவிநோய்ப் புகுரம்பை—நல்லார்
அறிந்திருப்பார் ஆதனினால் ஆங்கமல நீர்போல்
பிரிந்திருப்பார் பேசார் பிறர்க்கு.

Hospitality to Strangers

The following description of simple hospitality, so greatly enshrined in Jain Codes, is a touching episode in Avvaia's life. Once Avvai was drenched in rains and sought refuge in a cottage where even the householder was not there. But his daughters Angavai and Sangavai asked Avvai to wear one of their half-sarees and plied her with their simple food. This was too much for Avvai and she said as follows:—

Poor Baari the shepherd held me by my cloth
And would not let me go at all from his house.
And simple Kaari of Paliyanur
Gave me his pick-axe, saying, dig with me.
Seraman said, come let us go to Kailas,
These three love-offerings rank high
And rank with the little blue sari
That the girls so lovingly gave for me to wear.

பாரி பறித்த பறியும் பழையனூர்க்
காரி கொடுத்த களைக்கொட்டும்—சேரமான்
வாரா யெவ்வழைத்த வாய்மையினும் இம்முன்றும்
நீலச் சிறுடைக்கு தேர்.

JAINISM

IN PUDUKKOTTAI DISTRICT

In the third century B.C., abdicating his throne, Chandragupta Mourya following his spiritual mentor Bhadrabahu, moved South. The hearsay narrates that Chandragupta and his guru were settled in the hill of Chandragiri at Sravana Belgola in Mysore State and while they were spending their days in religious observations a band of Jain monks entered Tamilnadu. This may be taken as an indication of the advent of Jainism into Tamilnadu.

In olden days Jains had lived in many parts of Pudukkottai. A large number of sculptures and caverns relating to Jainism have been found from various places in Pudukkottai and they reveal the strength Jainism enjoyed in these places. The Jain ascetics, freeing themselves from the shackles of the world looked for places with calm atmosphere to do penance and to study religious truths. Pudukkottai with its many quiet and cool natural caverns in the small hills, away from the busy cities and surrounded on all sides by natural scenery, offered very suitable places for them. The caverns in the small hills around Pudukkottai became the dwellings of Jain ascetics. The fact that they had lived in caverns has been sung by Appar in his devotional songs as, "KURAI ILA SAMANAR", i.e., the Jains who have roofless dwellings. Among the many places where Jainism flourished in Pudukkottai, Sittannavasal, Tenimalai, Narttamalai and Mylapatti are more important.

Sittannavasal

The village is in Kulattur Taluk of Pudukkottai district. It is about 13 k.m. north-west of Pudukkottai town on the Trichy-Viralmalai bus-route. Here is a steep hill 200' in height running south to north. From third century B.C., it had been used by Jains. We get information from an inscription on a stone-bed in Eladippattam on the top of this hill. The inscription tells that Hayar of Sittupposil made abode for Kavidu Iten who had come from Kumattur of Oyma

Nadu. Sittupposil is the name of Sittannavasal in third century B.C., Sittu-possivu-il became Sittupposil. Posivu means cavern in Tamil. Since the Jain monks lived in the caverns of this hill, the place around the hill was called as Sittupposil. On palaeographical grounds scholars assign the date of this inscription to third century B.C. From this we can make out the fact that Sittupposil had a number of Jain followers who took care of their Saints and religion in 300 B.C.

During seventh century A.D. the great Pallava King Mahendravarman-I, excavated a rock-cut cave temple on the western slope of the hill. This cave-temple is important in many ways. It is an important monument, both for the religious history and Art history of Tamilnadu. It is the only cave temple of its type in Tamilnadu. Here is the most pristine frescoes of Tamilnadu which are equal to those of Ajanta and Sikriya in aesthetic merit. This was made by Mahendravarman in his early life before his conversion to Saivism. The plan and construction of the temple in all essentials resemble the other wellknown 'Mahendravarman type cave-temples. The rock-cut cave consists of a Sanctum 10' square and 7'6" in height and a veranda in front, 22'6" in length, 7'6" in width and 8'6" in height. There are five bas-relief sculptures of Thirthankaras in this cave-temple. On the back wall of the sanctum are three images of Thirthankaras and other two are in the south and north walls of the verandah. As we see the hood of a five headed snake above the head of a seated Thirthankara on the southern wall we identify him as Parsavanatha.

The Three Worlds

Just opposite to that on the northern wall is a Thirthankara upon

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whose head is one umbrella. It is tradition to make images of Thirthankaras with triple umbrellas. But here the reason for providing a single umbrella is quite interesting. If we know what these umbrellas denote we can answer the riddle. Nannul explains what the three umbrellas represent: Bavanandi in his Nannul at the beginning of the chapter on words utters prayers to Aechuthan (Mahavira) as "Muc-chagam Niyarrum Muzhumathi Mukkudai Accuthan Adi Thouzhu-thu Araikuvan Cholle." From this we can make out the symbolic purpose of three umbrellas. They represent the Thirthankar's guarantee to his followers of immanence in all the three worlds. Since three umbrellas refer to three worlds, one umbrella may be inferred as a denotation of this world. So we may decide that one umbrella has been provided for great teachers and monks who attained Arhatship. Thiruvasiriyam, an inscription scribbled near the sculpture, confirms this interpretation.

Paintings have been done up on the ceilings of the inner room, front hall and the pillars in the front hall. While the paintings in the front hall are of seventh century A.D. those in the sanctum should have been painted in later period, later than eleventh century A.D.

The Lotus Pool Painting

A lotus-pool has been painted beautifully up on the ceiling of the front hall with fine mineral colours. Water-lillies and lotuses light the tank. Geese waddle and fishes swim. Buffalos gaily wallow. Some pious men of Jain order Bhavyas are plucking and gathering the water flowers and leaves. This lotus pool represents the holy place "SAMAVASARANA". Every Jain soon after he has become a Kevalin (after attaining supreme knowledge) has to deliver here the truths he has realised. Like other auspicious symbols, this too is an important sign for Jains. It is their custom to have Samavasarana in their temples either in the form of sculpture or of painting. (See page 18 for Lotus Pool Painting)

After Mahendravarman's excavation of this cave-temple, this became a place of worship and the cavern on the top of the hill had been used as dwelling. As Jain ascetics who were called "ANNALS" (A Tamil term for Arhats) lived here in great

numbers during this period, the place was called as Sittannavasal, a place of Siddhas and Arhats.

Even in ninth and tenth century A.D. Sittannavasal was a flourishing Jain centre. This fact has been corroborated by the inscriptions on the stone-pillows in Eladippattam. These inscriptions tell the names of the Jain monks who lived there during the above mentioned period. Thozhakkunrathu Kadavulan Thirunilan, Thirupurannan, Tittaichanan and Sri Puranachandran Niyattakkarar Pattakkazhi are the names of the monks we know from the inscriptions. Since the scripts of these inscriptions are in early form of Tamil the time of these hermits may be fixed about ninth or tenth century A.D. Another inscription on a rock south to the cave-temple states the construction of a "MUGAMANDAPA" during the period of Pandya king Avanibha Sekara Srivallabhan.

Tenimalai

It is near Andarmadam in Tirumaiyam taluk. This small hill was called as Thenurmalai in ancient times. Two inscriptions from the place inform that there were Jain temples and monasteries during the time of velirs. The natural cavern on the hill had been utilised by Jain monks as a place of worship and monastery. Many mutilated Jain figures have been traced from this area. These findings and bas-relief carvings of Thirthankara on rocks of Tenimalai confirm the fact that this area was once an important Jain centre.

One Jain ascetic by name Malaya-duvasan was staying here during the time of Irukkevel of Vehir clan. The ascetic worshipping Arugar, was teaching Jain Philosophy. Irukkevel, the Chieftain of Kodumbalur, on seeing this saint, had been attracted by his penance and purity and granted 4.5 ma land as pallichandam for the maintenance of the saint and his Palli. This has been elicited from an inscription of early Chola period.

Kulattur

Kulattur taluk and some other parts around it in modern Pudukkottai District were called as Miyalai Nadu during the time of Kulotunga Chola the first. Kandan Madavan, a Tamil lover, had ruled

Miyalai Nadu. As one who had unquenching love for Tamil, Kandan Madavan, inviting Tamil poets daily to Kulattur made them to enter into discussions for the development of Tamil. The great Amirthasagarar was one such poet called by Kandan Madavan. Two inscriptions on the southern wall of Nidur Siva Temple near Mayavaram in Tanjore District, in fine Tamil poem tell the good news that Kandan Madavan invited Amirthasagarar and made him to write "Yapparunkalakargai". Amirthasagarar was a great Jain Saint-poet. He preached both his religion and Tamil for the students in Kulattur, under the patronage of Kandan Madavan. As Tamil had been enriched further by his "Yapparunkalakargai", Jainism too got further development by him and flourished in this part.

Pudukkottai

The eastern parts of modern Pudukkottai town was in olden days called as Kalasamangalam. Many people of this area were Jains. Bronzes unearthed from Pudukkottai Rajah's college compound area confirm this. One Jain statue has been found on Satayapparai, a small hill near Thirugokarnam in Pudukkottai. This statue which had been worshiped by the local people as "Satayapparai Muni", is a Jaina Thirthangara. It is in meditative pose with triple umbrellas above the head.

Narttamalai

This village is 16 k.m. away from Pudukkottai, on the way to Trichy. This is surrounded by small hills with natural caverns. There stayed many Jain scholars and preached religion and education.

There are eight small hills called Melamalai, Aluruttimalai, Manmalai, Ponmalai, Ovaccharamalai, Parayanmalai, Kadambarmalai and Kottaimalai in Narttamalai. Of these Melamalai and Aluruttimalai had been used by Jain monks for their worship. Today we have two temples in Melamalai, one for Vishnu and other for Siva. The Vishnu cave temple was originally a Jain temple. Residing in the Aluruthimalai the Jains had their deep study in religious works. After sixth century A.D. the Vaishnavite extremists who were carried away by the new wave of Hindu Renaissance converted the Jain temple into a Vishnu temple.

In spite of it, for a long time it had been called by the people as "Samanar Kudaku." This conveyed us the fact that this belongs originally to Jains. Further the architectural style too confirms the reality of this statement.

Chettipatti

Jain sculptures got from this village in Kulattur taluk of Pudukkottai district make us to believe the existence of Jainism here in the early Chola period. Sculptures of Thirthankars, head of Parsavanatha with five headed serpent, lion-pillars and Chowri-bearers have been found from this place. As we get so many Jain sculptures here, it seems once it might have been a thriving Jain centre.

Mylappatti

Mylappatti is another small village in Kulattur taluk. The Jains in ancient time constructed a temple on the hill of this village. The dilapidated basement and other structures of this temple which had undergone all the ordeals and assaults of nature and time reveal the past glory of this temple.

Jain Sculptures in Pudukkottai Museum

Pudukkottai Government Museum has Jain Sculptures and bronzes collected from in and around Pudukkottai. Nine stone sculptures and five bronzes have been displayed in the Jain gallery of this Museum. Of these nine stone sculptures, two have been brought from Mosakkudi of Kulattur Taluk. One is a Thirthankara in meditative pose and the other one is standing Parsavanatha with five-headed serpent. These two sculptures express Mosakkudi as a Jain vicinity. Other sculptures of Mahavira and Thirthankarars belong to Valamangalam and Vellanur of Kulattur Taluk are here. Two chawri-bearer sculptures brought from Tenimalai of Tirumaiyam taluk are nicely fixed in the wall in Jain gallery.

The five Jain bronzes exhibited in the Museum are more interesting. All these five bronzes have been unearthed from the place where now is Pudukkottai Raja's College. Among these, the bronze of standing Adhinatha with other twenty-three Thirthankarars surrounding him along the bars of Thiruvashi is more

important. The height of this bronze is 36.6 c.m. and breadth is 17.8 c.m. The Adhinatha in the centre with the lotus pedestal is 17.8 c.m. The Adhinatha in the center with the lotus pedestal is 15.3 c.m. His two attenders Gomuka and Chakresvari are fixed respectively on right and left sides of the basement pedestal. Scholars fix the time of this bronze to the tenth century A.D. While we study this bronze comparing with Chola bronzes it appears as it had been done by the artist who practised Chalukya-Rastrakuta styles. (See picture below)

Two Parsavanatha bronzes are in standing position with five-headed snake. The height of the bronzes are 23 c.m. and 11.5 c.m. As per the opinions of the scholars the big Parsavanatha which seems in simple modern style belongs to the period more earlier than to the small bronze which has been done according to religious canons.

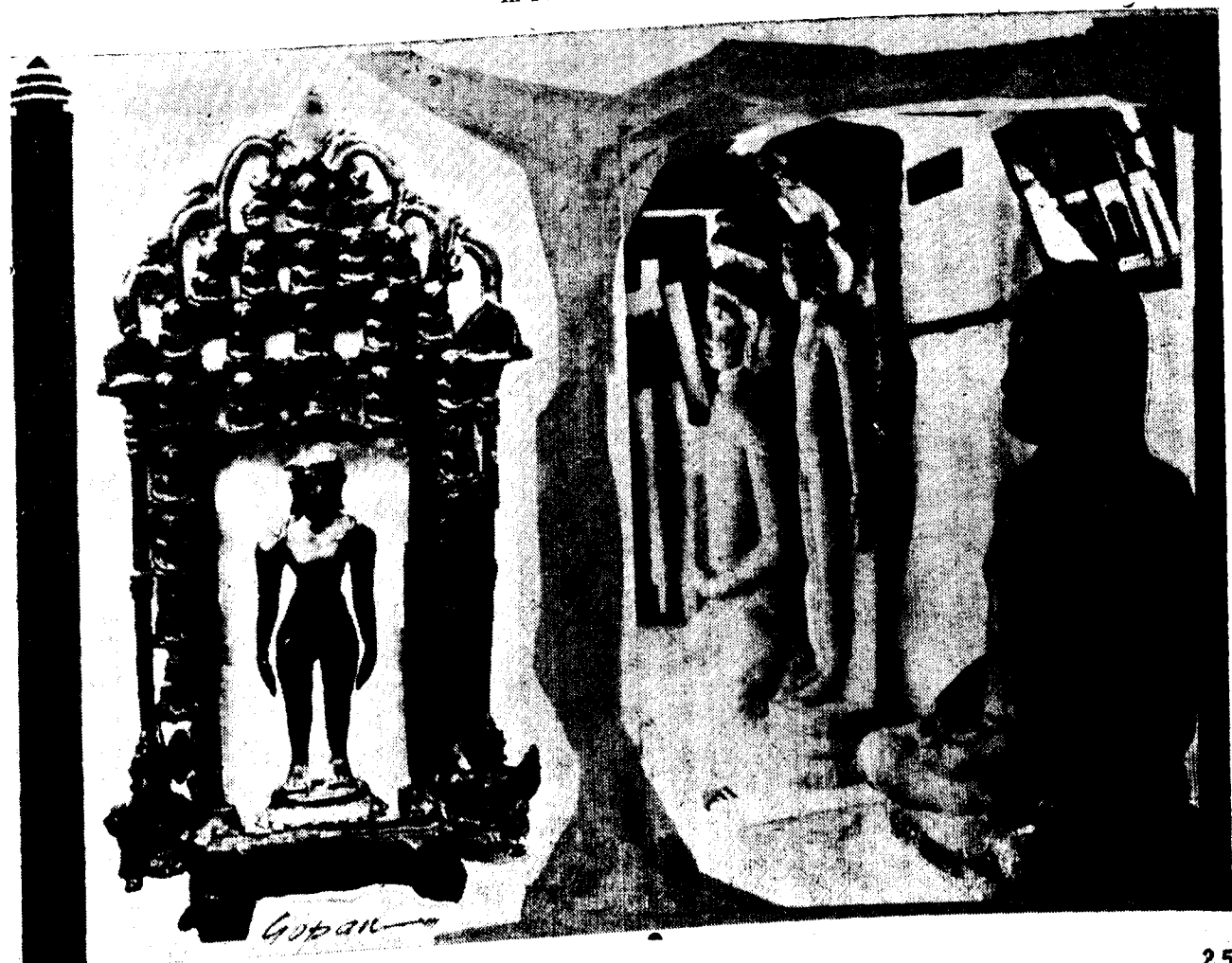
The small Parsavanatha bronze is standing on a lotus pedestal. The lotus pedestal rests up on a

square pedestal supported by lions. If the five headed serpent is not above the head of Parsavanatha on the basis of the lions which support the pedestal, it might have happened to decide the bronze as Mahavira. But the presence of five-headed snake make us to determine the bronze as Parsavanatha. While Parsavanatha was in intense meditation in order to become a Kevalin, his enemy, a brahman asectic, caused a heavy down pour of rain. Then his snake friend, who had later become God Dharanendra, helped him from the rain by spreading his hood like an umbrella above his head. Hence Parsavanatha images are done with five-headed serpents. Generally lion is the cognizance of Mahavira: but, since all Thirthankarars are Jainas (those who won the worlds) they are eligible for Simhasana. Hence sometimes the pedestals of Thirthankarars are made with lions.

Adhinatha

There is no bull cognizance to identify this standing Thirthankara

In Pudukkottai Museum



as Adhinatha. But as this bronze has been named for a long time in the Museum as Adhinatha, here also the heading has been given as resting upon a lotus pedestal which in turn is fixed upon a square pedestal. The height of this bronze with pedestal is 48 c.m. and without pedestal is 34.5 c.m. This bronze which has some features of Chola period, has two projections on the sides of the pedestal to set Thiruvashi. On the four corners of the lower portion of the pedestal, arrangements have been made to tie the bronze with ropes. This explains the habit of the Jains in Chola period, who like the Hindus took their Thirthankarars in street processions.

Mahavira

This bronze is seated upon a lotus pedestal in meditative pose. On the two sides of the pedestals are holes to set the Thiruvashi. The height of this small bronze is 10.5 c.m.

JAIN PILGRIM CENTRES AND CENTRES CONTAINING

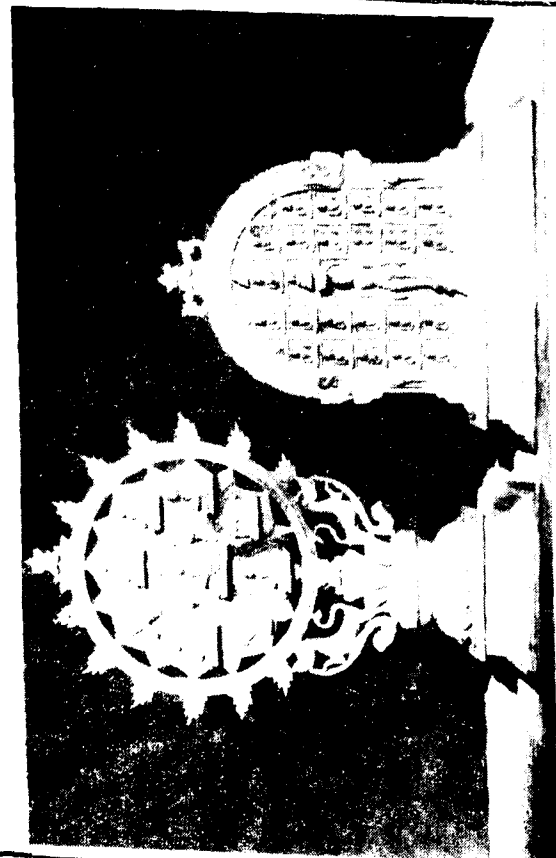
Name of the Hamlet	Route	Name of the Place	Other Significance
1. Tiruparankundram	Near Madurai	The cave abode surrounded with natural sceneries and serenity in the hills situated just the other side of the Railway Station at Tiruparankundram.	Beds of Jain Ascetics. Tamil-Brahmi stone inscriptions relating to the period from B.C. 3rd century to A.D. 2nd century.
2. Keezhakudi	Near Madurai University	Amana Hills. 1. Settippodavu 2. Pechupallam	Tirthankarar sculptures Round Yachi in stone inscript depicting war scenes relating to the period of A.D. 8th and 9th centuries. Tirthankarar sculptures Vattezhuthu inscriptions relating to the period of A.D. 8th and 9th centuries.
3. Konkarpuliyankulam	Near Madurai University	Hill near the hamlet and the natural-cave abode	1. Many Jain beds 2. Tamil Brahmi stone inscription pertaining to A.D. 8th century. 3. Tirthankara sculpture-Vattezhuthu stone inscription relating to A.D. 8th and 9th centuries.
4. Muthupatti	On the Madurai-Tirumangalam trunk road—10 miles from Madurai	Pancha Pandavas bed	1. Tamil - Brahmi inscription 2. Jain's cave abode beds
5. Mettupattu	Near Peranai Dam in Nilakottai Taluk	Sithar Hill—cave—abodes in natural setting	3. Tirthankara sculpture
6. Vikramangalam	Near Sholavandhan in Madurai district	On the hillock called UNTANGKAL	Tamil—Brahmi stone inscriptions
7. Varichiyur	8 miles from Madurai in the east near Vilathur	Udayagiri	1. Jain's beds 2. Tamil Brahmi inscriptions Tamil Brahmi stone inscription.
8. Anamalai	On the Madurai—Melur road near Othakadai	1. The natural cave abodes on the Anamalai 2. At the foot of Anamalai 3. A little distance away from it	1. Jain's beds Tamil - Brahmi inscriptions. 2. Tirthankara statues—Vattezhuthu stone inscriptions 3. Rock-hewn temples of Pandyan architecture. Tamil - Brahmi stone inscriptions.
9. Tiruvadavur	Near Madurai	The hill near the hamlet	Birth place of Manickavasagar.
10. Meenatchipuram (Arittapatti)	On the Madurai-Melur Road	1. The natural cave abode on the Kazhugumalai 2. Ovamalai hills 3. Jains beds	1. Tamil Brahmi stone inscription pertaining to the period of B.C. 3rd century. 2. Inscription depicting the gifts given by Pandyan Nedunchezhiyan to Nandasiria kugar, the Jain saint.
11. Alagarmalai	Near Madurai	3 miles from the hamlet of Kidaripatti	Tamil-Brahmi stone inscription—Jain beds
12. Karunkalangudi	On the Madurai-Melur-Tiruchirappalli trunk road	The cave abode in natural settings on the hillock	1. Tamil-Brahmi stone inscriptions. 2. Tirthankaras sculptures.

MONUMENTS OF JAINISM IN TAMILNADU

Name of the Hamlet	Route	Name of the Place	Other Significance
13. Keelavalavu	7 miles from Melur on the Melur—Tirupathur road	The cave-abode in natural settings on the hillock	1. Tamil—Brahmi stone inscriptions. 2. Tirthankarar sculptures.
14. Kundrakudi	6 miles from Karaikudi	A temple and cave abode	1. Tamil-Brahmi stone inscriptions 2. Jain beds.
15. Sittannavasal	On the Pudukottai-Viralimalai road	A cave-abode near Ezhadipattam	1. Jain beds. 2. Tamil-Brahmi stone inscription 3. Rock-cut temple 4. Paintings.
16. Velayuthampalayam	On the Karur - Velur road	Inscription in the Arnattarmalai	1. Tamil-Brahmi stone inscriptions relating to the period of A.D. 2nd century 2. Stone inscription of Chera king of sangam age. 3. Inscription noting down the providing of a bed to Jain Sengayaparvic by the Chera king Ilankarungo.
17. Arachalur	On the Erode-Kangayam road in Coimbatore district	Near Andiparai on the Nagamalai	1. Inscriptions of Musical rotations (A.D. 3 & 4 century) 2. Jain beds.
18. Marukalthalai	10 miles from Palayamkottai in Tirunelveli District	The natural cave abode on the Poovie Udaiyar hill	Tamil Brahmi stone inscriptions
19. Mamandur	12 miles from Kancheepuram on the Kanchiram-Wandiaroad	The cave-temple of Mahendrarvarman period is located at Dhusimamandur	1. Jain beds. 2. Tamil-Brahmi stone inscriptions.
20. Tiruparuthikundram	Near Kancheepuram	Varthamana temple	Stone inscription relating to the period from A.D. 12 to 16th century. Stone inscription relating to Raja Raja Cholan
21. Tirumalai	Near Vadamadhimangalam on the Polur—Arni Road	Temple	
22. Vallimalai	Near Pancha Pandavar Malai in Gudiyatham Taluk	The cave-abode on the side slope of a hill	Jain sculptures stone inscriptions pertaining—A.D. 9 & 10 centuries Yachi sculpture and stone inscriptions (A.D. 8th century)
23. Tiruppamalai	Near Arcot	Natural cave-abode	
24. Venkundram	—	A temple	
25. Sithamur	In Tindivanam taluk	A Jain Mutt surviving Mutt.—Chief.	
26. Gingee Fort	—	Tirunathar Hillock	Tirthankarar sculptures in series stone inscriptions pointing out the origin of stone inscription
27. Ivarmalai	Near Palani	Natural cave-abode	1. Tirthankarar sculptures 2. Stone inscription pertaining to Pandyan Varaguran second (A.D. 870). More than one hundred Tirthankara sculptures.—Jain beds.
28. Kazhugumalai	In Kovilpatti taluk	Natural cave abode	



CHOLA INTEREST IN JAINISM
Left and right. Parswanadha and Neminadha Statues at Tirumalai, North Arcot District. Chola Patronage of Jainism is inferred by the fact that the Neminadha Statue was installed at the instance of Kundhavai Devi, sister of Raja Raja Chola.
Middle : The Nine Deities and 24 Tirthankaras in Bronze at Jeena Kanchi Temple.
Bottom : The Kundavai built Jain Temple at Tirumalai (right) and the Vijayalaya period Jain frescoes. (left)



*Photographs of State
 Department of
 Archaeology.*

THE ARNATTAR MALAI JAIN RETREAT

CHERA PATRONAGE OF JAINISM



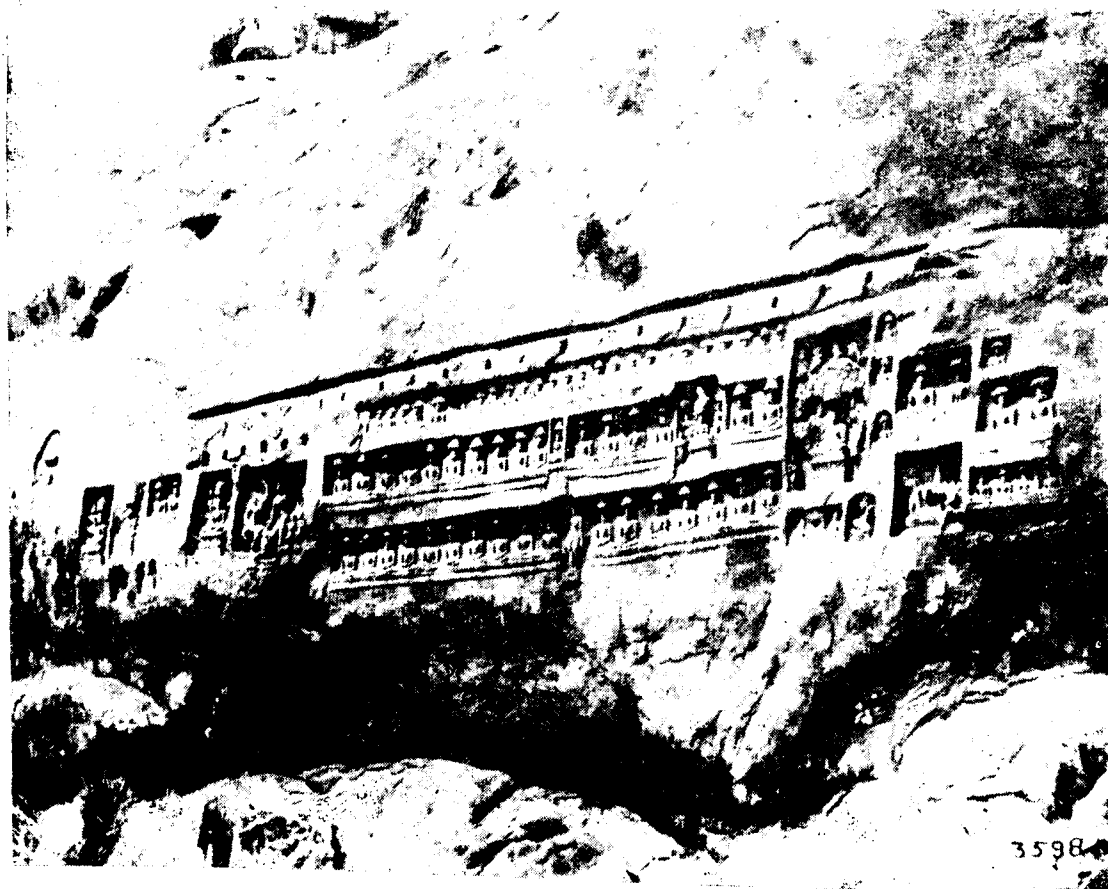
Arnattar Malai at Velayuthampalayam, about 11 K.M. from the present town of Karur, contains two sets of stone inscriptions, one on either side of the hill which pertain to the period of the dawn of Christian era. The inscription on the northern side of the hill in a cavern which carries a number of rock beds of historical importance is assigned to the Pre-Christian era and mentions a certain Perungeeran, son of Nagan. The other group of inscriptions which are more important to the history of South Indian Jainism and Sangam literature, occurs in the cavern on the southern side of the hill. It records the dedication of the abode to a certain monk Sengayapan of Yarrur by a Chera prince, Ilamkadungo. The inscriptions tend to confirm that Karur had been the capital city of the Chera dynasty for three generations during the Sangam age. This is abundantly corroborated by the references in the Sangam literature.

These inscriptions have been successfully deciphered by Thiru T. Mahadevan. He has rightly identified these three Chera rulers as Sellakadungo, his son Peruncheral Irumborai and Ilancheral Irumborai.

Besides these, there is another epigraph relating to a gold merchant from Karur making donations to the Jain retreat.

Kazhugumalai

Profile of Pandya Patronage

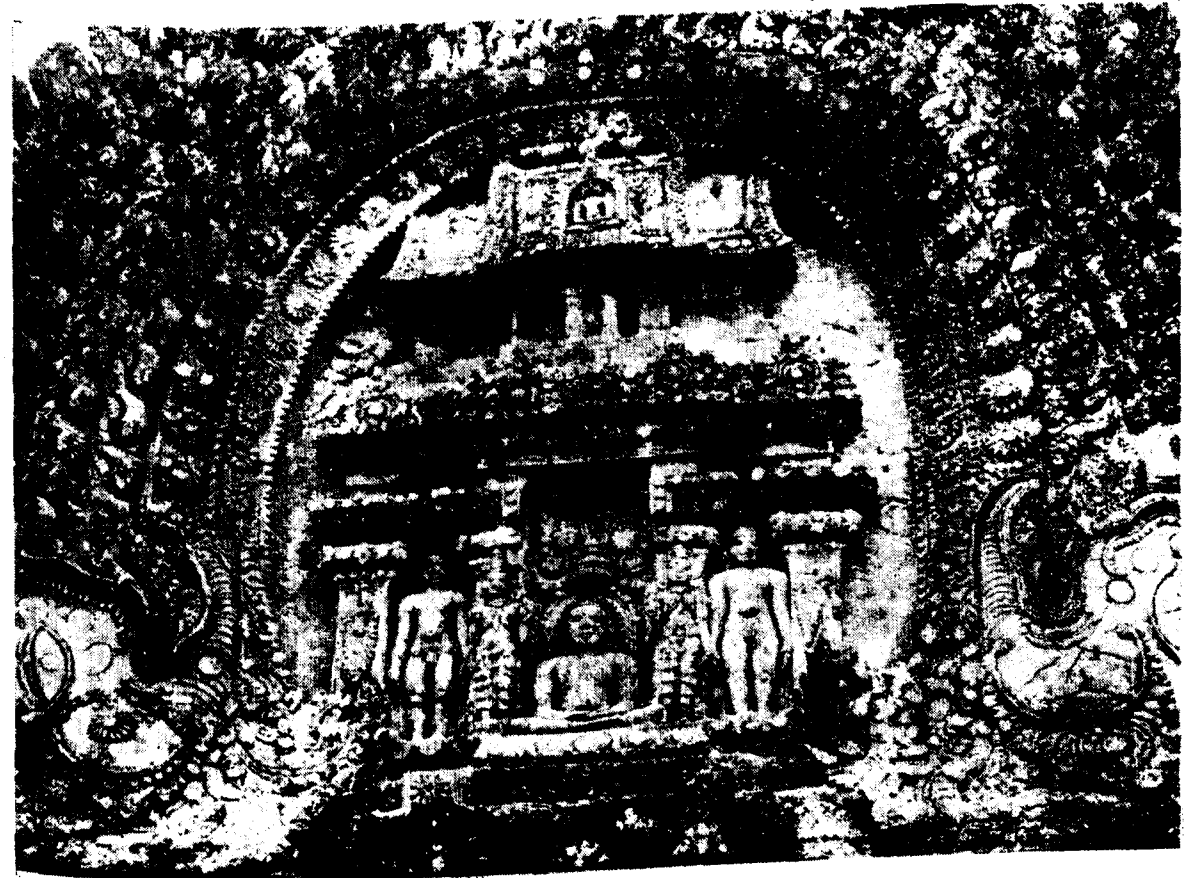


A HILL RETREAT FOR JAINS

Kazhugumalai in Tirunelveli district in Tamil Nadu presents an important group of sculptures which bring in bold relief the impact and influence of Jain religion on Tamil culture. The images of over 60 Jain Tirthankaras and few representing Yakshis found on the top of Kazhugumalai are carved with Vattezhuthu inscriptions beneath every image.

The contents of these inscriptions bring to light the historical fact that Jain teachers, disciples and their lay followers from various parts of Jain centres used to throng to the hill of Kazhugumalai and that the sculptures are the symbols of their dedication in memory and honour of their dead forefathers. One of the inscriptions in the village relates to the period of Pandyan Paranthaka Nedunchadai. This historical evidence bears ample testimony to the fact that Jainism received good and a great deal of patronage at the hands of Pandya rulers and that this hill retreat, during the reign of Paranthaka Nedunchadai, seems to have served as a very important Jain settlement.

—R. N.



The chiselled features of the Vimana in Tirupparuthi Kunram Trilokanatha Temple Gopuram.

Initially, the Jains began by excavating cave temples consisting of a pillared mandap with a single or more cells and later adopted the structural mode. Structural temples came up around existing caves or huge boulders with sculptures representing the Jaina deities.

The Jain temples generally assume a square plan for the shrine as in picture below with a storeyed superstructure and mandapas in front and with enclosures and gopuras. The nucleus of the temple complex is the shrine (Vimana) and the centrifugal development of the temple takes place from about the 10th century A.D. and reaches the highest point of magnification in Vijayanagar period, as in Tirumalai.

One important distinguishing feature of a Jain temple is the presence of the Manastambha in the court yard in front of the main temple alignment. It occupies the position of the dvajastambha of Hindu temples and is decorated with flags and festoons at the top and with niches containing Jaina images at the base.



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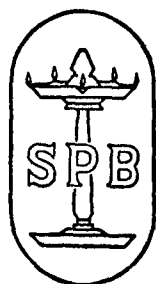
- (1) Series of failures we encountered
In developing cane for our survival ;
We surmounted all in a decade
With a solemn purpose of serving the Nation.
- (2) By fleet of lorries well organised,
We bring the cane fresh from the field.
We ensure supply of inputs,
And prompt in payment of cane price.
- (3) We enforce measures of Plant Protection
And conduct crop Competition.
We take our growers on Tour Education
And teach them to grow quality cane.
- (4) Every succour in hour of need
We extend to members who really need.
Working in the Co-operative Sugar, we greet
To consolidate the gain we already made.

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DR. RADHAKRISHNAN ON JAINISM

The period between 800 to 200 B.C. has been characterized as an axial period of history. In other words, the axis of world's thought shifted from a study of nature to a study of the life of man. In China, Lao Tse and Confucius ; in India, the seers of the Upanisads, Mahavira and Gautama the Buddha ; in Iran, Zoroaster ; in Judea, the great prophets ; and in Greece, the philosophers Pythagoras, Socrates and Plato ; all of them turned their attention from outward nature to the study of the human self.

Today, we are celebrating the jayanti of one of those great figures of humanity, Mahavira. He is called the Jina, the conqueror. He did not conquer kingdoms ; but he conquered his own self. He is called Mahavira, the great hero, not of the battles of the world but of the battles of the inward life. By a steady process of austerity, discipline, self-purification and understanding, he raised himself to the position of a man who had attained divine status. We are celebrating his jayanti because his example is an incentive to others to pursue the same ideal of self-conquest.

This country has from the beginning of its history down till today stood for this great ideal. When you look at the symbols, the statues, and other relics which have come down to us from the time of Mohenjo daro and Harappa down to our own day, we are reminded of the tradition that he who establishes the supremacy of spirit and its superiority to matter is the ideal man. This ideal has haunted the religious landscape of our country for four or five millennia.

In Mahavira we have an ample of a man who renounced the things of the world, who was not entangled in the bonds of matter but who was able to realize the inward dignity of his own self. How can we pursue this ideal ! What are the ways by which we can attain this self-realization, this self possession ? Our scriptures tell us, if we wish to know the self, sravana, manana, nididhyasana are to be practised. The Bhagavadgita says : tad viddhi pranipatena pariprasnena sevaya. The same three great principles were asserted by Mahavira when he mentioned darsana, jnana, caritra. We

must have visuvasa, faith, sraddha, that there is something superior to the things of this world. Mere faith, blind unthinking faith, will not do. We must have knowledge, manana. By reflection we consert the product of faith into a product of enlightenment. But mere theoretical knowledge is not enough. We cannot get life eternal by mere textual learning. We must embody these great principles in our own life, caritra, conduct is equally essential. We start with darsana, pranipata, or sravana. We come to jnana, manana, or pariprasna ; then we come to nididhyasana, seva, or caritra. As the Jain thinkers put it, these are essential.

What are the principles of caritra, or good conduct, sadacarana ? The Jain teachers ask us to undertake different vows. Every Jain has to take five vows : not to kill anything, not to lie, not to take what is not given, to preserve chastity and to renounce pleasure in external things. But the most important of them all is the vow of ahimsa, the vow of non-violence, of non-injury to living beings. Some even renounce agriculture for it tears up the soil and crushes insects.

What we are called upon to do is increase the scope, so to say, of non-violence-yatnat alpatara bhavet. By our self-effort we must reduce the scope of force and increase the scope of persuasion. So ahimsa is the ideal which we have set before ourselves.

If we adopt that ideal we will get another consequence of it which is framed in the Jain doctrine of anekantavada. The Jains tell us that the absolute truth or kevala-jnana is our ideal. But so far as we are concerned we know only part of the truth. Vastu is aneka-part of the truth ; it has got many dharatmakam ; it is complex ; it has sides to it ; it is complex ; it has many qualities. People begin to realize this side of it or that side of it, but their views are partial, tentative, hypothetical. The complete truth is not to be founded in these views. It is only realizable by the souls who have overcome their own passions. This fosters the spirit which makes us believe that what we think right may not after all be right. It makes us aware of the uncertainties of human hypotheses. It makes us believe that our deepest

convictions may be changeable and passing. The Jains use the fable of the six blind men dealing with the elephant. One takes hold of the ears and says it is a winnowing fan. Another embraces it and says it is a pillar. But each of them gives us only one partial aspect of the ultimate truth. The aspects are not to be regarded as opposed to each other. They are not related to each other as light is related to darkness ; they are related to each other as the different colours of the spectrum are related to one another. They are not to be regarded as contradictory, they are to be taken merely as contraries. They are alternative readings of reality.

The world today is in the throes of a new birth. While we aim at one world, division rather than unity characterizes our age. In a two-world pattern there is a temptation for many of us to think that this is right and that is wrong and we must therefore repudiate the other. Well, these are to be regarded as alternatives, so to say, as varying aspects of one fundamental reality. Over-emphasis on any one aspect of reality is analogous to the attitude of the blind men in the fable each of whom described the shape of the elephant according to the part of the animal he touched.

Individual freedom and social justice are both essential for human welfare. We may exaggerate the one or underestimate the other. But he who follows the Jain concept of anekantavada, saptabhanginaya, or syadvada, will not adopt that kind of cultural regimentation. He will have the spirit to discriminate between the right and the wrong in his own and in the opposite views, and try to work for a greater synthesis. That should be the attitude which we should adopt. So the necessity for self control, the practice of ahimsa and also tolerance and appreciation of other's point of view—these are some of the lessons which we can acquire from the great life of Mahavira. We would have paid a small part of the debt which we owe him if we remember these things and go away from here with these principles implanted in our hearts.

Excerpts from the speech of Dr. S. Radhakrishnan, Ex-President of India at Mahavira Jayanti Celebrations, New Delhi on 5th April 1955.

WANT Rs. 50,000?

Design a LIGHT-WEIGHT Bus Body

The Government of Tamil Nadu, ever in the forefront with schemes to stabilise the economy, is now seized with the problem of price-hikes, as they affect road transport, due to the present oil crisis.

As the heavier the vehicle,

the higher is fuel consumption, it is expedient that a lighter type of bus body be developed. A utility body with stability. Able to withstand climatic conditions. And manufactured from readily-available indigenous material at competitive prices. A

body for buses on all roads, city and mofussil.

To this end the Government of Tamil Nadu is offering a prize of Rs. 50,000 for an acceptable design of a light-weight bus body, which will result in fuel economy.

Submit proposals in a sealed cover, superscribed 'COMPETITION ON LIGHT-WEIGHT BUS BODY-BUILDING' to:



Secretary to the Government,
Transport Department
Fort, St. George,
Madras-600 009.

Last date
for receipt of
entries:
31-12-1974

RULES

1. This competition is open to any individual or organisation in the private and public sector.
2. Proposals must be written in English in clear terms.
3. (a) The average weight and cost of conventional, composite type bodies are given below:

	Average unladen weight	Average cost of body building
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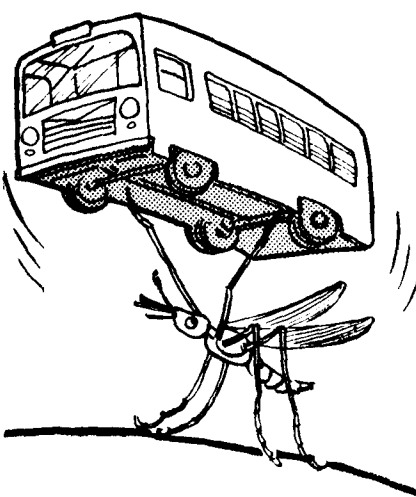
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|---|-----------|------------|
| i) Benz vehicles: 205 wheel-base, 50% over-hang with 50 plus two seats | 5,850 kg. | Rs. 38,000 |
| ii) Leyland vehicles: 210 wheel-base, 50% over-hang with 62 plus two seats | 6,500 kg. | Rs. 38,000 |
| iii) Leyland vehicles: 210 wheel-base, 60% over-hang with 68 plus two seats | 6,750 kg. | Rs. 40,000 |

- (b) Only proposals that effect a savings of more than 500 kg. on each of the above-mentioned categories will be eligible to enter the competition.

- (c) Any increase in cost over the figures furnished above, due to use of alternative material that may be costly but lighter in weight, will have to be made up over a two-year period consequent on economy in the consumption of fuel.

- (d) The materials for body building suggested in the competition should be available in the country in sufficient quantities of comparatively reasonable prices.

- (e) The design should be sturdy to meet the conditions of Indian roads.
- (f) The design should suit the climatic conditions of the country.



required, the competitor shall go to the place at the time fixed by the Committee, for which he will be paid a suitably-fixed Travelling Allowance.

5. Should the proposal be purely skeleton in nature, the competitor will be asked to go to the workshop of a State Transport Undertaking, to be decided by the Committee, where he will be required to demonstrate his proposal. All reasonably-considered assistance will be given by the S. T. Undertaking concerned and the demonstration will have to be completed in one month from the date on which the competitor is called upon to do so.

6. A competitor may send one or more proposals. Each proposal will be treated as separate for awarding the prize.

7. The award-winning design will remain the property of the designer, subject to the Tamil Nadu Government and the Transport Department of the Government of Tamil Nadu being allowed to use the design freely without payment of royalty.

8. A National Committee, constituted by the Government of Tamil Nadu, will scrutinise entries. The award will be determined by the Tamil Nadu Government on recommendations of the National Committee.

9. Where proposals more or less identical, are accepted by the Committee, the prize money will be equally distributed.

10. The Committee may, at its discretion, extend the various time-limits mentioned here.

11. The decision of the Committee regarding acceptance or rejection of proposals and recommendations of the award in full or modification, depending upon the quality of the proposals, will be final and conclusive and shall not be questioned in a Court of Law.

12. While submitting proposals, it must be clearly stated that the competitor agrees to abide by all these conditions and rules.

Jainism had flourished throughout Tamilnadu with great influence from very early times. Its influence accrued not so much from power but from conducts of high rectitude and exemplary virtues in the followers of Jainism. The votaries of this religion did not have to carry the dead-weight of caste distinctions, and it allowed full scope for the development of the human personality. No wonder then, that in the process, some Jain women became outstanding personalities leaving their foot-prints in the sands of time. There was great stress on the principle that if a person were to "possess right faith in the right direction with right conduct, that person is no less than a God for worship by others."

This religion laid so much stress on saintliness that is 'Veetharga' status (Refraining from all material life) that there is no dearth for saints in the Religion. Naturally enough, the several stages for aspirants to asceticism are laid down in the Jain scriptures, and women ascetics have also been equally abundant among Jains.

The Women saints are designated as follows: Kandhi, Avvai, Ammai, Kanni, Koundhi, Paimmi, Sami, Kurathi, Perunathi, Asal, Thalaivi, Iyai; These names are gathered from Choodamani Nikandu, Pingala Nigandu and Kayathara Nigandu. They are also called Aryanganais. From the inscriptions found in Sravana Belgola, Karnataka State, the names of certain women saints are given below: Nagamathi Kandhiar, Sagimathi Kandhiar, Sri mathi Kandhiar, Nivilur Ragnimathi Kandhiar, Ananthamathi Kandhiar and Mangappa Kandhiar. Among them the two women saints namely, Prithivi Vidanga Kurathi and Kanakaveerakurathi had been leading the great saintly life with distinction.

According to an inscription two women saints namely 'Pattini Kurathi Adigal' had established an educational institution and arranged for a drinking water well for the welfare of the public in the period of 'Madurai Konda Kopperukesari Varmar'. Also two other women saints as per the inscription are called by the name of the villages or towns where they lived (Sri Mizhalur Kurathi and Thirupparuthi kurathi.)

The author of Jeevaka Chinthamani is Thiruthakka Devar. It is also said that 450 stanzas of the

SOME

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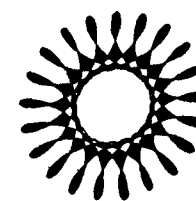
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By

SUNANDHA DEVI

book were composed by a woman saint, namely Kaundhiar and was included in Jeevaka Chinthamani but it is not possible to distinguish these 450 stanzas from the other chapters of the Book. Thus it is evident that the women saints had attained literary standards on a par with their compeers of men saints and were endowed with as much knowledge and the skill to use that knowledge as the members of the opposite sex. These women saints have been teaching the Jain Philosophy and morals of household life (Grahastha Dharma) to the women folk in their family life. Now we shall see some incidents in the lives of a few very great women saints.

Kavunthiadigal :— Kavunthiadigal is cited in Silappathikaram. Before leaving Poompuhar for Madurai, Kovalan and Kannagi met her. At the first sight itself she described to them the strength of past karmas. According to her the philosophy of Jainism is that the karmas will not and cannot leave the souls voluntarily, but have got to be destroyed either by enjoyment or sufferings or by concentrated meditation combined with Thapas. From her we came to know the saints are preachers of right faith in the right directions to the masses going for this purpose, from place to place. To go to Madurai Kavunthiadigal gives the distressed couple a detailed route map. Her route advice is itself replete with the Jain philosophy of Ahimsa. The principle of Ahimsa that even insects should not be disturbed from their normal way of living dictates the route which Kavunthi Adigal advocates for Kovalan and Kannagi to reach Madurai. She also narrates the following:

1. The preachings of none except those who have conquered passion, bad temper, and Maya need be listened to

2. None except those who have conquered the five senses need be seen.

3. None except the soul which has conquered the Karmas need be worshipped.

The above principles though applicable to all, were very strictly adhered to by Kavunthiadigal.

During her travel to Madurai the following incident occurred. Two persons criticised Kovalan and

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Lastly when Kovalan dies Kavuvai thiadigal undertook 'Sallegan' that is observing fast till death and she completed her life span. Illadigal govadigal the author of Silappadigam

Abayamathi :—Abayaruchi and Abayamathi were twins; Abayaruchi being her elder and a brother. They are referred to in Yasodhara

The Jains are to lead a life of two parts namely 1. as an householder and 2. as a saint. The saints are to follow the principles of Jain Dharma very strictly. The house holders too have to seriously observe these principles. The life of Jain householders are to be moulded in such a way that ultimately they shall be in a position to undertake the saintly life.

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9 months and above but less than 1 year	7.00
1 year and above but less than 3 years	8.00
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R. Kanakasabai,
Chairman.

HUGE BUILDING PROGRAMME FOR STATE'S COMMERCIAL TAX DEPARTMENT

The revenue accruing from the Sales Tax provides the bulk of the resources required for the developmental plans and welfare schemes of the State Government. It is hardly necessary in these circumstances to highlight the fact that the Commercial Taxes Department which is in-charge of assessment, levy and collection of sales tax, vital and important in the State budget, should be in a position to function efficiently and effectively. A very basic requirement for this is suitable and adequate office accommodation. As a result, an ambitious building programme for the Commercial Taxes Department all over the State has been approved. The buildings have already been completed at two places (Salem and The Nilgiris). The construction is in progress at three other places. The work is at different stages of commencement at six other places including Madras.

In Madras, there are 68 offices of Sales Tax Department located in different parts, in private buildings which cost the Government annually over Rs. 7.62 lakhs in rent alone. The Central building on which work is to commence shortly will accommodate almost all these offices. The foundation for this building

Complex at Madras was laid by Chief Minister on 21-8-1974.

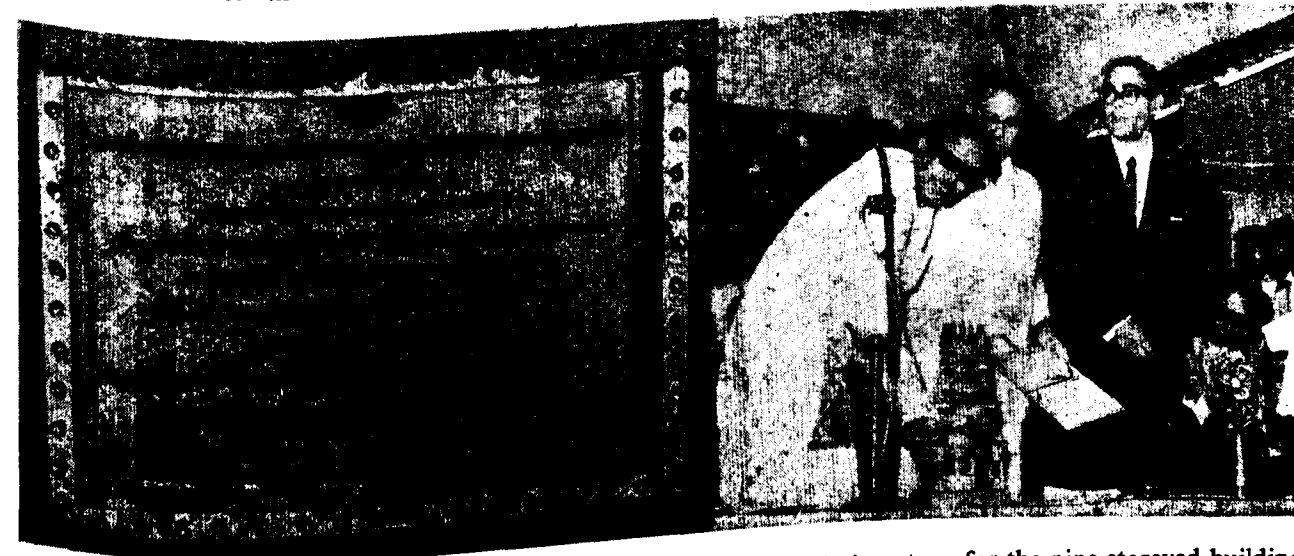
The present plan is to construct an impressive building on a 25 ground site with 9 storeys having all modern features, at an estimated cost of Rs. 98.5 lakhs and this may perhaps be the most imposing structure yet planned for any Government Department. When finished, by its architectural beauty, it will be one more adornment to the city.

The Sales Tax has come to be recognised as the most potential of the Indirect Taxation sources. Our State led the country by introducing the levy of Sales Tax as early as 1939 and since then, its yield has been progressively increasing and has now come to occupy the first place in the finances of the State as the following figures would illustrate :

The rising revenue from the Sales Tax gratifyingly reflects the growth and expansion of Trade and Commerce in the State. That the economic policies of the Government have been throughout conducive to such development is obvious from the figures given above. The exceptional feature of the taxation policy of the present Government

is the indulgence consistently shown towards small merchants. The exemption limit has been raised. A good number of commodities have been brought under single-point levy from multi-point tax. Last year, the Government appointed a Member of the Board of Revenue as Special Officer and on the basis of his recommendations, the Government have been issuing orders helpful to improve and rationalise the administration of the Sales Tax Acts in the interests of the business community as a whole. Besides, we have the services of a Public Relations Officer in the grade of Deputy Commissioner to maintain and promote better understanding and more cordial relations between the Department and the trade.

Year	Revenue from Sales Tax (in Crores)
1939-40	 0.79
1949-50	 18.10
1959-60	 18.74
1965-66	 47.22
1967-68	 64.95
1968-69	 71.47
1969-70	 82.58
1970-71	 93.23
1971-72	 111.20
1972-73	 127.07
1973-74	 150.98



Dr. M. Karunanidhi, Chief Minister of Tamil Nadu laying the foundation stone for the nine storeyed building for the commercial Tax offices in the city, on 21-8-1974.

Secretariat Administration

==O==

Recommendations of A. R. C.

The Administrative Reforms Commission has completed its work and presented its final report on the Secretariat Organisation to the Chief Minister in his Chambers at Fort St. George on 12th September, 1974. This report is in three sections under General administration, Financial administration and Personnel administration.

The Commission has pointed out that though the work of the Secretariat had increased enormously in volume, as well as in complexity, its basic structure has remained unchanged over the years. The activities of the Government during the British period, were restricted to a few Regulatory functions such as the preservation of Law and Order, the maintenance of some welfare services, and the collection of Government revenues. The bulk of the work of the Secretariat in those days was largely of a repetitive nature, which seldom called for the innovative approach necessary at present, in implementing ambitious development programmes. The Commission felt that the existing arrangement by which increased work and responsibilities, are being sought to be dealt with by merely increasing the number of the supporting staff, has resulted in slowing down of decision-making. An organisation devised to serve the purpose of the British Executive Council, with its calculated detachment from the rough-and-tumble of district administration, is obviously unsuited to present conditions, where the council of Ministers in charge of the Government, are directly responsible to the Legislature and should be responsive to the pressing needs of the newly awakened masses.

The Commission has, accordingly, recommended far-reaching changes in the structure of the Secretariat and its methods of work. Some of the important recommendations are :—

(a) Financial powers should be decentralised by substantial delegations to the administrative departments with over-all financial control

being exercised by the Finance Department through budget appropriations which should be strictly enforced.

(b) Significant procedural changes should be made in the working of the Secretariat which would reduce the accumulation of files and expedite decision making.

(c) The advice of technical officers and Heads of Departments with large development programmes should be made more readily available to the Secretariat.

(d) Public Enterprises should be brought increasingly under the company form of management to ensure operational freedom and the Secretariat should have separate arrangements to deal with the special problems of Public Enterprises.

(e) Co-ordination of developmental work which covers the activities of several department should be made the special responsibility of high powered administrators designated as Commissioners.

(f) Effective arrangements should be made to evaluate developmental schemes comparing the benefits actually accruing from them with the objectives with which the schemes were sanctioned.

(g) Specific arrangements should be made to deal with personnel-matters including suitable training, quicker recruitment procedures and more effective disciplinary proceedings.

The Commission has presented about 15 Reports to the Government covering all major departments. To emphasise the point that Administrative Reforms should be a continuous process the Commission has recommended the establishment of a permanent unit in the Secretariat which will consider changes and improvements necessitated from time to time in the structure and working of the Government.



PAINLESS TAXATION

"The Sales Tax is described as Kamadhenu, a perennial source of revenue. A Government could not be run without taxation. At the same time, the Government should not resort to unbearable imposts. Taxes should be levied only on those who can bear the burden, leaving out the weaker sections. In short, taxation should not be in the nature of squeezing the public.

The Taxation Policy of the Government should be as painless as possible, just like a bee gathering honey from flowers without the least damage to the flower. The D.M.K. Government always holds steadfast to the principle of painless taxation."—thus observed Dr. M. Karunanidhi, Chief Minister of Tamil Nadu in his address while laying the foundation stone for the 9-storeyed building for the Commercial Tax Offices in the city, on 21-8-1974.

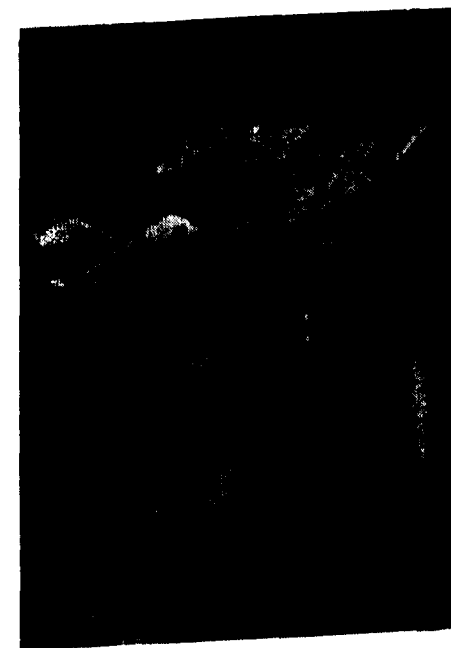
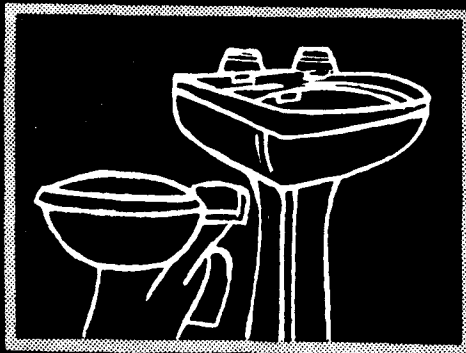


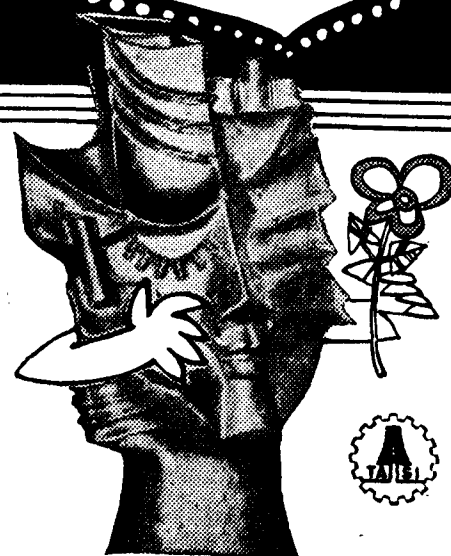
Photo by Raj, Pub. (Tourism) Dept.

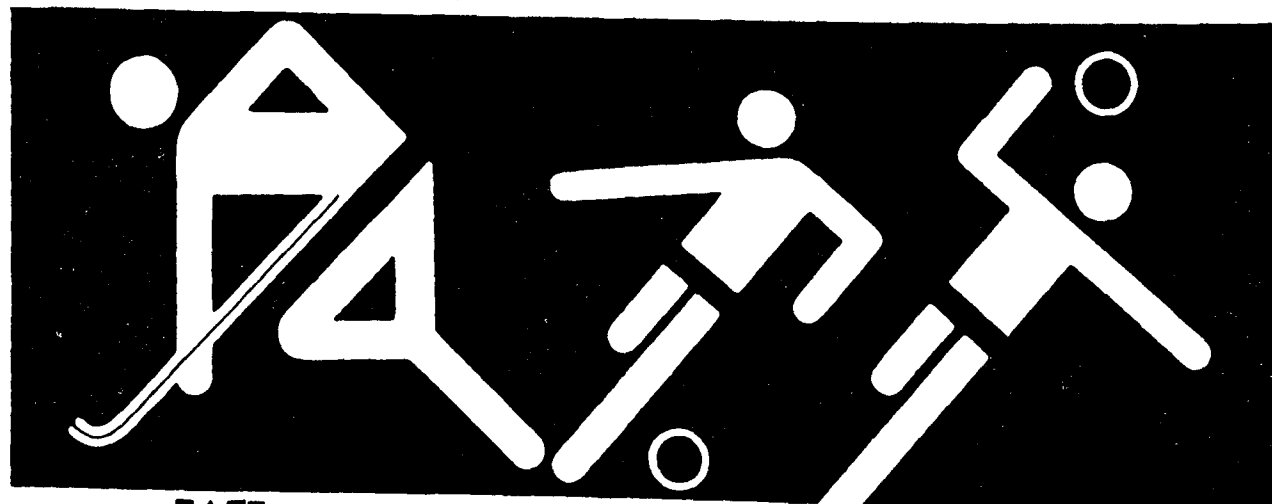


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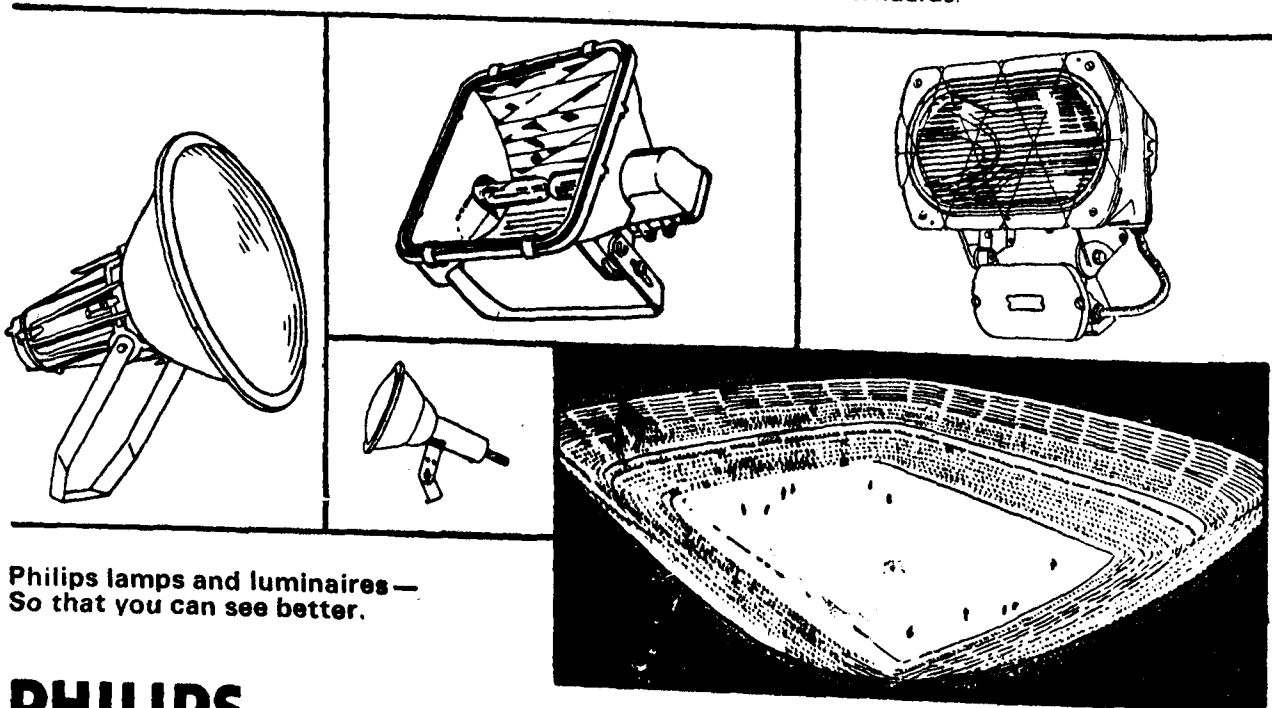


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Jainism lays emphasis on the four-fold form of charity viz., of food, of shelter, of medicine and of knowledge. This led to the establishment of alms houses, schools and other charitable institutions which received regular grants from kings, social groups and individuals. Many copper-plate grants and Vattezhuttu inscriptions bear testimony to this. Today the lead in this manifold charitable activity is as much in evidence as in the past.

Imbued with high ethical values of Jainism, Jains have contributed immensely to development of education. In 1926, an institution was started called Swetamber Jain Gyan Pathshala which has today given birth to the mammoth institution, Sri Swetamber Sthanakvasi Jain Educational Society founded in 1938. The Society manages several institutions, namely Agarchand Manmul Jain College, Andakchand Galada Jain High School, Mangichand Bhandari Jain High School, Tarachand Galada Jain Vidyalaya, Jain Hindi Primary School and a Boarding home. More than 5,000 students benefit every year irrespective of caste, creed, colour or religion.

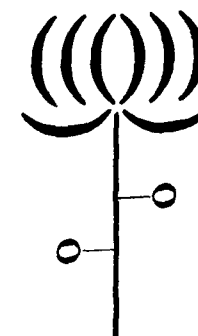
The A.M. Jain College occupies a premier position among the city colleges. It was started as Intermediate college in 1952 and has become a Post Graduate institution extending facilities to more than 2000 students. An evening college is also functioning since 1971.

TEAM TRUST

Another Jain college named Dhanraj Baid Jain College has been started in 1973 under the auspices of TEAM trust. (Tamil Nadu Educational and Medical Trust). The college has acquired its own campus near Lattice Bridge Road and the first phase of its Buildings construction will be completed during this Bhagwan Mahavir 2500th Nirvana Year, as originally planned.

Under the auspices of the Jain Mission Society founded in 1931, a Primary school is being run since 1950 and imparts education to over 700 students every year. Besides, this Institution also maintains reading rooms library and publishes books etc., and provides scholarships to poor and deserving students.

JAIN CONTRIBUTION TO SOCIETY



A LESSON

IN NATIONAL INTEGRATION

Under the auspices of Sri Mahaveer Jain Kalyan Sangh, a Primary school is being run at Vepery. The sangh has also started a high school and made it a 'Central School'. The strength in the school today is 500. The sangh organised recently a seminar on Jain contribution to Tamil Art and literature and an Exhibition for 3 days in connection with 2500th Nirvana of Bhagwan Mahaveer. The seminar and exhibition were the first of its kind in South India.

Under the auspices of Sri S.S. Jain Mahila Vidya Sangh, a Girls High School viz. Smt. Ganeshibai Galada Girls High School was started. Apart from these institutions, Jains have associated with a novel project known as 'Book Bank' which was started by Rajasthan Youth Association in 1964. Under the scheme of this project, a full set of text books is loaned to the needy and deserving college students who retain them throughout their course and return them later on completion of their respective courses. Over 2500 students of various colleges have been benefited by this project so far. This Association has a very ambitious plan to see that no college student is left without text books for want of means and have already taken concrete steps to achieve the aim.

MEDICAL AID

Indian Youth Recreation Club founded by Jains is active in according liberal scholarship to poor and deserving students. Sri Rajasthani Jain Samaj of Mambalam are also running a Bala Mandir and a Library. Besides these associations, several private trusts and individuals provide scholarship and monetary aid to the needy and deserving students.

Medical Relief.—In the field of Medical Relief, Jains have made appreciable contribution and have left a mark. The oldest Institution with which Jains are associated is Marwari Free Ayurvedic Dispensary which was founded in the year 1930 treating over 400 patients every day free of charge.

To provide modern medical aid to a larger section of less privileged class in the city of Madras,

'Shree Jain Medical Relief Society' was founded in the year 1950. The main aim of the Society is to open and run dispensaries in the various parts of the city, mainly in areas inhabited by labourers and middle class people. Keeping this aim in view, one dispensary was started in 1950 and to day this Society has grown like a banyan tree under which 15 dispensaries are being managed. In addition to these dispensaries, the Devaraj Manakchand Maternity Hospital was started in the year 1954, which is a modern well equipped maternity hospital with sixty beds. Ramsukhi Bai Galada Maternity Home is yet another institution serving the community in Saidapet.

Free Dispensaries are serving the public in Trichy and Coimbatore run and maintained by Jain Community.

The Medical Relief Society affords relief to over 2500 patients per day at the various dispensaries and with the addition of the proposed two more dispensaries the Society will cater to the needs of over 3000 patients per day.

Social Activities :-Jains have contributed their humble mite not merely in the fields of education and medical relief but have equally thought of providing a home for destitutes and orphans and with this aim they contributed liberally to Daya Sadan which was started as early as in 1954. Today Daya Sadan is a home for over 600 orphans diseased, disabled and aged destitutes. The able bodied inmates are trained in handi-craft work to enable them to rehabilitate themselves. This institution is the only one of its kind in this city of Madras.

Jains urge for Ahimsa found its expression in the efforts made through the South Indian Humanitarian League which was responsible in getting an Act passed by the then Government of Madras prohibiting the animal sacrifices in the temples in this State.

Jains have taken keen interest in running of Madras Pinjarapole which is a home for old and infirm cows

MAHAVEER 2500th NIRVANA ANNIVERSARY—TAMILNADU GOVERNMENT SCHEMES

The 2500th Nirvana Anniversary of Bhagawan Mahaveer will be observed by holding public meetings throughout Tamil Nadu including Madras City on 17—11—1974. In the districts the day will be observed by holding meetings in schools and colleges, with the Collectors participating prominently.

Oratorical and Essay competitions would be held throughout the State in schools and colleges and the winners would be awarded with suitable prizes.

A Jain Art Exhibition to reflect the life and teachings of Mahaveer through paintings, inscriptions, bronzes and sculpture has been organised.

The Director of Information and Public Relations has brought out a special issue of the "Tamil Arasu" in English and Tamil on the eve of Mahaveer Nirvana Day containing details about the Life and Teachings of Mahaveer with particular reference to Jain Art and Culture in Tamil Nadu.

The Director of Information and Public Relations has also arranged to bring out a special Documentary depicting the various temples of Mahaveer in the State, as also the glories of Jain Art and sculpture as also their Paintings in the State.

and bullocks etc. and dry cows which are not necessarily old, so that these animals can be saved from being slaughtered. Today over 750 animals are taken care of by this Society.

The Bhagwan Mahaveer 2500th Nirvana Mahotsava Samiti has the following programmes during the course of this year :

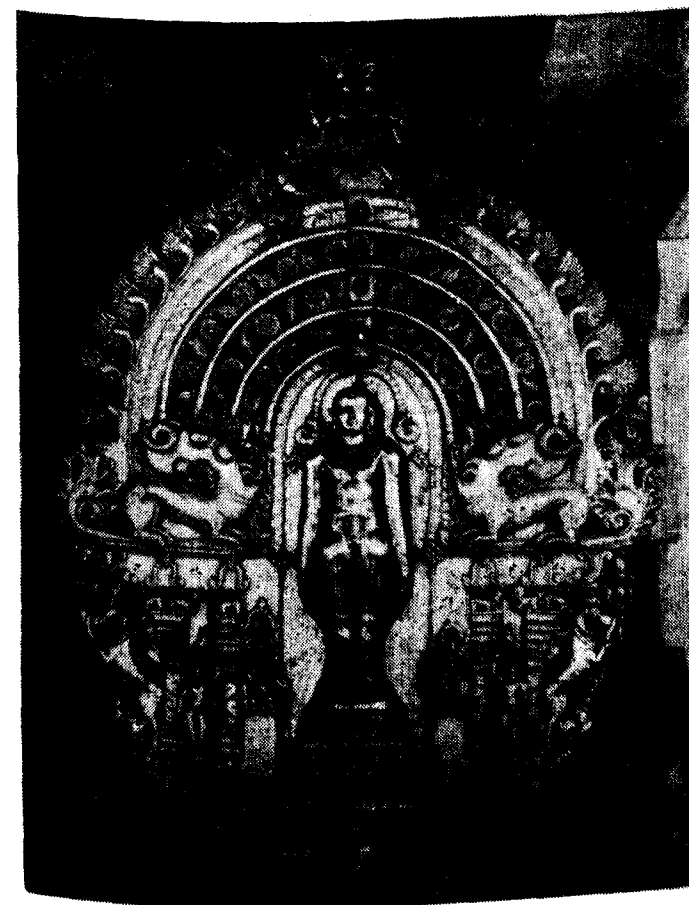
(1) To start an eye clinic and to organise eye camps in the State of Tamil Nadu;

(2) To propagate the message of Ahimsa and to work for pre-servance of cows;

(3) To organise meetings and processions in different parts of the city of Madras and the Districts of Tamil Nadu and thereby propogate the lofty ideas of Jainism;

(4) To publish a small book-let on the life and teachings of Bhagwan Mahaveer and

(5) To publish old Tamil Literature connected with Jainism.



The Neminathar of Ilangadu was once Deity at Mylapore Jain Temple.



The Ilangadu Temple now bears this Neminatha Bronze. But the inscription at the base of the statue (picture above) mentions that it has been brought over from Mylapore fearing sea-erosion. It is therefore surmised that the present Tiruvalluvar Temple in Mylapore was once a Jain Temple.

HOW THE PUZHAL JAIN TEMPLE WAS BUILT

About nine miles to the north-west of the city of Madras on the road from Madras to the Red Hills, there is a very ancient Jain temple dedicated to Sri Rishaba Deva or Sri Adinatha Bhagavan in the Puzhal village. Tradition says that it was built by a Jain Saint who had a vow not to take food before doing puja to a Jina image. When he came to the village Puzhal, he was invited by a householder for food. But the ascetic said that he could take his food only after worshipping God in the form of a Jina image. The householder at once ordered a sculptor to make an image according to the rules laid down in the Jain scriptures. On seeing the image the ascetic was exceedingly glad in heart; he performed puja to it and broke his fast. While departing from the village he asked his host to build a temple for the image and for the expenses to be paid to the workmen he asked him (the householder) to pay every man a handful of mud in the evening. This is a strange and cheap way of paying for hard labour! The work of building the temple began and in the evening of the day when the workmen came to their master for the wages, he gave every one of them a handful of mud. Lo! when the mud touched the hand of the labourer it was changed into coins worth the labour he turned out. In this way the temple was built. The temple is now under the management of an Upadhyaya who resides in the village.

< Sri Rishabadev, the first Tirthankara at Puzhal Jain Temple



Some Svetambar Jain Shrines in Madras

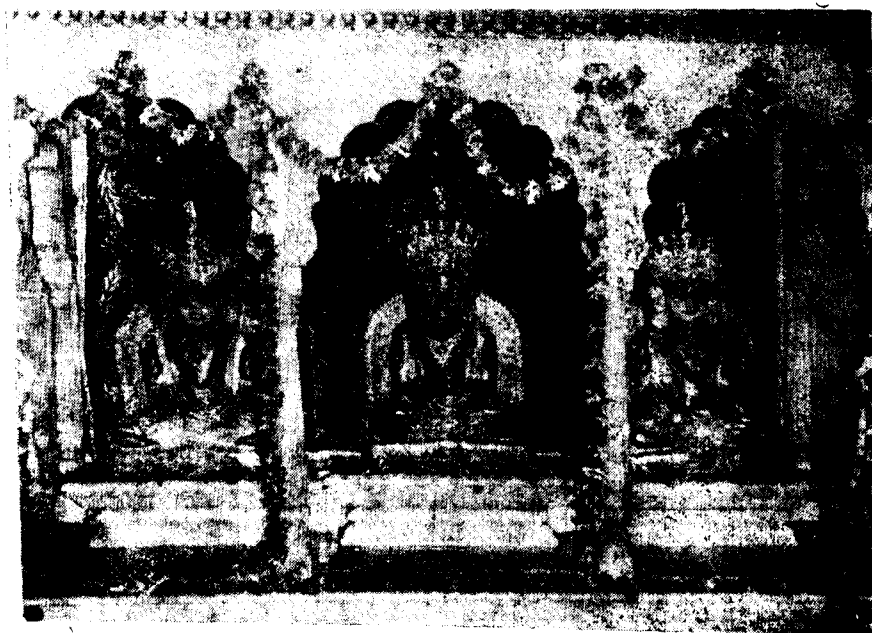


NAYA MANDIR

Presiding deities: Sri Ajitnath, Chandraprabhu and Suparsnath.



This Prayer Hall draws the Sthanakwasi Svetambar Jains for Prayers and Meditation.



JUNA MANDIR

One of the oldest Jain Temples 'CHANDA PRABHU JAIN MANDIR' at Mint Street.

Presiding Deities: Sri Sumatinath, Chandraprabhu and Sambavnath.

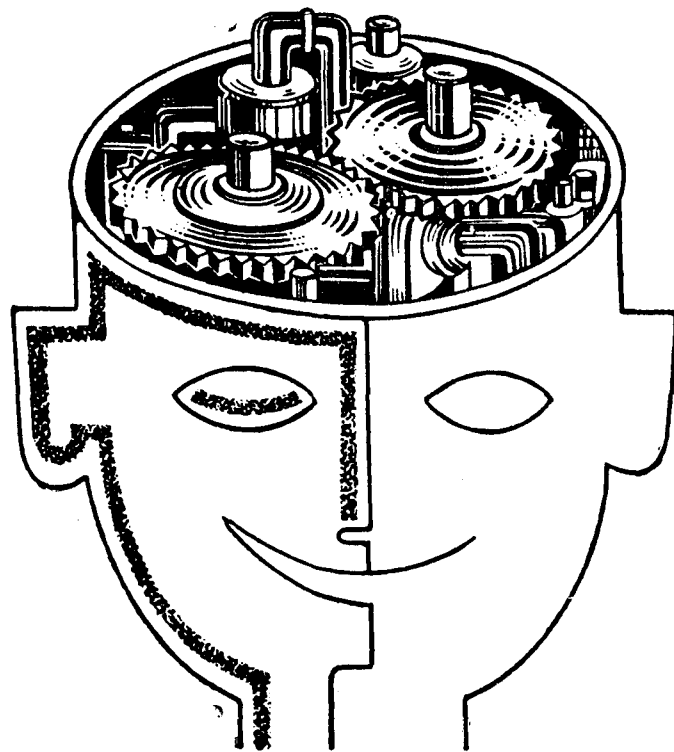


Temple Rites of Jains

The three sculptures of Tirunarunkundram represent three of the eight propitiations made to deities in Jain Temples. Water pitcher, Alvaattam (Tala), Kalasam (Poornakumbam), Flag, Sandalpaste Cup, the Triple umbrellas (symbol of Tirtankara), Mirror and Samarai as arranged in the picture left are the eight propitiations made to deities.

Get the Machinery Working A CHALLENGE...

The Transport Department, Government of Tamilnadu, offer a prize of Rs. ONE LAKH to the person/organisation for creative ideas, resulting in an appreciable saving of Diesel in Passenger buses.



The proposals shall be written in clear terms in English.

Proposals may be given for :

- An alternative fuel, including complete details like its name, chemical formula, calorific value, compression ratio, availability, mode of manufacturing, cost of the fuel and mechanical contrivances to be deployed and effect of the fuel on the engine parts.
- 'An additive fuel' - to be added to the existing one (say diesel). The name, its chemical formula, effect on main fuel, calorific value, compression ratio, availability in adequate quantities, mode of manufacture, cost, possible savings and its effect on engine parts and lubricants to be given.
- Mechanical contrivances of changes concerning the fuel pump, engine, transmission system etc., by which substantial change is effected in the economy in fuel, preferably be accompanied by a sketch, furnishing information regarding mode of manufacturing, its feasibility and economy details.

If, however, the competitor considers details of these—alternative fuel/additive/mechanical contrivance to be his trade secret, he should still submit a skeleton on his proposal to enable the committee to decide if it will be feasible or otherwise.

A National Committee constituted by the Government of Tamilnadu will scrutinize the entries for the competition. The award of prize will be determined by the Government of Tamilnadu based on the recommendation of the National Committee.

The decision of the committee shall be final in all respects.

Intending participants should call for detailed conditions and rules for participation and while submitting proposals it must be clearly stated that the competitor agrees to all these conditions and rules.

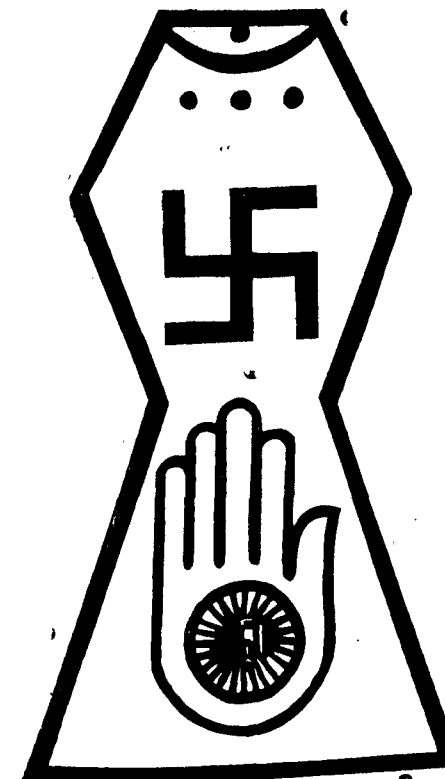
Any individual, Scientific Institution, Engineering Institution or Commercial concern in private or public sector is eligible to enter this competition.

Every competitor will submit his proposal to the **SECRETARY TO GOVERNMENT, TRANSPORT DEPARTMENT, FORT ST. GEORGE, MADRAS-600009** in a sealed cover duly superscribed on the top of the cover "**COMPETITION ON FUEL ECONOMY**"

The closing date of the competition is **31-12-1974.**

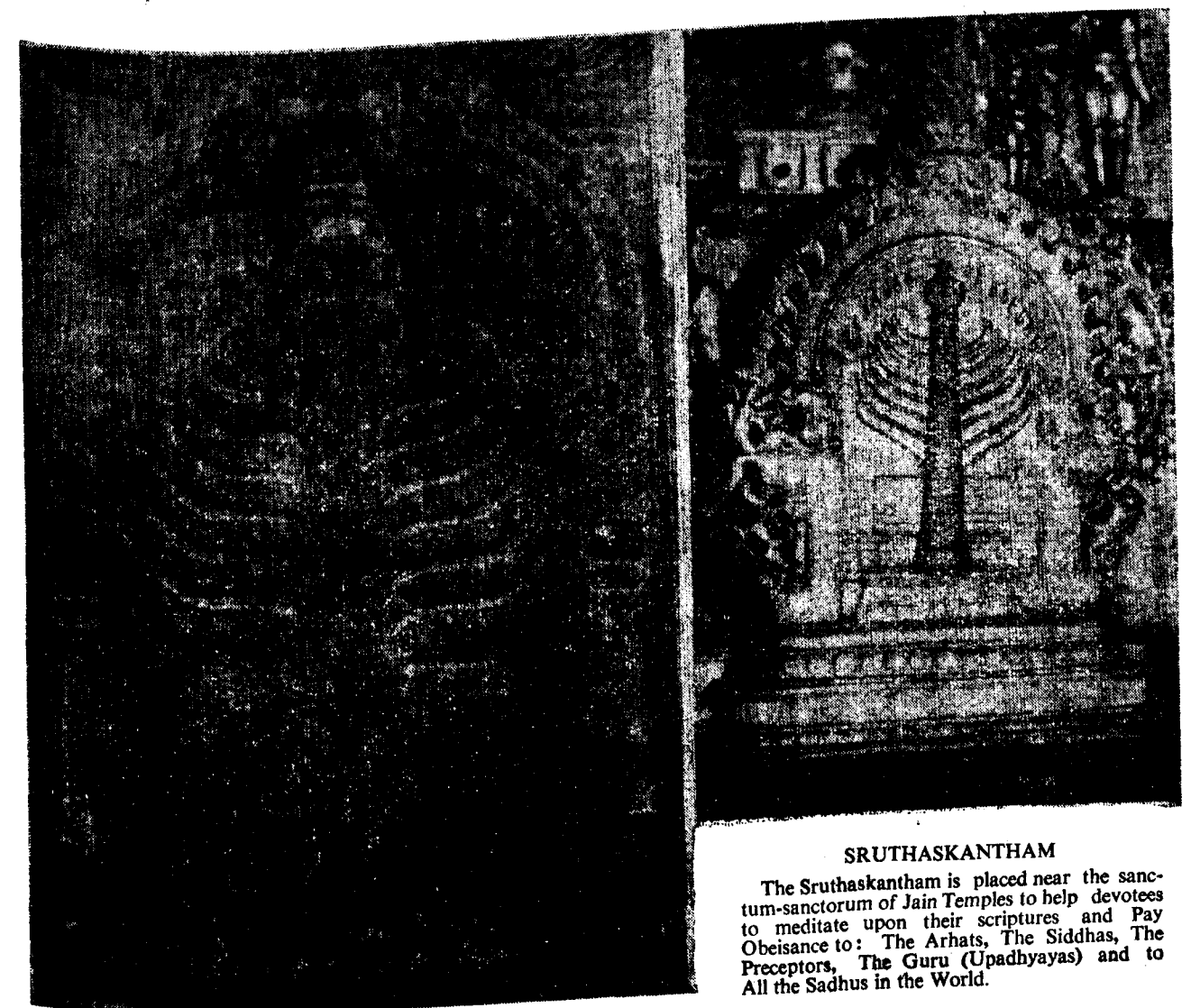
THINK AND WIN ONE LAKH!

Issued by the Director of Information & Public Relations, Fort St. George, Madras-600009.



Jain Pratik (Emblem)

The **THREE WORLDS** are shown in the human-shape. The **SWASTIK** represents the four states the soul may live in. viz. Divine, Human, Triyanch (Beings with three senses, e. g., Animals & Birds) & Hell. The **THREE POINTS** over Swastik Indicate Right Faith, Right Knowledge and Right Conduct **HALF MOON** indicates "Siddha Sheela", where the liberated souls live perpetually. The **POINT** over that indicates the liberated soul. The **HAND** below Swastik indicates fearlessness. The **WHEEL** indicates Ahimsa. The Sanskrit sentence means "mutual-help among human beings." The emblem symbolises that the wandering soul can, through Right Faith, Right Knowledge, Right Conduct and practice of Ahimsa, achieve salvation. The Swastic Symbol adorns Puja Room in all Jain households.



SRUTHASKANTHAM

The Sruthaskantham is placed near the sanctum-sanctorum of Jain Temples to help devotees to meditate upon their scriptures and Pay Obeisance to: The Arhats, The Siddhas, The Preceptors, The Guru (Upadhyayas) and to All the Sadhus in the World.



PRIME MINISTER'S BIRTHDAY

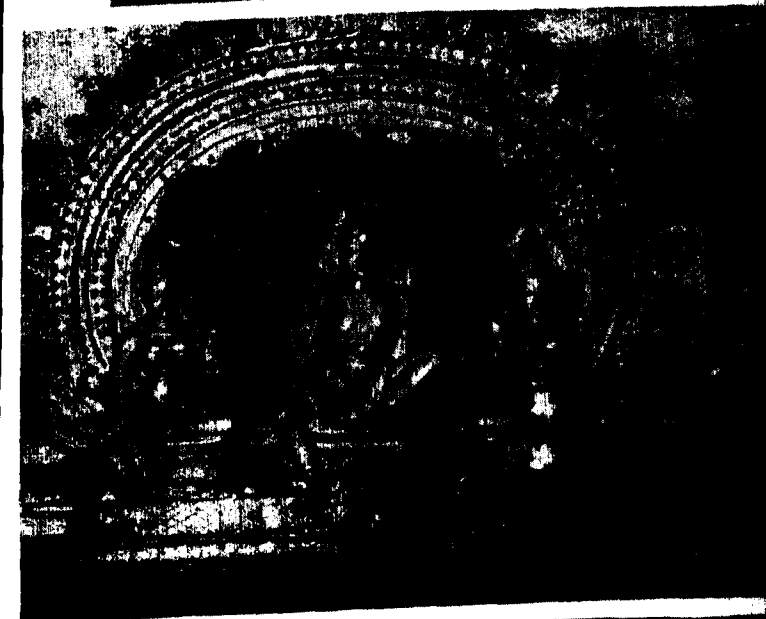
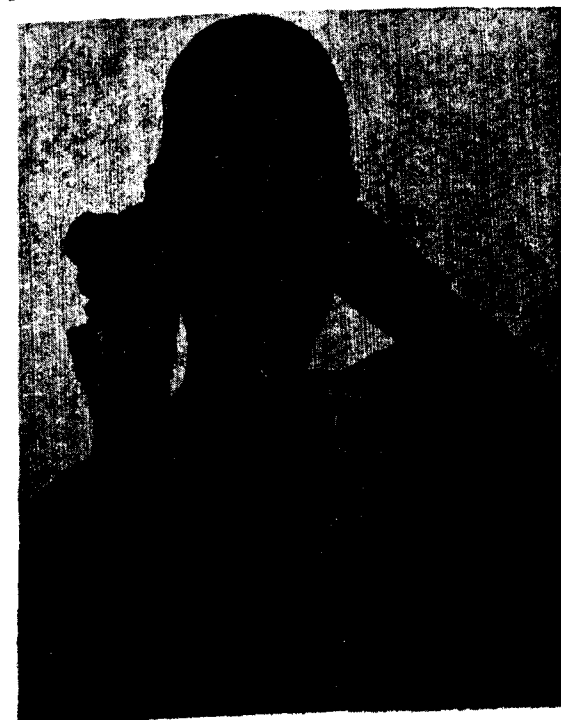
GOVERNOR'S MESSAGE

The history of the last three years and more will be regarded as the history of future India and this period will be known as Indira Gandhi epoch. The greatness of leadership is usually tested when enormous dangers confront it. It must be said to the credit of Shrimati Indira Gandhi that she has not only faced difficult situations with extraordinary courage, but has been able to convert any danger into extreme advantage. Her wisdom and statesmanship can assess handicaps, understand the psychology of the people, calculate the actions and reactions of neighbours, friends and foes and hammer out ways and means for maximising the benefit of helpful factors and accelerating the tempo of progress. We are fortunate that we have a dynamic and vigilant leader like Shrimati Indira Gandhi at the helm of affairs when we are passing through difficult times. It is most appropriate that our faith in her leadership should be reaffirmed when we celebrate her birth-day on 19—11—74.

K. K. SHAH,
Governor of Tamil Nadu.



Many deities familiar to Hindu Pantheon are worshipped in Jaina Temples in Tamil Nadu. They are referred to as Yaksha and Yakshi. Pictures below show Brahma Yaksha, Darmadevi Yakshi, Jvalamalini, Padmavati and Siddayika are some of the other Yakshis worshipped in well known Jaina Temples in Tamil Nadu. Traditionally temples devoted to each Tirtankara have distinctive Yaksha and Yakshi. Parsvanatha Temples for instance always go with Dharmendra as Yaksha and Padmavathi as Yakshi. Dharmadevi is the Yakshi associated with temples dedicated to Neminatha.





Jain Paintings.

The Sittannavasal caves were inhabited by Jain monks for nearly a thousand years from around 2nd century B.C. to around the 9th century A.D. The Jain paintings and sculptures exhibit great skill in depicting details, as in coiffure or jewellery in women figures and dexterity of movement in men figures. The Jain art as embellished in Sittannavasal caves are ascribed to two successive periods one superimposed on the other. The renovations are ascribed, according to an inscription, to the Pandyan period, i.e. 9th century A.D., though the cave bears the stamp of the art of Pallava period. These caves are dedicated to Parsvanatha. The inscription relating to renovation mentions a Jaina Acharya by name Ilan Gautaman (also known as Madirai Asiriyai) hailing from Madurai.

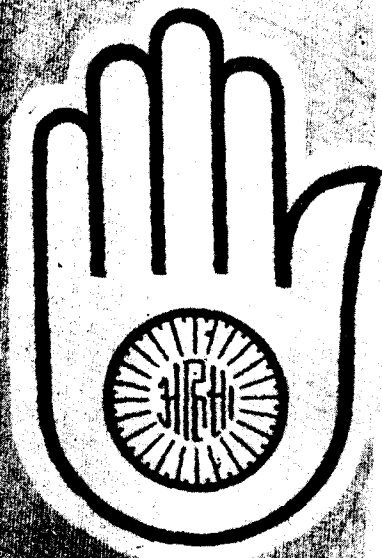
The apsara figure in the abhinaya pose of danda mudra (p. 19) or the one in the pataka abhinaya above with the face slightly tilted and the eyes turned in the same direction, are often compared to the Bhujangatrasitaka pose of the Nataraja figures, for effective simulation of a mood. The elaborate coiffure, with flowers and pearls and simple but effective ornamental decoration, along with the graceful figures themselves, composing these beautiful feminine themes and the delightful crown of the prince in his portrait in the company of the princess, reveal the skill of the painter for such minute detail, as to earn for them the title "that they conceived like Titans and executed with the skill of a jeweller."



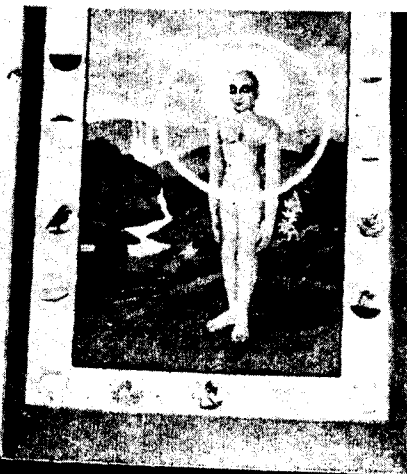
PORTRAIT OF
ROYALTY



A FIGURE FROM
LOTUS POOL PAINTING



THE LIFE OF VARTAMAN

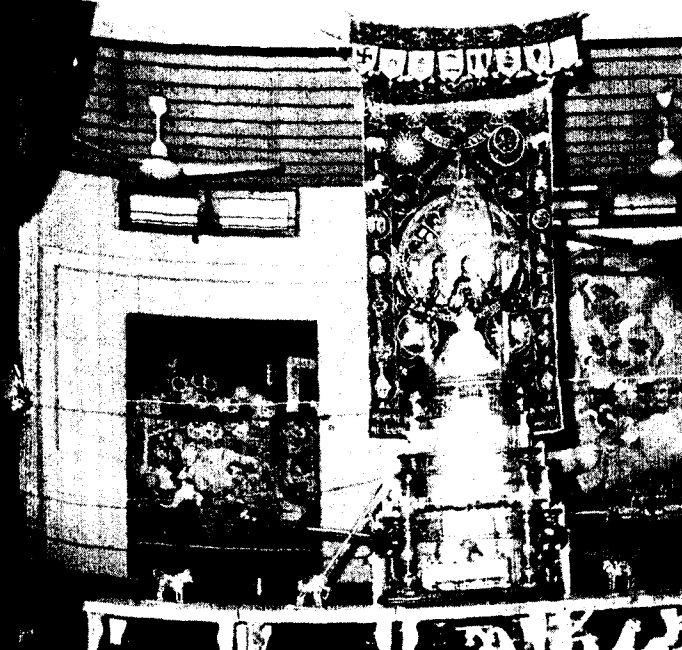


The Kalpaga Vriksha in kolam adorning the foreground of an exhibit which depicts the Bhagwan absorbed in the highest type of meditation.



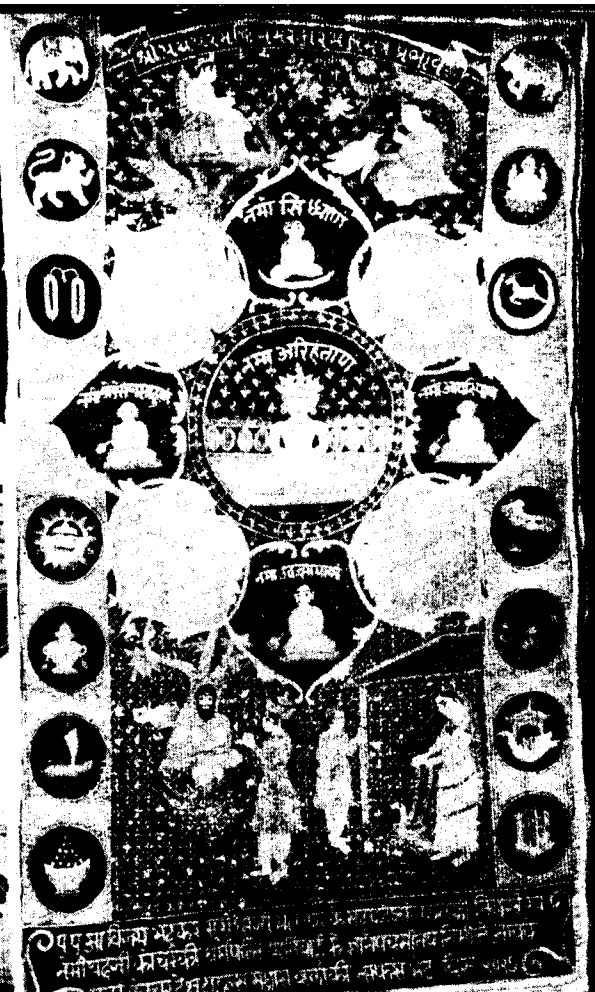
The fourteen auspicious objects which appeared in the dreams of Queen Trisula, presaging the Birth of a Tirtankara as her son. (Vartamana)

ART EXHIBITION IN MADRAS



A silver temple for the Bhagwan and 'Nowcar Mantra' in the foreground.

At Gujarati Jainwadi,
Mint Street



The five objects of devotion (Pancha Para meshti) enjoined for meditation by all Jains : The Arhats, The Siddhas, The Preceptors, The Guru and All the Sadhus of the world, in gold lace on Blue Velvet.



A view of the Mahaveer Life Exhibition.



The life and mission of Bhagwan Shri Vartamana Mahaveer has been one of boundless inspiration to thousands and millions during the last 2500 years. It was a life full of significant events and he attained the highly evolved stage of Nirvana only by battling against all forms of ordeals like any other individual. Jainism does not restrict the right of attaining perfection to any one individual ; any one can aspire to this status, provided he has the will to follow the path.

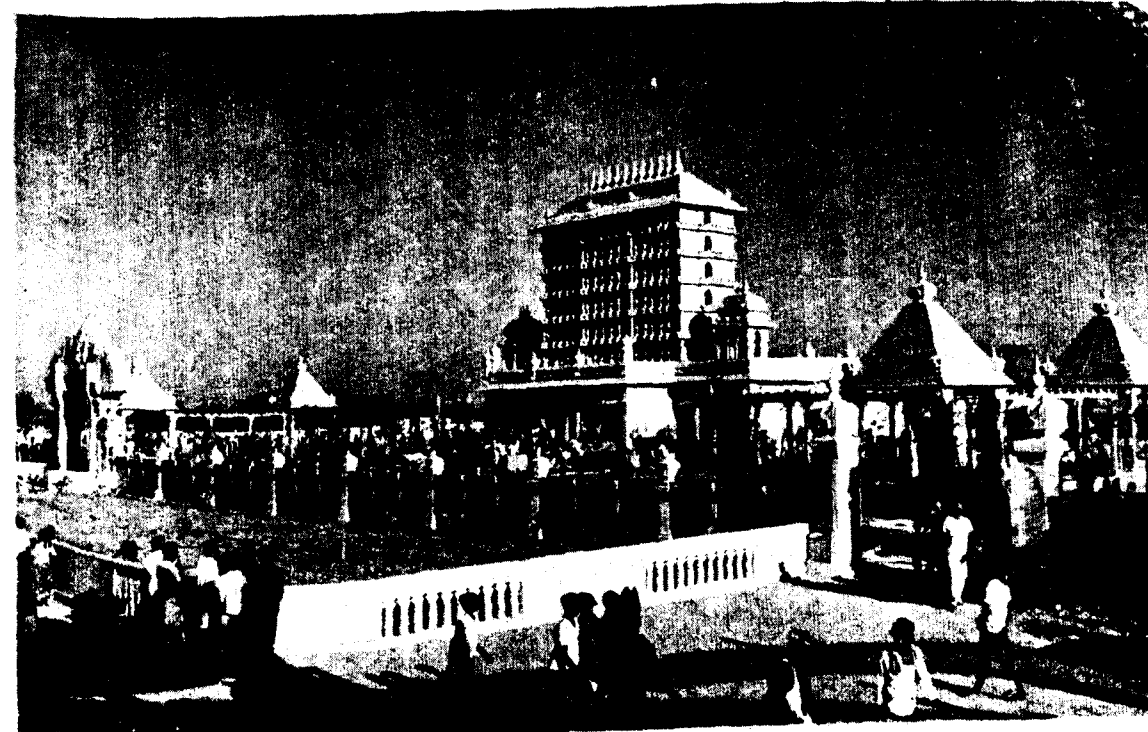
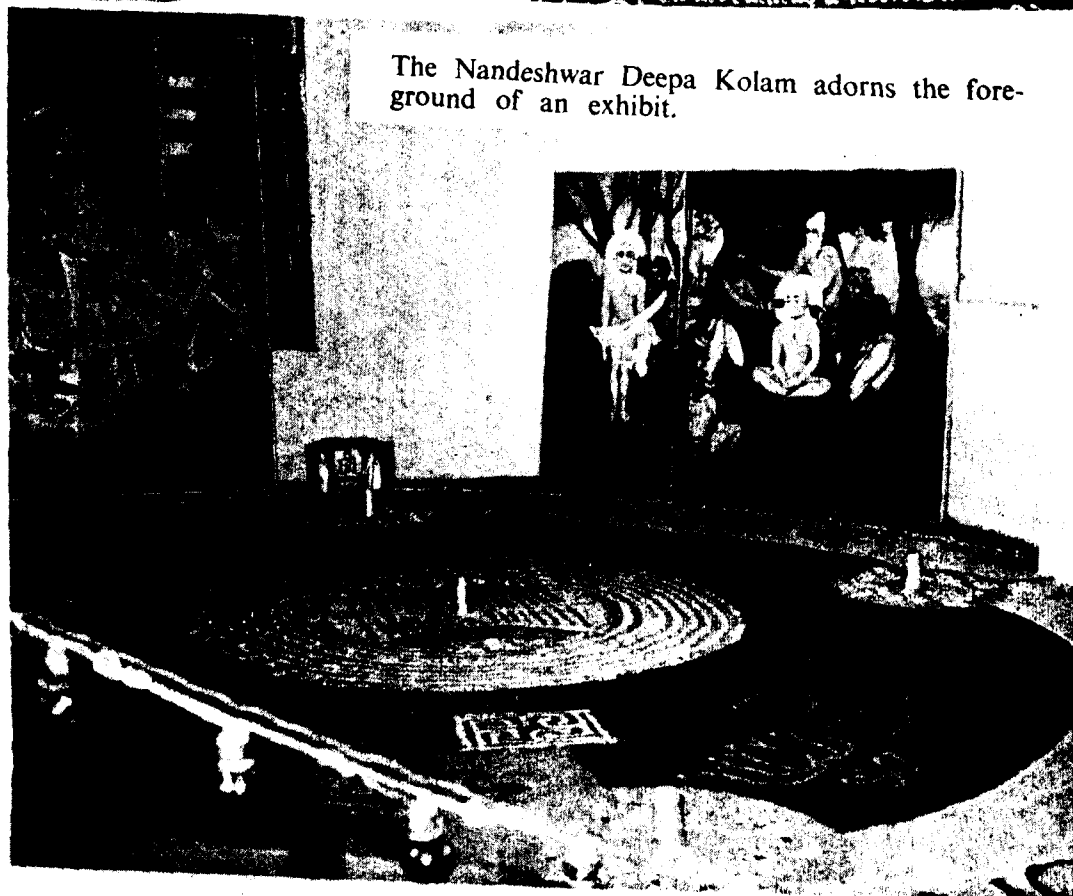
As part of the celebration of the 2500th year of the attainment of Nirvana by Bhagwan Shri Mahaveer, The Tamilnadu Mahotsava Samiti had organised an art exhibition which depicted Vartamana's life episodes capable of inspiring the lay public. A few photographs of this exhibition adorn these pages.



Nirvana of Sri Rishabadev illustrated in gold lace on velvet cloth.



The Nandeshwar Deepa Kolam adorns the foreground of an exhibit.



6/5



Kavundhi Adigal, a Jain woman ascetic is an important character in Silappadikaram. Therefore in the Silappadikaram Art Gallery at Poompuhar there are quite a few panels of sculptures devoted to Kavundhi Adigal, as the one pictured in this page.

As part of the Tamil Nadu celebration of the 2500th year of Bhagwan Mahavir's Nirvana, the Government propose to establish a separate Gallery to depict Mahavir's life and mission. This will be called 'Arugan Kottam' or Arhat Complex.



VISIT Poompuhar

FOR A REAL
INSIGHT INTO

Tamil Culture

Kaveripoompattinam, known as Poompuhar in its more fortunate days was a well laid out port town which boasted of a separate settlement for the foreigners. Much of the archaeological remains still are there for us to see.

In addition, the recently constructed art gallery is the first attempt, after many centuries, at group-sculpture for which Tamil Nadu is justly famous. In the form of group-sculpture and also in individual figures a remarkable edifice to recreate the life and times of the Tamil classic "Silappathikaram" Story of of the Anklet has come up at Kaveripoompattinam in its art gallery.

FOR FURTHER DETAILS
CONTACT:
RECEPTION OFFICER,
Poompuhar Art Gallery
(VIA) SIRKALI, THANJAVUR DIST.

Tamil Arasu



DEC 1874
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FLAG DAY—GOVERNOR'S APPEAL

Flag Day will be observed on the 7th December, 1974.

In celebrating the Day year after year, we remind ourselves of the deep debt we owe to our brave brethren of the defence services, those who laid down their lives in the defence of our motherland and those who have retired from active service. Those who are in service perform arduous functions in remote and inaccessible areas. This is an occasion for us to focus attention on our responsibility to renew our identity with them. We celebrate the Flag Day in order to enlist public co-operation and support for the rehabilitation of ex-servicemen.

The funds raised on the Flag Day are spent on various ameliorative measures designed to improve the lot of ex-servicemen and their families. May I appeal to the generous people of Tamil Nadu to contribute liberally to the Flag Day Fund.

CHIEF MINISTER'S APPEAL

Of late Flag Day has become an annual feature. We always remember the selfless services that the Armed Forces are rendering under difficult conditions. Many of the ex-servicemen have placed their lives at the altar of Motherland in defending the nation from the threat of alien forces. It is our bounden duty to help them and their families as a token of gratitude.

I hope the people of Tamil Nadu will support this noble cause and contribute liberally to Flag Day collections.

Tamil Arasu

Vol. V December, 1974 Issue 6

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Anna's Panacea For Police Prestige

PATIENCE AND PERSUASION

As has been pertinently pointed out, democracy creates various problems, and if problems are to be solved in an atmosphere of law and order, the police force have to adjust and the training has also to be suited to the new atmosphere. They should know the art of not merely maintaining law and order, but the most difficult and necessary art of "persuasion". In that, they are becoming adept, and many instances come to my mind, when, "persuasion" from the police

force has averted some major conflicts in the City and elsewhere. I appeal to the police force to maintain that **patience**, because as has been stated, whether it is a clash between the students and the police or clash between the students and other sections of society, members of the police force and officers of the police force, all have their sons and daughters in colleges or in various other avocations. This relates not merely to the police but to the whole of the society.

Our relations with the police force do affect the people belonging to the society, as they form part of the society. Therefore they have to get high esteem and public co-operation in a growing measure if the police force is to maintain its efficacy.

The prestige of the police, I think, is always enhanced by a sense of discipline and devotion to duty.

—Dr. C.N. ANNADURAI.
at the Police Sports Meet on 7-12-1968.

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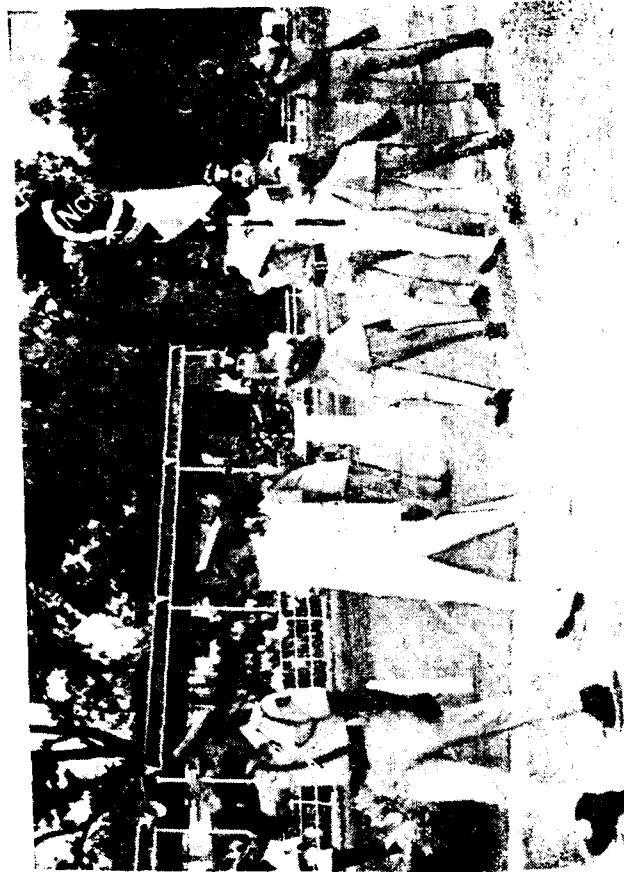


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COLOURFUL PARADE OF NCC 26th Anniversary Celebrated



The Tamil Nadu and Pondicherry Contingents of the National Cadet Corps observed the 26th N.C.C. Day on 24th November 1974 with a colourful Ceremonial Parade (shown above) and Display at the Rajarathnam Stadium, Madras.

Thiru K. Veerasamy, Chief Justice of Tamil Nadu took the Salute.

Pride of Honour in the Parade was of course given to the Inter-Directorate Championship Banner which the Unit had won for the third year in succession, (shown in picture to right.)

The year was noteworthy as a few cadets got trained in parachute jumping, including a girl cadet for the first time. This distinction goes to U/O K. Kausalya of Seethalakshmi Ramasamy College, Tiruchi (top right)

Officers and Men of the Tamil Nadu Police,

It is a matter for great satisfaction that Police Medal for meritorious service goes this year to as many as 20 officers and men of the Tamil Nadu Police. I need not go into details but suffice it to say that the recipients of the Police Medal for meritorious service have to their credit a long and distinguished record of service. It is therefore their hard and loyal work which has won them this honour. I am sure, this public recognition of their merit will be an incentive to all the rest of their colleagues and be a source of inspiration to them.

I must particularly congratulate Thiru Kathan and Thiru Chelliah of Madurai who are receiving the award of Jeevan Ratsha Padak for courage and promptitude. Both of them displayed commendable courage in the face of danger to themselves when they rescued 10 marooned persons from Vaigai floods. Their spirit of public service is an example for others to emulate.

I am very happy that the police public relations are effectively fostered by the good work of the Village Vigilance Committee, the Police Boys' Clubs and the Home Guards. The observance of traffic courtesy weeks and the periodical meetings with the press are helpful. I welcome the functioning of the Boys' Clubs run by the Police in urban slums for the benefit of the under-privileged and socially handicapped children.

Your utmost vigilance is called for in dealing with crimes. The increase of 9% in 1973 over the figures for 1972 is a cause for anxiety. I do hope that the percentage of detection will improve with the speedy disposal of cases pending in courts.

Call to the Police

There are other baffling problems facing you, like idol thefts, wire thefts, bogus institutions and policing in new housing complexes. South Indian idols of Chola period fetch a fabulous price in the foreign market. A single Nataraja of Shiva-puram was sold in America for one million dollars. It is therefore a cause for anxiety that from 1970, cases detected are very small in comparison to cases reported except in 1971 when 52 were detected against

Governor

Commends

Efficiency

of

Tamil Nadu

Police

88 reported. I have no doubt it will be possible for the efficient Tamil Nadu Police to seal up the sources of smuggling. The confidence in our economy is eroded because of black money which is generated to a large extent by smuggling. Those who indulge in smuggling are national and international enemies. The Government of India are determined to eradicate this virus. I have no doubt, Tamil Nadu will score over everybody in rooting it out tooth and nail. Bogus chit funds are a menace to the common man. A vigilant eye on them will be a source of solace to the common man.

I am glad that there is a proposal under consideration for increasing the effective strength of police stations. We have succeeded considerably in solving housing problem but construction of houses on a large scale has created problem of policing in new localities. If police stations are strengthened, petty thefts in the newly constructed housing localities not only in Madras but in Madurai, Coimbatore, Tiruchirappalli, Thanjavur, etc., will then be no longer a problem.

I must admit that the Tamil Nadu Police have earned name in (1) unearthing the activities of notorious inter-State counterfeiters, (2) catching culprits who cheat the public by collecting money and promising to take young people as cine-actors,

(3) bringing to book bogus doctors, car-lifters, and others involved in burglaries and thefts at different places. It is a matter for satisfaction that the activities of a well-organised racket responsible for idol thefts has been detected and that in January this year idols worth several thousands of rupees were recovered by the City Police.

You'll Rise to the Occasion

I am exceedingly happy that the Tamil Nadu Police is now engaged in modernisation programme in a big way to improve its efficiency. You have now a Computer Centre for computerisation of crime records. This has enabled you to place on computer 10 year records from 837 police stations of the State relating to 5 lakhs crimes and 3 lakhs criminals including their finger prints. All the district Headquarters are linked with Madras and there is a Police Radio net-work. I am sure that with the operation of the micro-wave project, the Tamil Nadu Police will be a match to the Police forces in advanced countries of the world, in the matter of up-to-date sophisticated communications.

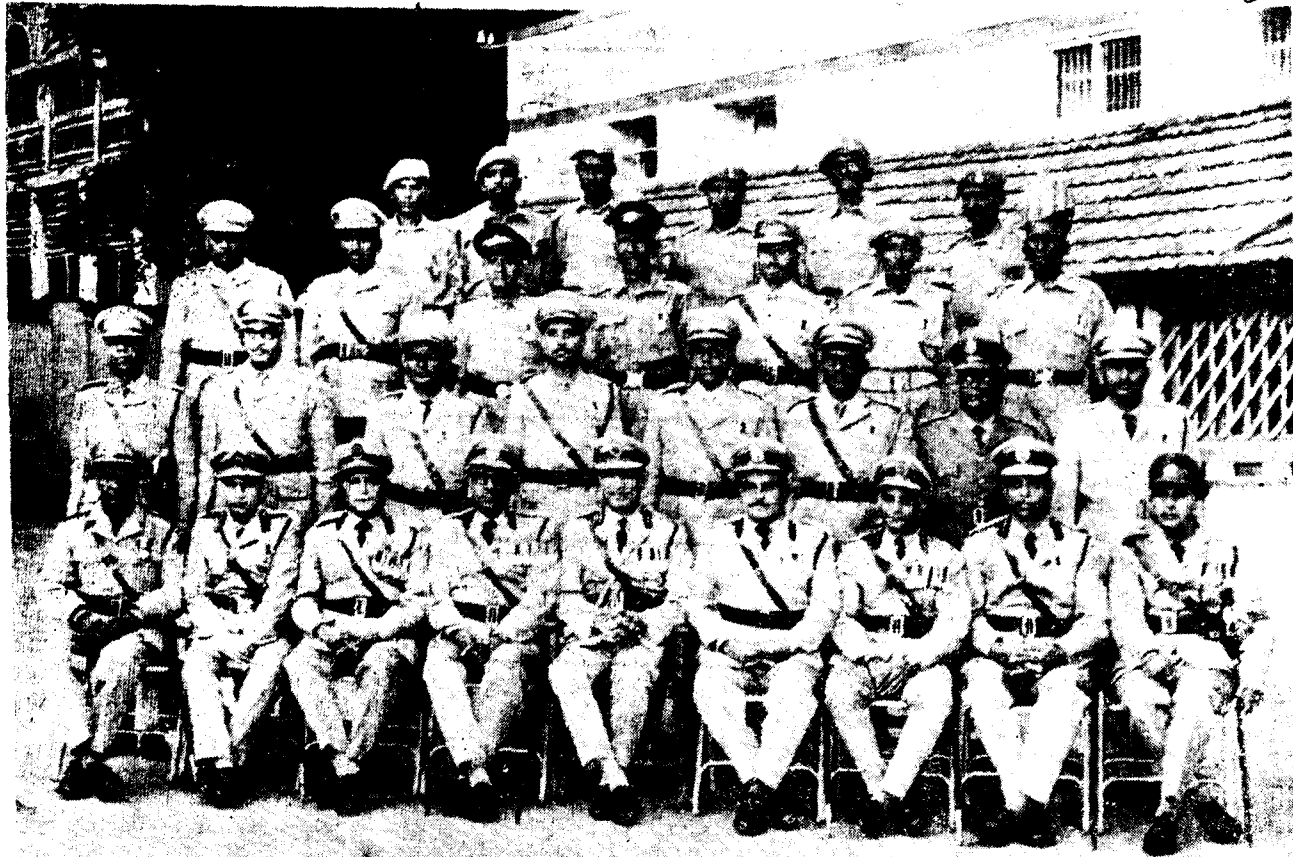
I am happy that the sporadic communal disturbances were not allowed to take a serious turn. Mention should be made of the Tamil Nadu Police Benevolent Fund which works for the amelioration of the conditions of all non-gazetted staff of the department by providing financial relief, scholarships and recreational facilities. I particularly admire the work of the Police Families Welfare Organisation which gives gainful occupation to the families of policemen to enable them to augment their income.

Members of the Police Force, while I must admire your record of loyal services to the State and the people I must warn you that on you depends the successful implementation of the measures initiated to check inflation. Now that Prohibition has been re-introduced, your vigilance is called for in checking illicit distillation and other offences. I have no doubt that with your reputation for efficiency, you will rise equal to the occasion.

Vanakkam.

Speech of Thiru K. K. Shah, Governor of Tamil Nadu at the Police Medal Parade on 30-9-1974.

RECEIPIENTS OF PRESIDENT'S MEDAL



L. TO R. (sitting) : G. Victor (Retd.) D.S.P. ; K.V. Subramaniam, I.P.S., D.I.G., R.A.P., Madras ; S. Krishna Raj, I.P.S., (Retd.) ; S.T. Tiruchitrambalam, I.P.S., D.I.G. ; F.V. Arul, I.P., I.G. of Police ; P. Paramaguru, I.P.S., I.G. of Prisons ; N.R. Suvana, I.P.S., D.I.G., Central Range ; K. Chenthamarai, I.P.S., D.I.G., S.R., Madurai ; N. Govindaraj, Commandant, I.S.P., II Battalion.

L. TO R. (standing 1st row) : P. Muthia Thevar ; T.P. Sankara Nambiar, S. Rathinam ; R. Subbarayan, R.I. and Store-keeper of Office of I.G. P.V. Venkateswaran ; L. Jaganathan, Inspr. Vig. and Anti-Corruption ; C.M. Kuttikrishnan, A.D.F.O. ; V. Jayaperumal, D.F.O.

L. TO R. (standing 2nd row) : A.D. Lakshmi Chandran, R.I., M.C.P. ; N. Deivasigamani ; R. Ramasamy, H.C. 783 ; M. Sankaralinga, H.C. ; Natarajan ; A.G. Subbiah ; E. Picchai Pillai.

L. TO R. (standing 3rd row) : M. Kajithan, Madurai District (J.R.P.) ; B.B. Chandran ; T. Kumaresan ; R. Duraisamy ; N. Murugesan ; Chelliah (Jivan Raksh Paddak).



THE POLICE BAND

The Police Band lends colour and dignity to any occasion. The 20-piece, 30-member State Police Band under Reserve Inspector Devasahayam has earned many a kudos for its mastery of foreign national anthems for State occasions at short notice.

The band plays both classical and modern music.

Whenever Prime Ministers or Presidents of other countries visit Madras, the band is in attendance as part of the Airport Guard of Honour playing the National Anthem of their country.

The Band plays music at the residences of the Consulates of various countries in Madras, whenever they are called for on their national celebrations.

POLICEMAN — A FRIEND OF THE PEOPLE

F.V. ARUL I.P., I.G.P.

A policeman is essentially a citizen acting on behalf of fellow-citizens for the common good and is therefore a friend of the people. Unfortunately, there are narrow-minded people who hold confused views that there is a conflict of interests between a policeman and the public. Such people are obviously prejudiced for some reason or other for if a balanced view is taken of the relationship that should subsist between a policeman and the general public, it will be realised that there is an identity of interests. There is no such thing as a public interest and a police interest. The police interest is the public interest and anyone with jaundiced eyes who seeks to divide this interest is certainly doing a disservice to the community. It should therefore be clear that a policeman is motivated entirely by public interest which necessarily makes him a friend of the people.

Functions of a Policeman

The protection of life and property of the community and the maintenance of Law and Order are the prime functions of a policeman. His chief role is rather more to prevent the commission of offences than to detect them and it is in this way that the policeman affords protection to the people. The best device that has been adopted by the policeman to prevent the commission of offences is the organisation of beats in all public places. If the citizen is able to go about his work in lonely places or to sleep peacefully at home after a day's hard work, it is due to the policeman who covers his beat with unremitting toil. Those of you who have seen the film entitled "Ungal Nanban" will appreciate from the opening scenes that the beat constable trods his weary way in the middle of the night even though his own family members may be seriously sick at home. It will be proper for me to quote the following lines from the dedication to "The History of the Madras Police" which was published during the Centenary of the Madras Police to illustrate this aspect of service by policeman to the people :

"Once more we see them in their sojournings, now shivering with wet and cold, now scorched by a pitiless and burning sun ; uncomplaining,

they endure stress and strain and at the last even wounds and death."

These lines bring to my mind very vividly the case of Constable Rathnam of the Madras City Police who while walking his beat came across a robber attempting to despoil a defenceless woman at the point of a knife. He immediately sprang to her defence but was fatally stabbed by his adversary. The Constable thus heroically gave his life for the safety of a woman. If this is how he functions can a policeman be considered in any light except that of a genuine friend of the people ?

As a friend and a foe

It is true that sometimes a policeman has to be very firm in up-holding the law. He is after all carrying out his duty. He should not for this reason be considered an enemy of the people. The law has been enacted by representatives of the people for the good of the community and therefore even though certain aspects of it may not be quite agreeable to individual it has got to be enforced for the good of the people as a whole. The policeman who enforces such laws is therefore not inimical to the people. It is, of course, true that a policeman should adopt a friendly approach to the people when enforcing such laws. This lesson is being taught continuously to policemen and if an odd one among them defaults in this respect, the people should not jump to the conclusion that the police as a whole are unfriendly.

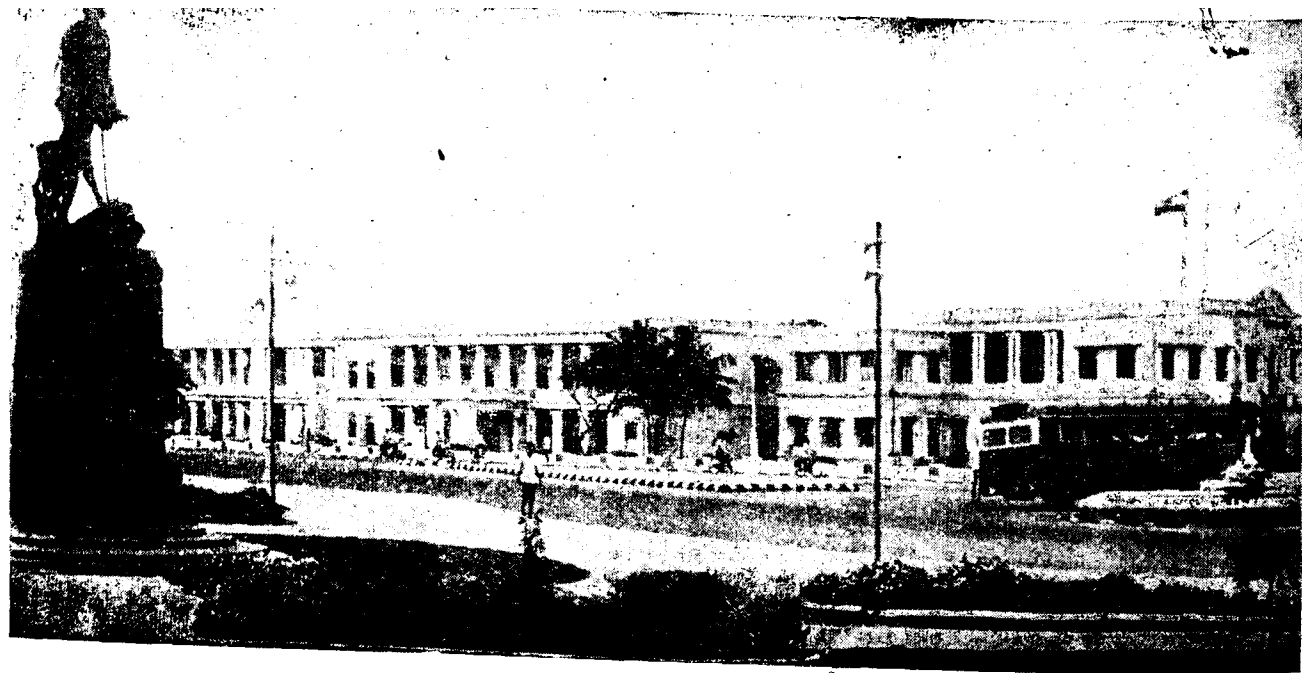
Duties and Services of a Policeman.

The role of a friend is perhaps fulfilled best when a policeman undertakes traffic duty. He guides both vehicles and pedestrians including frail persons and children on the roads so that order is maintained and no harm comes to them. At this moment I have in my mind's eye a cartoon of a policeman holding up a huge stream of heavy vehicular traffic to allow a column of ducklings to cross an intersection from one side to the other. This typifies the task of a policeman as a friend of all weak and defenceless beings in a very characteristic manner.

A policeman is a friend of the people at all times, but this is most evident in times of natural calamities like storms, cyclones, floods, famines and so on. A few years ago floods in Madras City and in the districts caused great distress. Thousands of huts were destroyed or badly damaged and tens of thousands of people were rendered homeless and hungry. Without the slightest consideration for personal safety or comfort policemen rallied to their cause, rescued many of them who had been marooned, saw to their accommodation in Police Stations and schools, distributed milk to their children and prepared food for large numbers of them. This was continued for several days entailing great strain and stress which they endured without any complaint. The poor people of Madras City and in the districts realised as never before that the policeman is a true and sincere friend.

Social Worker and friend.

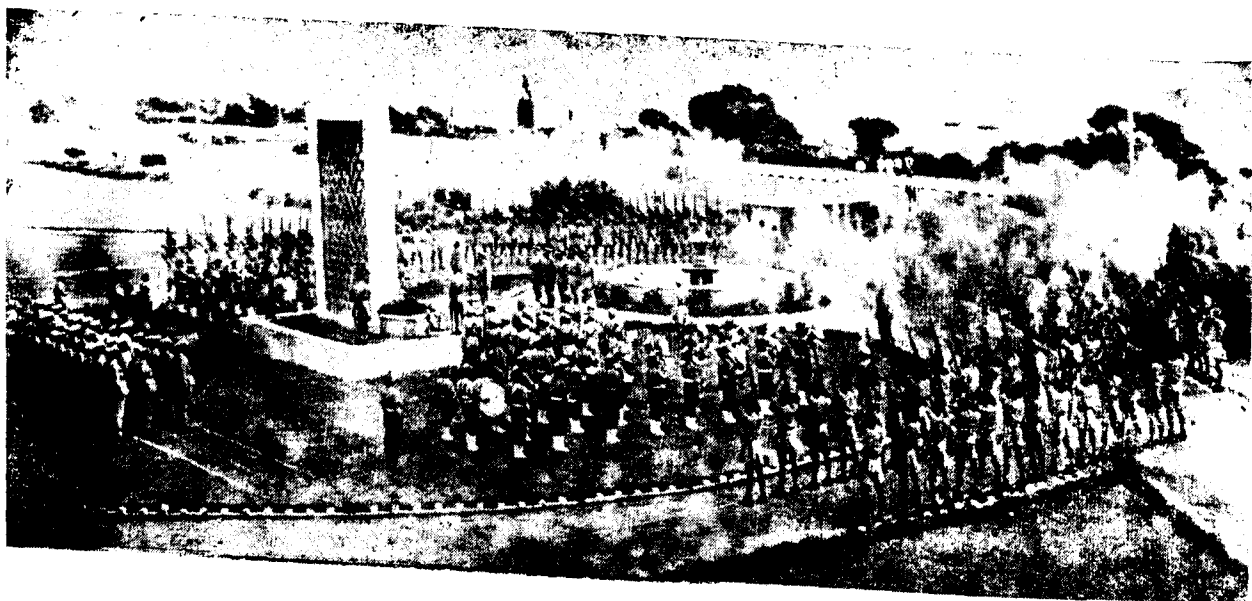
In the growth of a Welfare State, social service plays a prominent part in the regeneration of the homeless, juvenile delinquents, fallen women and girls and slum dwellers. The policeman becomes a repository of the confidence of many of these down-and-outs and several human dramas unfold before his eyes when some of these pitiable specimens of humanity express their sorrows. A matrimonial tangle ends in the attempt at suicide by the weaker of the two ; the policeman who is apprised of it helps to straighten it out. A run-away son returns home after committing theft and the parents solicit the help of a policeman to rehabilitate the young man. In such kindred matters, the policeman is the first social worker who does his little bit to put things right. In all these ways the policeman befriends the people and seeks to serve them. One of the distinguishing marks of a free country that men and women who obey the laws that they themselves have made through their elected representatives have nothing to fear from a policeman. In fact, there is something more than absence of fear in the relationship between a policeman and the people and that is friendliness. Indeed, a policeman in independent India is a friend of the people.



Top : Office of I. G. of Police, Tamil Nadu.

A Wreath For Those who died with Their Boots on

Left & Bottom: It is always the brave who die in harness. A Commemoration Parade is held every year to honour such brave Policemen every year.



Police

A Bird's Eye View

The famous poet, Kamban, in his epic depicted, Ayodhi ruled by King Dasaratha had no need for police as the City was free of wrong doers. Thiruvalluvar's Thirukkural has also references to the functions of Police. While laying down the essential requisites of a country, Thirukkural mentions that in order to preserve peace, a country should be devoid of evil-schemers. Police have to keep a vigil over them.

When there are dangers from within and near the borders of a country, disturbing order and peace, the Police rise up to the occasion and discharge their duties efficiently. While the responsibility of internal security has to be borne chiefly by the Police, the army affords protection from dangers expected from beyond the frontiers. The primary functions of the Police are prevention, detection of crime and preservation of peace by maintenance of law and order. Since with the march of civilization, criminals also become more advanced, the Police will have to keep abreast of times.

Crime to-day is a common problem anywhere in the world, but requiring uncommon answers. Efficiency of modern criminals presupposes equal if not more alacrity and dexterity on the part of the foot-soldiers of law. This improvement in the apparatus and technique are provided by the Forensic Science Laboratory, the Finger Print Bureau and the Dog Squad, etc. To preserve a crime-reduced if not a crime-free society, public and police have to wage a relentless struggle.

Sig. 2A



A View of the Control Room

Traffic in cities is increasing at an enormous rate, resulting in an upward trend in the occurrence of accidents. The traffic police assessing the prevailing traffic characteristics and future trends, execute plans and uphold the rules of the road. As far as possible, road accidents are prevented. With a view to imbibe the general public with the rules of the road and to create a feeling of awakening in the younger generation 'Childrens' Parks' have been established. The rules are also explained by photographic exhibition and regular propaganda. The school students are afforded an opportunity to control traffic.

S. SRIPAL

Superintendent of Police
(Special Branch)

To assist the police charged with the responsibility of safeguarding territorial integrity, a Police Radio Branch, used for quick dissemination of information from one place to another, is also functioning. Apart from dissemination of information connected with crime, movement of criminals and maintenance of law and order, Radio stations are commissioned for duties during natural calamities such as floods.

The efficiency of the Police in detection work has also been improved by providing them with a

Computer Wing in the Police Headquarters. The Computer Wing assists the Police to get the criminal history of arrested persons in a remarkably short time.

It is a proven fact that destitute, underprivileged and wayward children mostly drift towards delinquency for want of educational, recreational and environmental facilities. To combat and effectively reduce the incidence of juvenile crime and to eliminate the causes from the most likely quarters 'Boys' Clubs have been started by the Police. These Boys' Clubs provide educational, cultural and recreational facilities to the members.

The mounted branch is made use of by the Police for crowd control during all occasions especially festive occasions. Similarly, the Dog Squads have also been assisting the Police in the investigation of the cases quite satisfactorily.

The series of successes of the Tamil Nadu Police in the All India Duty Meets bear ample testimony to their high standards of efficiency. There are several such instances in all branches of their work which speak volumes for the standard of their performance.

The high ideal of services, the standards of efficiency and loyalty of the Tamil Nadu Police are in no small measure due to the progressive outlook of the Government and the unstinted co-operation extended by the public.

The Poligars Of Madras. 629

PRECURSORS OF MADRAS POLICE

The Police arrangements of old Madras were vested in a hereditary official known as the Poligar of Madras. The first of these watchmen, named Pedda Naik (senior Naik or 'big peon') has left his name to a large section of the town, known as Peddanaikpetta. Formerly a suburb of Madras, it is today a part of George Town.

The Office of the Poligar existed in the village of Madraspatam from very early times, and was recognised by the British from their first settlement. According to one account, the Poligars were the descendants of the Naiks, or chiefs, who had jurisdiction over the Southern kingdoms, such as those of Tanjore and Madura, under the general control and supervision of the Rajah of Vijayanagar. In 1646 Poonamallee was owned and managed by the Poligar of the Damana family. It was this family which ceded certain villages, including Madras coopam, to the merchants of the English company in return for an annual sum of 1,200 Madras Pagodas, besides the expenditure involved in supporting the 'Holy Pagodas.'

In the early days of the East India Company, the Poligars' police duties extended to the territory within the "Bound Hedge," outside the Fort, i.e., to the Black Towns and the Pettahs. After the fashion which prevailed in the villages of the time, the Poligar was responsible for the peace of the town. In return for his services, the Poligar was given certain paddy fields free of rent, and was allowed to levy petty duties on rice, fish, oil, betel-leaf, and betel nut. He was also allowed to levy small duties on imports and exports into and from the Town of Madras. His chief duty was to provide a staff of peons (also known as taliars or watchmen) for the protection of the town. When any crime was committed, it was his business to detect the criminal; failing which he had to make good losses of these who had suffered robbery. The Poligar was the prototype of the modern burglary insurance company. The number of Poligar's peons in 1640 was twenty, but as

the town grew and the work increased, and the number also had to be increased.

Another duty of the Poligar was to provide the Governor of Fort. St. George, when called upon to do so, with a bodyguard of 150 peons, and provide escorts for officials.

At a time of insecurity in 1741, the company sent the Poligar to escort the Nawab's family into Madras with 200 peons, to the accompaniment of 'country music,' which was probably the precursor of the Governor's Band. On State occasions such as the installation of the Mayor, the Poligar rode at the head of his peons in procession, accompanied by 'country music.'

In 1727 the order of the procession was :—

"Major John Roach on horseback at the head of the company of Foot Soldiers, with kettle drum, Trumpets and other Music.

The dancing girls with the country music.

The Pedda Naigue on horseback at the head of peons.

The Marshall with his staff on horseback.

The old Mayor on the right hand and new on the left.

The Aldermen two and two and all on horseback.

Six halberdiers.

The Company's chief peon on horseback with his peons.

The Sheriff with a white band on horseback.

The chief gentry in Town, on horseback."

(Copied verbatim from an old text in the prevalent spelling).

When a man was absconding and his brother was suspected of concealing him, the Poligar, in accordance with the custom of the day, recommended that the brother be "confined in the choultry" till the man be delivered up; and the Governor gave the necessary sanction.

Watching merchants' goods and merchandize which were imported from abroad formed a part of the

duties of the Poligar of Madras. The Poligar was even responsible for watching the company's clothes from being stolen when they were being washed at washing town.

Military Duties

The Poligars at times served as recruiting officers. In 1698 when the company's peons were inadequate to cope with the trouble with Daud Khan, the Pedda Naik's Taliars were utilized to supplement the garrison. When hostilities broke out between the French and the English in 1745, two hundred peons were engaged from the Poligars in the neighbourhood of Madras. In the following year the Nawab was joined by the Pedda Naik with his peons and a body of Poligars.

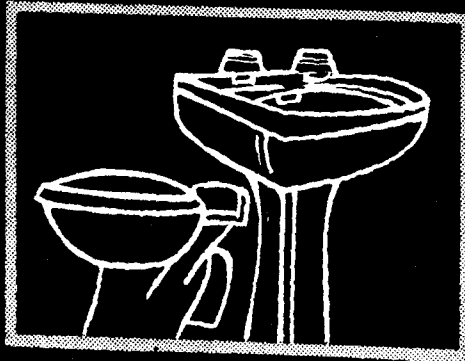
The Poligars enjoyed several privileges, one of them being freedom from arrest. Another privilege enjoyed by the Poligars was exemption from the payment of quit rent.

In 1672, re-affirming earlier orders regarding the Pedda Naik's allowances, Sir William Langhorn, "the Governor and Agent for affairs of the Honourable English East India Company in Fort. St. George ordered that :—

"In Paddy Bank sale all the former allowance was custome for the Gentu Pagoda, for every heape of paddy, one measure : for peddinnag the watchman, on every greate ox-load of paddy, 3/4 measure ; for small ox-load, 1/2 measure."

The allowance of sea-fish was : for every greate nett, 5 fish to the Honourable company, and to peddinnag of the watchman 10 fish, and on the fish they catch with a hooke, one fish for the company, and one for Peddinnag the watchman..."

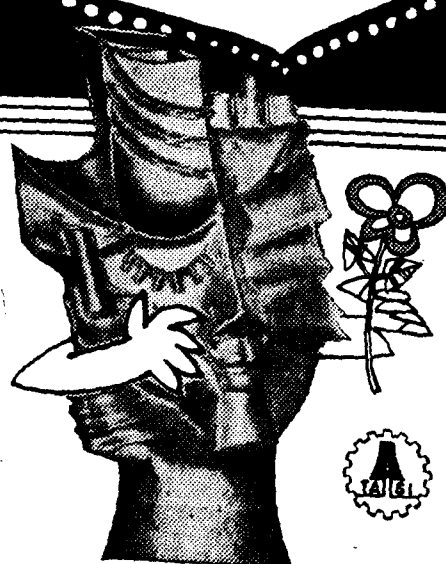
The Office of the Poligar was abolished in 1806 and a regular police was formed, which, however, continued the methods of old system. In 1858 another effort was made at reform, and the police force was remodelled on the same lines, as the provincial constabulary. Hence the year 1858 is taken as the year of the birth of the Police Force as we know now.



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FROM CUTTACK TO MADRAS

K.V. GNANASAMBANDAN, Supdt. of Police, Crime Branch, C.I.D. Madras.

The All India Police Duty Meet is held annually in the capitals of various States in turns in which various States view with each other to establish their supremacy in selected fields of Police work like Rifle and Revolver shooting, First Aid and Ambulance Drill, Wireless Transmission, Scientific Aids to Investigation and Police Photography. It was the turn of Orissa in 1973 and the meet was held in Cuttack between 27-11-73 and 2-12-73.

All States except Kerala and Pondicherry participated in the last year's Meet. The Tamil Nadu Police contingent comprising 59 officers and men took part in all the events and set up an all-time record. The Tamil Nadu team successfully retained the coveted trophy for "Scientific Aids in Investigation" winning the event for the fifth successive year in addition to securing the second place. Of the eight items under "Scientific Aids in Investigation" competition the Tamil Nadu team secured first six places in Medico-legal Theory, first two places in Medico-Legal Oral, 1 to 4 places in Police Portrait, 1 and 2 places in Photography (out-door) and 1 and 3 places in Finger Prints. Inspector Srinivasan secured 2 gold and 3 silver medals, Inspector Kirupakaran 1 gold and 1 bronze medal, Sub-Inspector Ramanathan 1 gold, 1 silver and 1 bronze medal, Sub-Inspector Ramajayam 1 gold and 1 silver medal, Asst. Sub-Inspector Anandan 1 gold medal, P.C. 585 Mohamed Ali 1 silver medal and P.C. 836 A. Shanmugham 1 bronze medal all under "Scientific Aids in Investigation" competition.

Second to None :

The Tamil Nadu Team stood first in 5 of the 8 items in this competition alone. The two teams of Tamil Nadu vied with each other for the first and second place in the championship while Andhra team third. Under "Scientific Aids in Investigation" competition the members of the team secured 6 gold



Thiru K. V. Gnanasambandam Team Manager receiving the shield for scientific Aid Investigation in the 1973 Police Duty meet. The Tamil Nadu Team won it the fifth year in success.

medals (2 of the team members qualifying for the first place in Finger Prints), 4 silver and 4 bronze medals. **The Tamil Nadu team improved its own record of performance over the previous years and stands second to none in the country.**

The team secured in all an impressive tally of 11 gold medals (including 4 for the First Aid team), 7 silver and 4 bronze medals in addition to 3 shields and 6 trophies.

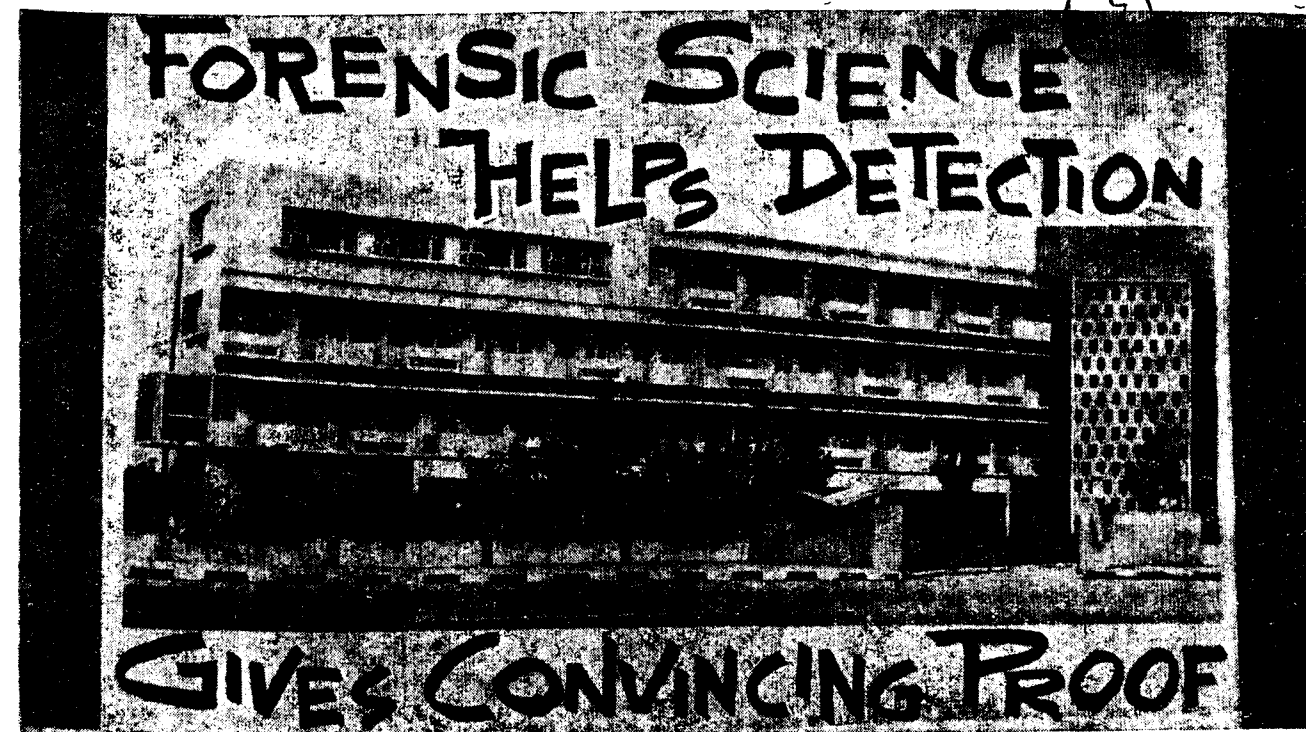
The competition at Cuttack was keen and all the State teams vied with one another for championship. The Tamil Nadu team stood shoulders above all other teams. The Tamil Nadu team was coached by the Experts from various departments. Dr. Ganapathy, Professor of Forensic Medicine, Madras Medical College, Dr. Pitchammal and Mr. Chandrasekaran, Additional Director of Forensic Science and Chemical Laboratory, Dr. Samuel of St. John's Ambulance Association deserve special mention. Mr. Chandrasekaran accompanied the team to Cuttack, Inspector C. Paramasivam and Dy. Supdt. of Police R. T. Ramanujam, C.I.D. gave day-to-day training to the team members. Thiru K. V. Gnanasambandam, Superintendent of Police, Crime Branch, C.I.D. closely supervised the progress and instructed the teams.

Thiru F. V. Arul, I.P., Inspector-General of Police, Tamil Nadu, briefed the team members before

leaving for Cuttack and Thiru K. V. Gnanasambandam, Superintendent of Police, Crime Branch, C.I.D. led the successful team to Cuttack.

Brilliant and Unprecedented

The victorious Tamil Nadu team was accorded a warm reception on 5-12-1973 at Central Railway Station when they arrived by Howrah-Madras Mail. Thiru F. V. Arul, I.P., Inspector-General of Police, Thiru K. R. Shenai, I.P.S., Commissioner of Police, Thiru S. Krishnaraj, I.P.S., Deputy Inspector-General of Police, C.I.D. and other senior officers of the Police Department were present at the Railway Station and congratulated the members of the victorious team. In the evening the members of the successful team were entertained at a dinner in the officer of the Commissioner of Police. The function was presided over by Mr. S. P. Ambrose, I.A.S., Home Secretary to the Government of Tamil Nadu who distributed commendation certificates and prizes to those responsible for the success of the team and observed that his words of praise to the members of the team on a similar occasion last year was in the right direction and it served as a morale booster for the improved success this year. The Inspector-General of Police, Thiru F. V. Arul, I.P., was outspoken when he said that the success achieved by the members of the team was "brilliant and unprecedented."



The revolutionary growth of Science and Technology during the last century has made its tremendous impact on the law enforcing agencies also and hence the Police in a develop more rely on the much maligned "third degree" methods the bring the crime home to the criminal. Hence it has become almost imperative on the part of the Investigating Police Officers to rely more and more on Scientific methods rather than the age-old methods. The Police by employing scientific methods in crime detection can not only investigate their cases successfully but also convince the public that they have done their job without any bias or prejudice.

The Tamil Nadu Police has been fortunate enough in getting necessary scientific service from the Forensic Experts for more than 100 years. As a matter of chronological interest, the first laboratory in India to undertake analysis of articles connected with crime was established at Madras in the year 1849 under the Medical Department. Subsequently, a Police Laboratory was established in the Police Department in the year 1905. However, it was in the year 1959 the first fullfledged Forensic Science Laboratory was established in the State of Tamil Nadu by merging the above 2 laboratories.

The Tamil Nadu Forensic Science Laboratory to-day is one of the well developed laboratories in the world. It has all the 7 recognised divisions of a Forensic Science

Laboratory viz., Ballistics, Biology, Chemistry, Documents, Physics, Serology and Toxicology. In addition to the above 7 divisions there is also a separate research division.

Crimes are not always committed in the presence of eye witnesses. The Police to-day knows that Fingerprints if left by the culprits in the scene of crime can tell much more than the eye witnesses. He also knows, thanks to the advancement of Forensic Science, that the many more silent witnesses present in the scene of crime can give still more information. These silent witnesses are the clue materials such as blood, semen, hair, paint flakes, fibres, dust, dirt and so many other minute contact traces which may be left behind in the scene of crime by the culprit or taken away by him from the scene. They, unlike the eye witnesses, can neither lie nor alter truth.

Many sensational criminal cases were investigated by the Tamil Nadu Police by recognising and collecting such clue materials from the scene of crime.

By
P. Chandrasekaran,
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Implicated, Innocent, Saved

It was early in January, 1967 in a Police Station a bereaved husband reported that his wife was shot dead by a particular individual of that locality. He complained that the incident had occurred when he was sleeping with his wife and that the culprit appeared before the window of their bed room and shot at his wife and ran away. There were also witnesses to say that there was enmity between the complainant and the accused. Relying on this, particular individual was arrested and the case was proceeding against him. The portion of the flesh from the chest of the dead woman along with the close up photograph and recovered bullet was sent to the laboratory. A close examination of the flesh and the photograph revealed the dark powder pattern around the firearm injury, and this sort of powder pattern around a firearm injury is possible only if the person is shot from a very close range, say, within 10 inches. But according to the history of the case the accused is supposed to have shot at the woman from the window which is about 10 feet from the place where the woman was sleeping. This was contrary to the fact and when this information was passed on to the investigating officer, the investigating officer further interrogated the husband who then came out with the truth that it was he who shot at his wife and not the other individual as he had complained earlier. Later the weapon which

he has hidden, was also seized and a test bullet was fired from that weapon. This test bullet and the bullet which was recovered from the dead body of the woman were compared and they were found to have similar striations and hence the weapon was fixed. It may be interesting to know for a layman that the laboratory can definitely say whether a bullet was fired from a particular weapon or not.

Thus in this particular case, not only an innocent was saved, but the real culprit was booked, thanks to the investigative skill and scientific acumen at our command.

Mobile Forensic Science Laboratories

There are innumerable cases examined in the laboratory : a speck of paint sticking on the garment, when analysed in the laboratory helped to trace the hit and run vehicle in a traffic accident—an old blood stain in the shirt when grouped in the laboratory confirmed the culprit. The notorious Bavaria gang that committed several thefts in and around Madras were convicted on examination and report of the beedi butts and a piece of cloth left at the scene of crime.

The Tamil Nadu Forensic Science Laboratory has placed such heavy reliance on crime-scene visit by the Forensic Scientist that it has

established Mobile Laboratory units in each of the 19 Police Districts. It has also established 2 Regional Laboratories at Madurai and Coimbatore. There are proposals to establish a Regional Laboratory at Tiruchirappalli during 1975. The investigating Officers of the Tamil Nadu Police are in a happy position to receive reports in all cases including poison cases from the laboratory within a matter of days after their submission of articles to the laboratory.

Forensic M.Sc. Training :

The Tamil Nadu Laboratory besides assisting the Police in examining and analysing crime articles submitted by them, addresses itself to the task of imparting necessary training in Scientific Aids to Crime Investigation. It trains not only Police and Medical Officers in this speciality but also Judicial Officers. **Tamil Nadu Government was the first to prescribe compulsory training in Forensic Science for all directly recruited Judicial Officers.** It is very essential that all directly recruited Judicial Officers should undergo a short training course in the laboratory and it is also necessary that the Senior Judicial Officers of the State are sent periodically for refresher courses in the Forensic Science Laboratory. It is only then that

the work done by the laboratory and the opinion offered by the Forensic experts could be appreciated, properly understood and correctly interpreted in the courts of law.

The Tamil Nadu Laboratory has also made some excellent research work in the field of Forensic Science. One of its recent research activities is the new technique developed by the author to identify the dead from the skull. A paper on this new technique was read by the author in the Sixth International Conference held at Edinburgh and also in the 3rd Interpol Forensic Science Symposium held at Paris. A Scientific method has also been evolved in the laboratory to distinguish the foreign cloths smuggled into India from the indigenous produce!

The Tamil Nadu Laboratory has also actively been participating with the University of Madras in the conduct of Diploma and M.A. Degree courses in Criminology. It is going to be a prestigious forward step in the history of Tamil Nadu Forensic Science Laboratory when it starts conducting a separate M.Sc. degree course in Forensic Science from the next academic year. Then, the Tamil Nadu Laboratory will become one of the foremost research and teaching institutions on Forensic Science in the country.

Photo below showing : Lasser Micro Spectral Analyser. This instrument Facilitates non-destructive methods of analysis of less minute samples involved in the crime cases.



The interior view of the Mobile Forensic Science Laboratory Unit.



By
M. K. Sarangapani

OVER 450 POLICE STATIONS HAVE THEIR RADIO TELEPHONE NETWORK

'Radio Telephone' to common man perhaps means some broken bits of conversation heard in short wave bands in domestic Radio Receivers while tuning in for some broadcast station. For Police all over the world, it is either part of his uniform or a readily available gadget at his vehicle or office. Over a thousand Radio Telephones serve the Police in Tamil Nadu, today.

Dial '100' in Madras City a Police vehicle is bound to be at your door to make an enquiry within ten minutes. Each Assembly Constituency in the City has such a vehicle fitted with Radio telephone and moving in the area all the twenty-four hours to accept assignments on Radio from the Police Control Room situated at the Office of the Commissioner of Police at Egmore. The Duty Officer at the Control Room as well as the Patrolling vehicle a can directly contact the concerned Officer at any time anywhere in the city for instructions.

Such Police control Rooms already exist in Madurai, Trichy Coimbatore, St. Thomas Mount, Tirunelveli, Vellore, Salem, Cuddalore and Tanjore and all other District Head-Quarter towns in this State will have them by the end of this year.

Each Police District has its own Radio telephone network connecting the police stations to the District headquarter towns and so far more than 450 Police Stations have been provided with such a facility.

Besides the Wireless Telegraph communication, Radio teleprinters between all the District Headquarter towns and State Police Radio Control Room near the Office of the Inspector-General of Police, Madras carry all the information, intelligence and instructions required for effective Police work in the State. Radio photo links for transmission of finger prints, photograph and suspected documents are also available at Madurai, Coimbatore, Trichy and Madras.

To-day, Tamil Nadu is the only State in India to have such a well-knit and integrated system of Police Radio Communication. From foot patrols to Police Stations from mobile patrols or Police Stations to the Head Quarters Control Room and Superintendents of Police to the Inspector-General of Police the communications is by Radio.

For the first time in India, a multi-channel Micro-Wave system to strengthen the above integrated police communication facilities has been projected by the State Police Radio Branch and accepted by the State Government and the Government of India for implementation by 1975-76. The Inspector-General of Police, Tamil Nadu, has signed a contract Agreement with M/s. Bharat Electronics Ltd., Gaziabad, U.P., for a turn key project of a 60 channel Micro-Wave system at a total cost of Rs. 96.8 lakhs to be completed by the end of the year 1976.

The multi channel system covering a route length of about 540 KM in six hops, will, have five repeater stations at high altitudes,

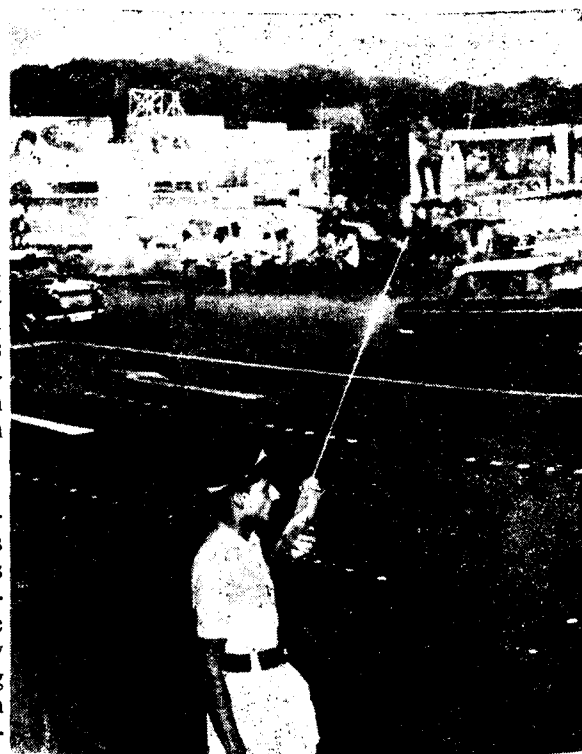
taking full advantage of the natural features of Tamil Nadu. The Micro Wave system not affected by bad weather conditions will ensure reliable service for Police. This 'State of Art' new generation equipment produced by M/s. Bharat Electronics Ltd., Gaziabad, will be entirely indigenous in design and manufacture, with less than 10% foreign exchange for components.

The Micro Wave system as its name implies, employs line of sight wireless transmission and reception on centimeter wavelengths. These waves can accommodate bunching of several speech channels. For instance, supposing twelve telephones giving twelve low frequency speeches are allowed to slightly vary twelve different higher frequencies and these higher frequencies in their turn are allowed to use a much higher frequency Radio Wave, the transmitted Micro-Wave will carry with it not only the higher frequencies but also their variations caused by the twelve low frequency speeches. At the receiving end the frequencies are separated from the Radio frequency and from the variation of these higher frequencies, the low frequency speeches are separated out by means of filters discriminating the twelve different higher frequencies. Higher the frequency more the number of channels that can be bunched together in this manner, and bunching the bunched groups would enable a larger number of channels on a single Radio Wave in this centimeter wave band.

When both the stations are provided with the associated bunching and separating devices called channelling equipment, several conversations or messages on teleprinters can be passed between the stations simultaneously. A trunk route with required branches at relaying stations would then enable several points to have simultaneous transmission and reception of messages between them.

At such high frequencies causing Radio Waves of centimeter wavelengths only line of sight transmission is possible. Hence this system requires very careful planning taking full advantage of the high altitude points for relaying stations in the terrain involved for economy in expenditure and reliability in performance.

The Project when commissioned will facilitate fast flow of information simultaneously from all the District Head Quarters on Teleprinters, Facsimile circuits, etc., besides enabling quick references to processed data on fingerprints and crime from any point in this State.



TOP : The foot-patrol of the Law & Order Police Force finds the walkie-talkie radio a useful link not only with his 'beat' counterparts nearby but also with the control room. This equipment now comes in handy when dealing with processions and demonstrations.

BELOW : The teleprinter and radio-photo equipments enable quick transmission of not only fingerprints but also whole documents when needed from distant stations through V. H. F. Trunk Lines.



SHED NO TEAR, SHED NO TEAR...



**THE
COUNTRY
HOLDS
YOU
DEAR**

One hundred and eighteen defence personnel belonging to Tamil Nadu were killed in Indo-Pak war 8 of them officers. Sixtyone women were widowed.

The Centre had enhanced the rate of pension to widows and dependents of officers. Three-fourth of the basic pay of the officers was being disbursed to the widows till the normal period of retirement of the officer.

In addition to the pension and benefits and educational concessions extended by the Centre to dependents of defence personnel killed in the 1971 Indo-Pak War, the State had also made an ex-gratia grant of Rs. 5,000 to each war widow and offered educational concessions and other facilities to their children up to college level. The State Government had also offered to allot either three acres of dry land or 1.5 acres of wet land to the dependents.

Indian Oil Corporation had provided interest-free loans to the widows to the tune of Rs. 45,000 (repayable in instalments) for running kerosene agencies and so far about 49 kerosene agencies had been allotted to them. A few persons had been offered loans for running business of their own by the Board at nominal rates of interest.

Apart from these benefits, the Tamil Nadu State Soldiers', Sailors' and Airmen's Board has set apart for the welfare of ex-servicemen and their families a sum at the rate of Rs. 2,500 each to the war widows and an annual grant of Rs. 1,000 for a period of 10 years. The Board had also taken up various programmes for providing training to widows of JCOs and other ranks in tailoring and other crafts.

Discharged defence personnel, who had been physically handicapped, had been given Rs. 500 per year by the Board in addition to the other ex-gratia grants by the Government.

Work of resettlement of War Widows in Tamil Nadu

Quite a few of them had secured employment in nationalised banks and Government services, etc.

The Tamil Nadu State Soldiers', Sailors' and Airmen's Board is the apex body to which are attached 14 District Soldiers', Sailors' and Airmen's Boards. The Board looks after the welfare of the ex-servicemen and their families, the families of serving men and also the resettlement of disabled and the war widows.

A Committee appointed by the Government to suggest ways for improving the functioning of the welfare work for servicemen and ex-servicemen recommended, among other things, the formation of a Directorate for the Ex-servicemen Welfare by merging the Offices of the Tamil Nadu State Soldiers', Sailors' and Airmen's Board and the Amalgamated Funds, Madras.

Budget

The cost on maintenance of the Tamil Nadu State Soldiers', Sailors' and Airmen's Board is wholly borne by the State Government and in respect of District Soldiers', Sailors' and Airmen's Boards the Government of India, Ministry of Defence, shares 50 per cent of the total cost.

Construction of Ex-services Centres

There are District Ex-services Centres for providing rest and recreation to the serving and Ex-services personnel who visit/pass through the District Headquarters for various reasons. Out of 15 Districts, there are Ex-services Centres in 11 Districts. There is no Centre for the Districts of Madras, Chingleput, Kanyakumari and Pudukkottai (newly formed).

In order to rehabilitate ex-servicemen and their dependants by providing them self-employment facilities, a scheme of constructing 200 shops/stalls in the Municipal/Panchayat Towns at a cost of Rs. 2 lakhs has been drawn by the Tamil Nadu State Soldiers', Sailors' and Airmen's Board.

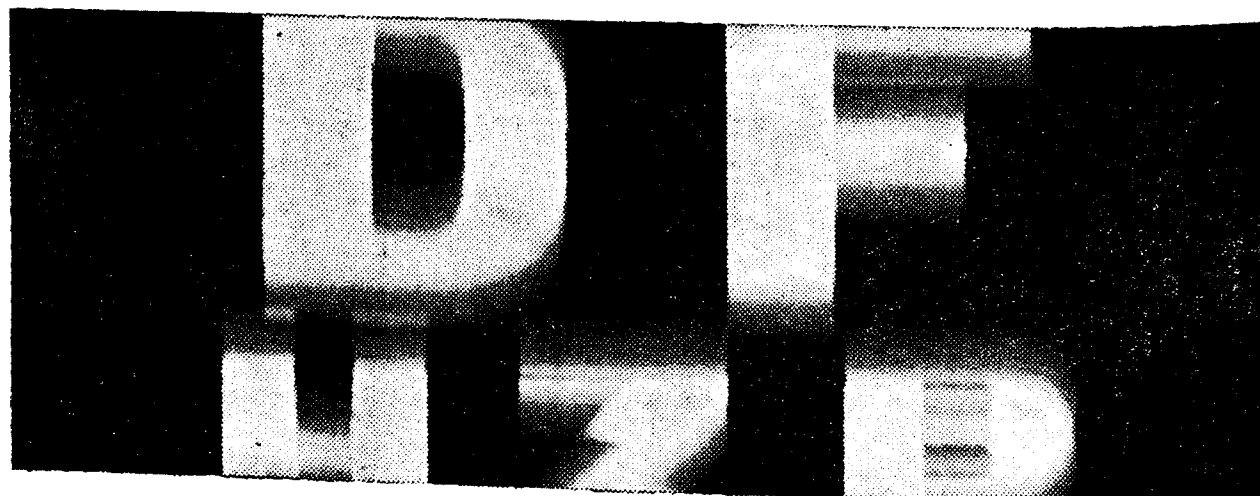
The State Bank of India has selected 45 Branches in the State for helping ex-servicemen with loan facilities for running such business. About 760 applications for such loan in the entire State have been processed and will be taken up within the next 2 to 3 months.

Employment Promotion Programme

The Government of India have decided to implement during the current financial year a new special employment programme called "Employment Promotion Programme 1974-75". The Government of Tamil Nadu have instructed all the Departments that 25% of the posts in each one of the schemes be reserved for the ex-servicemen and the recruitment should as far as possible be made through Employment Exchanges.

Further under this programme the Government of Tamil Nadu have proposed a scheme of training 300 candidates including 100 ex-servicemen to serve as L.I.C. agents. The approval of the Planning Commission to this scheme has been sought for quick implementation.

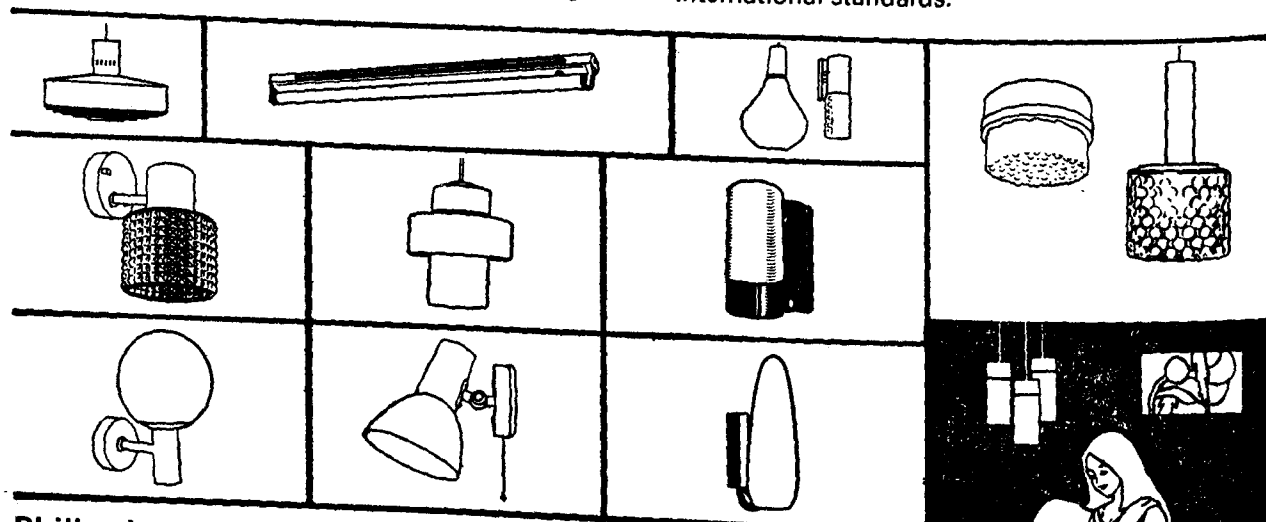
The Government of Tamil Nadu have under consideration a proposal of setting up a Corporation to run Goods Transport Service, mainly as a measure of rehabilitation of ex-servicemen. This will be a joint venture with ex-servicemen as partners. It is proposed to start with 100 lorries and it may go upto 300 lorries in a phased programme. The Corporation will absorb about 2,000 ex-servicemen.



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My Technique In Skeet

Dr. KARNI SINGH, M.P.,

Dr. Karni Singh who bagged the first Silver Medal for India in the 7th Asian Games at Tehran and Bronze Medal in Skeet is telling his technique in the art which should be of interest to one and all.

At the recent Nationals, my shooting friends asked me to write a small article on how I Skeet. I warn them that the deductions that might hold good for me might not necessarily be correct with every shooter with different height, build and temperament. However, I put down my own deductions for whatever they are worth.

TEMPERAMENT

An average shooter should expect to break a 180/200 and feel happy. International Skeet is not easy and calls for a thorough study of the sport.

A person who is not tense has the best chance of becoming a good skeet shooter. He must not be chumpy because a 3-second time delay can be an upsetting factor. A relaxed shooter is able to concentrate and will come out with the best results.

I have found the use of ear-muffs an excellent way of improving one's concentration; it cuts out outside noise and puts you in a sort of "cut off from the world" feeling.

GUN FIT

Few shooters, even at international contests, pay enough attention to gun fit. I once bought a Browning Skeet Gun for myself; after having shot 25 straight with it, when I came back home to India, I found that I hit practically every target on the Skeet range except St-3-HL. On firing a few I found that my gun was shooting one foot above Stn-3-HI target. I filed down the stock and thereafter had no trouble at any of the stations. At best a gun fit is a compromise in Skeet which should approximately be correct for all the 16 angles you shoot. It is my opinion which is not necessarily shared by American Skeet shooters, that a Skeet gun must shoot on the dot and now low. Both International Trap and International Skeet are different from American Trap and American Skeet; the targets in the former fly much faster and therefore, maintain a climbing or flatter trajectory for a longer period of time. A

on the dot' shooting leads gun, handles these targets better as there is no time to aim above or below in 6/10 of a second!

I doubt if anything has aroused more debate than the method of leading a moving target. Some of the British experts I have shot with at the world-famous shooting ranges do not believe in a 'maintained lead'; they believe in swing through a target, the velocity of the barrel swing giving the necessary lead; they also do not believe in 'aiming' with a shot gun; they shoot extremely well with this method. I, however, shoot with a 'maintained lead' which means that my shooting with a shotgun in Trap and Skeet is somewhat between a shotgun and a rifle. My Trap guns have two sights both being beads, when the target appears, I follow through it as my gun mounts the shoulder, and for a fraction of a second, perhaps one-tenth of a second or less, I come up with an exact lead, before pulling the trigger.

In Skeet, my ready position, before calling for the target, invariably helps me to swing through the target and maintain the lead for one-tenth or so of a second and then I shoot. If I miss, I know I have missed. I have shot along with many people who shoot the swing-through method and I have found them shoot beautifully, but when their shooting was out, they were out by yards. A stiff back, tight-clothing, the left hand position being too forward or too close are some of the variable factors that can alter the speed of the barrel wing and put you out on your exact leads. In Skeet, given the exact conditions, there should not be more than 16 leads as there are 16 angles only inlike Traps where you can have an unlimited number of angles depending on the setting of the range.

THE GUN

A question is often asked which is the best Skeet gun? Nobody can answer this very definitely as it

must depend on individual choice. A gun that approximates the nearest to the gun one uses for shikar would easily be the best choice for a good shooter. However, going by a rule of thumb and motioning only for Indian shooters, I would give my personal preference as a Browning over under Skeet gun, 26 inch Skeet Choke barrels for both over and under, ventilated rib, preferably broadways, two sights, no rubber recoiled pad, single selective trigger. You cannot go wrong on this gun, and it is today the favourite choice of shooters in India, as also in many parts of the world. Another advantage with this gun is that our mechanics in India are better used to repairing this trigger mechanism. I believe Brownings have come out with an improved trigger which, they claim, does not bang up on the second shot. I have not tried it yet.

PRACTICE

On an average, I do not shoot more than 500 cartridges in Skeet in the whole year. Even with this little practice, I can shoot scores equal to, or better than, Trap which is main game and in which I must shoot at least 3,000 cartridges a year to keep up a score of 190/200 or so. A Skeet is shot at much closer ranges and every time you know which way the target will fly. Also there are only 16 angles. 95 per cent of the practice I do in Skeet is done with a snap cap without firing a shot at all. I often go round a Skeet range without firing a single shot but taking two or three shots for each target with a dummy cartridge. Since I know my leads more or less, I make sure that my swing smoothens out with this dry practice. In one's own club a round of Skeet with dummy cartridges would cost perhaps Rs. 3/- only as against Rs. 30/- or more for firing live cartridges for each round. The fact that I shot a 192 at the recent Nationals immediately after Traps and with very little practice, a 187 at the Mexico Olympics and a 186 at the Munich Games, also immediately following traps and when I was tired out, convinces me that there is something in dry practice. Further, dry practice puts Skeet shooting within the reach of practically any shooter with a small budget.

The I.O.F. 2M-inch, No. 7, Top wnd, hunting cartridge is an excellent cartridge for Skeet. It is possible to shoot a 25 straight with this. From my experience I find that the leads for the above I.O.F. cartridge are nearly the same as required for the American 3 dr-1. oz. 8 or 9. This is rather lucky if one has to switch from one to the other for practices and competition. ISO Rules call for shot size 8 or 9 North American for Skeet but the No. 7 is a good practice load.

I would advise that shooters should not change shoes from day to day in Skeet or Trap. The height of the heel is very important, and any change will alter the swing depending on how high you are pitched forward as a result of your heels. Stick to one type of shoes and wear cotton socks, so that your feet do not slip inside your shoes. If your shoes are slippery, remove them and get non-slipping soles. I have 'Sambar' leather soles fixed in my shoes. They have practical value, your swing begins from your feet. Remember that. The moment you begin to swing, your toes dig into your shoes and you must get a firm grip and not a slip to start your swing.

I would now like to take the shooter round the Skeet house and point out exactly how I shoot one round. I would, however, like the readers to work out their own techniques mines at best can be a rough guidance.

A ROUND OF SKEET

General : If I am on a squad, I watch when the first two targets are thrown before the match begins or, if I am number two or three on a squad, I watch the flight of the targets while the other shooters ahead of me shoot. I check as to how much off the line the targets are flying above the 'crossing-point'. I then read whether the high house is a sharply dropping target or is flying relatively flat. I also note whether the low house is coming low or high. I also note whether, due to bad targets, the targets are flying erratic and if so, I am prepared for a compromise shot, specially in doubles.

Stn-1-Hi : This is a difficult shot because the target is sharply dropping. I hold my left hand as far forward as I can on the fore-end

of the stock. I make a practice aim which is permitted under the rules at stn-1 Hi and Stn 8-Hi, Stn-8-low only. I make sure that my gun is pointing exactly where I am aiming. If you are not careful and are standing top square to the point of aim, your gun will shoot one foot left of the target while you will be worrying about shooting above or below. I do not look upwards for the high house target at stn-1 but look roughly five feet above the crossing point post. When the targets fills the sky where I am looking, my gun comes up six inches below the target, and I allow the target to settle on my sights as I pull the trigger. The lead at Stn-1-Hi normally is six inches below.

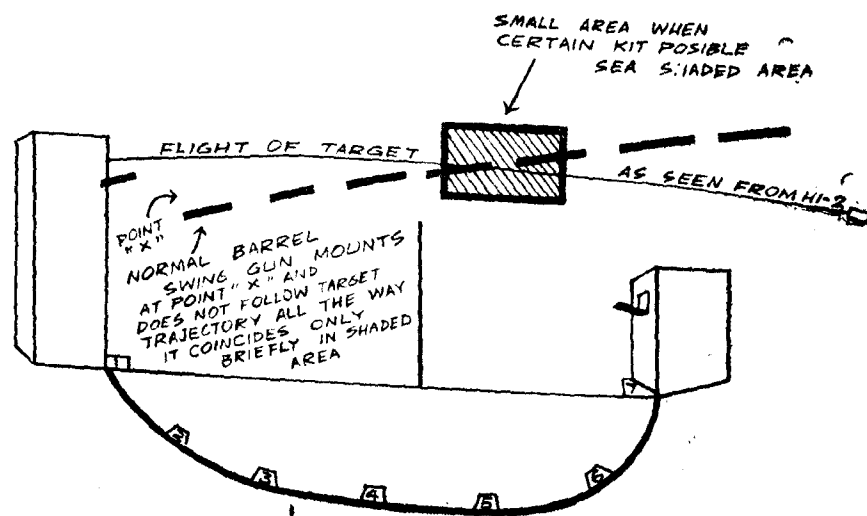
Stn-1-Lo : This is an easy target, but do not shoot it too soon. Take a natural point position about 15 feet past the crossing point to break the target about 15 ft. before it reaches the maker, whereafter the shot is declared lost. You need a one foot lead here and no more. The danger is that, if you "ride" the target it can sometimes, beat your gun as it comes too close to you. If you shoot too soon, you can shoot over or under it as an angular shot, for, an incoming target can be tricky. At the point suggested you have an easy shot with a one-foot lead.

Doubles Stn-1 : In double Stn-1 the easiest shot you miss is the high house. A shooter is too much in a hurry and nearly always shoots above the target. Be deliberate and make sure you are not missing on the left of the target by adjusting your stance correctly, then come up six inches below the target for your first shot and you have ample time

for second shot. Remember that at Stn-1-Hi, one of the biggest problems is for the human eye to be disturbed by the low house target which crosses your first shot from the high house. You have to learn to ignore this. In doubles, I lead the second shot in the low house about six inches more than I would do normally in low house Stn-1 singles. It is a good rule of thumb to add six inches to one foot on your second shot in doubles as nearly always your misses are due to shooting behind because you do not have enough time to make a smooth swing on the second shot. It is more a job.

Stn-2-Hi : This is a very difficult shot, and yet, once you have mastered it, it is the most delightful of all. I take a position five feet to the right of the crossing point post, then I gradually, deliberately move my gun-point towards the high house ejection post and keep it at a dead point roughly five ft. away from the Hi-house towards the crossing point. From this position my gun picks up the targets as it emerges, and I come up with a one-foot lead and try and break the target when it is about 10 ft. the post. Make sure to keep your right shoulder lower and your left arm forward, so that your gun will dip as you swing past the post along with the target, which also is a dropping target if seen from Stn-2. It is something akin to standing near telegraph wires and seeing how they dip as they fade into the horizon. At Stn-4, the same target would be absolutely flat and parallel to the ground.

Stn-2-Lo : It is another very easy target mostly missed behind.



The lead here is roughly 2 to 2.5 ft. Make sure you are not shooting under this target if the low house is a climber.

Stn-2-doubles : Concentrate your high house. There is ample time for the low house. Increase the lead by six inches on the low house — to say, 2.5 to 3 ft. if you are missing the Lo house shot in the doubles.

Stn-3-Hi : This is a tricky shot, missed by most people behind. I lose this shot most often. I have found that dry practice makes this shot perfect. My lead here is between 3 and 4 ft. I break this target about 15 ft. past the post. Take a position 15 ft. past the post.

Stn-3-Lo : This is a simple shot calling for roughly 3 to 3.5 ft. lead. Keep your weight forward on the low house, so that your swing does not stop. Also if the target is a climber, do not bend too much. Or else you will shoot below the target.

Stn-4-Hi : The Skeet target at Stn-4-Hi and Stn-4-Lo flies the flattest and calls for the largest leads since it is flying at almost 90 degree to you. I lead the Stn-4-Hi between 8 and 10 ft. which most shooters think is too much but which works with me. Take your ready position 15 ft. beyond the post where you can swing smoothly through the hitting zone.

Stn-4-Lo : I lead this between 4 and 4.5 ft., taking a ready position almost 20 ft. left of the crossing point and breaking it between 15 and 20 ft. past the post.

Stn-5-Hi : This again is a tricky shot. I take a ready position 20 ft. past the post, trying to make the target 90 degree to my stance. At this point I break the target with a fair amount of ease, my lead being 4 to 5 ft.

Stn-5-Lo : I hate this shot. I have found an exact spot on my gun on the fore-end stock where I hold with my left hand. At this exact spot my gun swings automatically with the correct barrel velocity to give me the two fit lead to break the target. Watch the target whether it is dropping or climbing. If it is dropping, bend your left knee; if it is climbing, stand a little straight but your body movement must be forward; otherwise you will shoot behind the target as the swing stops. Take a ready position 10 to 15 ft. past the post.

Stn-6-Hi : It is an easier shot and yet it is missed so easily. I shoot this roughly 15 ft., left of the low

house or 30 ft past the post. Most people say that I am riding the target, but at this position the target is flying 90° to me and as a sitting duck. Why risk an angular shot? I lead this four ft.

Stn-6-Lo : This is tricky. Make sure that the target is climbing or dropping and adjust your weight forward or more erect accordingly than take a stance. five ft. left of the post and no more. Bring your gun to a point roughly seven ft. left of the low House, the barrel point being the same height as the trajectory of the target I time my shooting at this particular station with a clang of the target released from the trap. You need a one foot lead here if you are swinging smoothly and your gun is not stopping. Most people miss either above or below the target and less often behind. Unless their swing is stopping.

Stn-6-Doubles : The easiest doubles to miss is here. I deliberately check whether the Lo House target is climbing or dropping. Bearing that in mind I prepare for the first shot aiming my gun in the ready position seven ft. left of the post. On the high house for the second shot in doubles I add on 18 inches to the lead because at this station the high house target appears to pass the point where a broken target will be declared lost. I come up deliberately, in front and shoot in fact 18 inches more than I would shoot the Stn-6-Hi house single in other words, a 3.5 to 4 ft. lead. It nearly always works. But you have to remember each of the above points for stn-6. If you go to sleep, you will miss the target here fairly easily; especially the doubles.

Stn-7-Hi : I wait for the target to come right close to me and break it with one foot lead.

Stn-7-Lo : It is an easier shot but most easily missed. Most often you will shoot left of the target. Here again as at Stn-1, take an angular position, so that your gun comes up on the target and not on the left of it. When the target comes out, see it above the sights say two inches above, and shoot a little under but certainly not above unless it is a very fast climber in a high head wind.

Stn-7-Doubles : This is an easy double; concentrate on the low house which is missed most often.

Stn-8-Hi : Before I reach Stn-8 I have already checked up whether

the high house target and the low house target are flying in what position — whether left of the post or over the post or to the right of it. I know that, if I stood facing the trap house at Stn-8, my gun would swing in a more upright arc — if I stood facing more to the right, my gun would swing lower. The secret is to coincide the barrel swing are with the trajectory of the target. I point my gun for the ready position roughly at about 40, Clock of the high house ejection post. It is here that the target will appear. Do not point too close to the window as it can be dangerous to the puller. So, you pick it up from here and make quick swing through the target leading it one foot and shooting it.

Whatever happens, do not let your eye lose sight of the target as it comes out but let your eye follow it like a tracking device. "Look" your eyes on the target as it emerges. Always make dummy swing on Stn-8-Hi and you can at once coincide your swing arc with the flight anticipated.

Stn-8-Lo : I watch ahead of time where the Stn-8-Lo target is flying. I make my dummy swing to coincide with the fly arc of the target. Here I stand with the ready position five ft. to the right of the post, i.e., five ft. before the crossing point post. Then I bend my body at the knees and bring my gun-point to aim roughly a few feet to the left of the Lo house port at about 10 O'Clock of the ejection port. This is where an average target will come from. I pick up the target as it comes keeping my eyes glued on it and break it with a one foot lead.

Note for Stn-8-Hi and Lo : Remember that when your ready position is kept so close to the ejection port, you must have sufficient control on your trigger; or else, this position can be dangerous for the puller. For beginners I would suggest at both Stn-8-Hi and Lo the ready position barrel point away from the Hi House and Lo House posts.

The Optional Shot : You now have to shoot the optional of Stn-8-Lo, unless you have missed the first shot anywhere else. Do not be frightened. Treat the previous shot and the optional with equal amount of concentration.

Flight Arc of Skeet Target : If you stand behind a shooter and watch how his gun swings, you will see that, with most amateur shooters,

the gun swings through the target at a particular point and then swings either below or above the flight arc in a crossing manner, giving you roughly ten ft. in which to break the target and thereafter the gun barrel has merrily gone to a different trajectory poking holes in the sky. The secret is that the gun, from the ready position to the point of breaking the target, should follow the flight arc of the target. Then give yourself 25 yards to break the target. This way your gun follows the flight path of the target without any special effort.

Eye Exercise : I have written an article in the Indian Rifleman which was published in the International Shooting Sport magazine also on the 'art of seeing'. I am convinced that watching any fast movement for any length of time exercises the eye to be able to "See" the movement much better and quicker. You will see me very often during any Trap or Skeet competition sitting by myself hours on end while others are gossiping. I follow every target as it comes out throughout its entire flight until I reach a stage where the target appears to be flying slower and my eye can lock on the target the moment it comes of the Skeet house or the Trap house. When you reach that stage of eye exercise, your scores will improve.

These are the basics of Skeet shooting as I see them. The rest depends on how keen you are. If Sunday movies are a bigger attraction and late nights, heavy drinking and excessive smoking are your hobbies, then do not aspire for those very high and sustained scores that many shooters can do day after day : there will be some days when your scores will be exceptional and on another day 20 points lower. I neither smoke nor drink, and I feel that it helps my shooting. I practise when it is raining, when the dust storms are at their worst and when the mercury is 115 degree in the shade. Finally, if I win the competition, it is not because I was born with a silver spoon in my mouth but because of the determination and hard practice under adverse conditions. Do not forget that for eight years I was continuously beaten in clay pigeon shooting and won only after a thorough study of the game.

I hope that these notes will help young shooters to better their scores. It is about time India was able to produce a large number of

young sportsmen in their scores. It is about time India was able to produce a large number of young sportsmen in their teens who could help win medals for our country. So, good luck to them and good shooting.

Courtesy : The Indian Rifleman.

HOSPITAL FACILITIES IN THE GOVERNMENT HOSPITALS IN THE CITY

In the recent past great strides have been made in the expansion of Hospital facilities and Medical Education. With the inflow of patients, expanded facilities, larger medical manpower availability, etc., and administrative and other problems in Madras City Hospitals, have become complex and important. In order to aim at proper and fuller utilisation of the hospital facilities available and to effect economy in the expenditure, the Government of Tamil Nadu direct that the following Committee to be constituted to go into the working of the Government Hospitals with the following as Members :—

1. Thiru A. Padmanabhan, I.A.S., Secretary to Government, Health & Family Planning, Department—Chairman (Part-time).
2. Dr. V. R. Thayumanaswami M.S., M.Ch., Orth. FRCS (Eng.)—Member.
3. Thiru G. Ranga Rao, I.A.S., Managing Director, Repatriates Co-operative Finance and Development Bank Limited, Madras—Member-Secretary (Part-time).

The Committee shall examine and submit a report on the following :—

- (a) The present administrative structure and day-to-day working of the Hospital ;
- (b) Existing rules and regulations including standing orders relating to Hospitals and revisions necessary ;
- (c) Effective control and administration to give better service ;
- (d) Purchase of hospital equipment, drugs, linen, etc., and their proper and full utilisation ;
- (e) Introduction of scientific inventory control ;
- (f) Maintenance of the buildings, equipment, etc. ;
- (g) Further improvements and expansion, etc., and
- (h) any other matter which the Committee considers necessary, to bring to the notice of Government.

ACHIEVEMENTS OF THE TAMIL NADU THEATRE CORPORATION

The Tamil Nadu Theatre Corporation Limited, Madras, a State-owned undertaking, has made a net profit of Rs. 21,479/- after providing for depreciation and taxation for the second year ended 31st March, 1974.

The response for the scheme formulated by the Corporation for the grant of loans for the construction of Semi-permanent theatres in Tamil Nadu has been gratifying. A total number of 97 loan applications have been received by the Corporation. The Corporation has sanctioned 75 loans to private individuals /firms spread over 12 districts out of 14 districts in Tamil Nadu to the tune of Rs. 81.80 lakhs of which a sum of Rs. 23.92 lakhs has been disbursed.

The districtwise details of loans sanctioned to various individuals/firms are given below :—

Chingleput ..	21
Coimbatore ..	4
Dharmapuri ..	1
Madurai ..	10
North Arcot ..	8
Pudukkottai ..	4
Ramanathapuram ..	5
Salem ..	5
South Arcot ..	7
Thanjavur ..	7
Tirunelveli ..	3
Tiruchirapalli ..	3
Total ..	75

The scheme is expected to create permanent employment opportunities to more than 1,000 persons besides seasonal employment to many. Despite various constraints, 6 Semi-Permanent Theatres have started functioning and 10 more theatres are likely to commence exhibition of films shortly.

At the Second Annual General Meeting held on 12-9-74, the Chairman disclosed that the profit for the current year is expected to be better than last year. He envisaged better progress in construction work provided building materials especially cement are available to the loanees. The Corporation is at present granting loans upto a maximum limit of Rs. 1,20,000/- per theatre. In the near future, it proposes to diversify its activities which would benefit the loanees and the public.

KNOW THE NEW SELECTIONS IN VEGETABLE COWPEA

With a view to combining the desired pod length with proper plant type in vegetable cowpea, work has been in progress at this Institute for some time. Some important selections made are described in this article.

Pod length and plant type :

Cowpea, popularly known as *lobia*, *barsati* or *chawli*, is grown through the country for its green succulent pods used as vegetable. The pod colour ranges from dark-green to yellowish green with an intermediate green shade. The colour preferences vary from region to region. As regards the pod length, there is plenty of variation. In a yard-long bean variety, it may be 35 to 45 cm. or even more, whereas in others it may range from 12 to 30 cm. Generally the pod length of 20 to 25 cm. finds favour with consumers.

The varieties released earlier from this Institute include Pusa Phalguni, Pusa Barsati and Pusa Dofasli which had pod length 12 to 14 cm., 25 to 27 cm. and 15 to 17 cm., respectively. Pusa Phalguni fruits better in the spring-summer crop and its pod length is rather small. Pusa Barsati is a favourite variety for its long attractive succulent pods, but because of its photosensitivity it is not suitable for growing in spring-summer in the north Indian plains. Pusa Dofasli can be grown during spring-summer as well as in the rainy season, but it produces smaller pods than Pusa Barsati and better ones than Pusa Phalguni.

In 1967, a hybridization programme was taken up to have further improvement in the crop to combine photo-insensitivity with pod length. Crosses were made between Pusa Dofasli on the one hand and yard-long bean accessions E.C. 26410 (ex-Mexico) and EC. 30040 (Ex. USSR) on the other. But good selections were obtained only from (the cross) Pusa Dofasli X EC. 26410. Another set of selections was obtained from the cross made earlier between Pusa Phalguni and

EC. 21622 (ex.-Philippines) from which 24/8-2 was derived. Out of nearly 60 single plant selections, progenies of 8 selections reached the replicated yield trial stage, under different locations. More important selections from amongst them are described below so that small scale testing is possible over larger area.

Outstanding selections :

24/8-2 : It is semi-viny in north Indian plains. If sown in spring summer, and the weather remains mild, it comes into flowering in 50 days. During kharif season it takes 35 days to flower after sowing. Its flowers are white, pods yellowish green, cylindrical and fleshy ; pod length 17 to 18 cm. ; seed white ; 100-seed wt. 10.5 g. ; green pod yield 70 to q/ha. It is found suitable for growing in various agro-climatic regions of the country ; has given high yields in the trials at Delhi, Jodhpur and Coimbatore. It is fairly tolerant to 'Macrophomina', wilt and nematode under field conditions. It gives best results as a rainy season crop.

P 85—2E9A : It is bushy in habit, producing purple flowers and yellowish green pods 18 to 19 cm. long. Its seed is white with purple splashes. It takes 45 to 48 days and 35 days to flower in spring summer and in kharif seasons, respectively. Green pod yield 65—70 q/ha ; 100-seed weight 9.5 g.

Red Seeded Selection : Comparatively, a new selection, it is a sister variety of P85—2E9A ; it is a bushy type, coming to flower in 45 and 35 days in spring summer, and in kharif seasons, respectively, flowers purple, pods yellowish-green, pod length 19—21 cm., green pod yield at Delhi is 77.45 q/ha, 100 seed weight 10.0 g.

P460—1—1 : A bushy type, it comes into flower in 49 days during spring-summer and 38 days in kharif seasons ; flowers purple, pod colour dark green ; pod length 22 to 23 cm., seed brown, 100 seed weight 11.5 g. Green pod yield 50 to 55

q/ha (averaged on the basis of yield trials at Delhi, Rajasthan and Coimbatore). In one trial at Delhi, it gave as much as 80 q/ha. In Jodhpur its yield has been averaging around 55 q/ha. Because of dark green pods it would find favour in certain parts of Rajasthan, and in Tamil Nadu, Kerala etc. in the south.

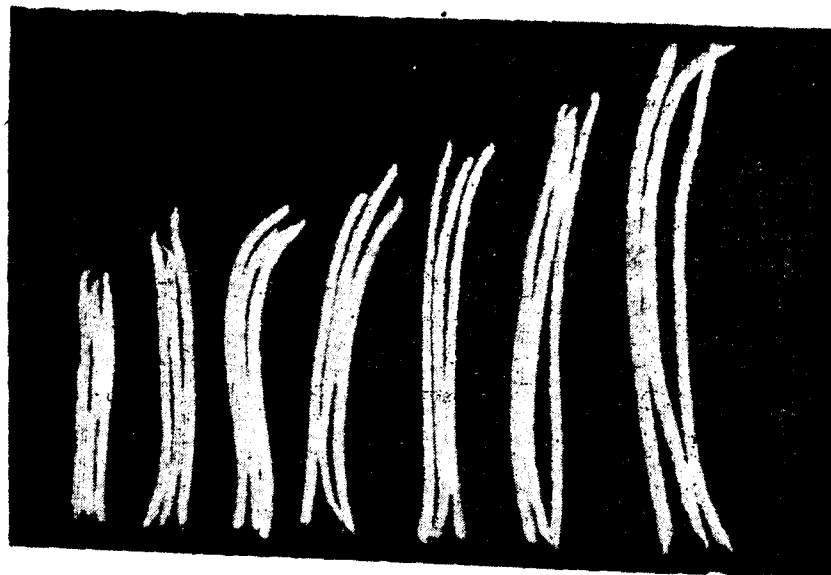
Brown Seeded Selection : It is comparatively a new selection from P85—2E9A. It is bushy, throwing small vines ; highly photo-insensitive. It is the earliest selection coming into flower in 40 and 30 days after sowing in spring-summer and in kharif seasons, respectively ; flower purple, pod yellowish-green ; pod length 23 to 24 cm. ; first picking in kharif is done in 40 to 42 days ; gives about 10 pickings spread over 40 days ; green pod yield 84 q/ha which is about 33.8 and 45.6 per cent more than that of Pusa Barsati and Pusa Dofasli, respectively ; 100 seed weight 11.0 g. It can be used as a dual purpose type i.e., for pods as well as for seeds.

These cowpea selections thus offer a series of pod length ranging from 17 cm. to 24 cm. These varieties would grow well in the north Indian plains in both the seasons i.e., in the spring-summer as well as in the rainy season. But, however, if summer is severe with mercury rising from 43 to 44 degree centigrade or more, chances are that these may not come into high productivity. The brown seeded selection being highly photo thermo-insensitive will give comparatively better performance even under severe summer conditions. The problem of photo-thermo-insensitivity is not operating in the south. So that these can be grown in that region without any limitation of seasons.

Sample seed packets of these selections are available with the Head, Division of Plant Introduction, Indian Agricultural Research Institute, New Delhi, for trial and observation purposes.

H.B. SINGH, S.P. MITAL, B.S. DABAS,
and T.A. THOMAS

Plant Introduction Division, Indian
Agricultural Research Institute,
New Delhi.



Pods in Cowpea selections (left to right) Pusa Phalgani 24/8-2, P85-2 E-9A. Red-seeded brown seeded and Pusa

CONTROL COWPEA DISEASES

Some salient recommendations for the control of diseases of cowpea have emerged from the detailed studies conducted in the last three years at the Indian Horticultural Research Institute, Bangalore. Knowledge about the symptoms produced by various diseases is an essential pre-requisite for the adoption of control measures.

Major Diseases

RUST (*Uromyces phaseoli* var. *vignae*): This is one of the most serious diseases especially in South India. It attacks the crop almost throughout the year around Bangalore but is more serious during rainy weather (July to October). Initially, it produces numerous, small, circular flecks on the leaves, petioles and stems which later turn chocolate brown. The epidermis ruptures in due course and the spores are released.

During dry weather the spore release is so profuse that the entire foliage is covered by a reddish brown spore dust. The diseased plants are stunted and light green. The leaves are defoliated depending on the severity of infection. Pod formation is adversely affected.

The disease is favoured by high humidity in the atmosphere coupled with heavy rains. Poor growth and gappy stand of the crop are more favourable for disease development. Under shade the disease incidence is comparatively less.

Control: The disease is effectively controlled by fortnightly sprays of Cosan (0.2 per cent 2 gm/l) or

Benomyl (0.2 per cent) or Difolatan (0.3 per cent). Varieties Iron and Cream-40 were found resistant. Moderate doses of nitrogenous fertilizers are recommended to induce dense growth of the crop.

ANTHRACNOSE (*Colletotrichum lindemuthianum*): The disease attacks all the above ground parts of the plant. The lesions are characteristically dark brown. Elongated more or less angular spots appear on the veins on the lower side of the leaf spreading slightly into the surrounding tissue and eventually appearing on the upper surface as well. On the hypocotyl the lesions often extend to deep cankers. On pods lesions develop as small brown spots which enlarge quite rapidly up to a diameter of one cm., then become dark brown to black in the centre and light brown to pinkish at the border. Acervuli are observed on the stromatic masses on dried pods. Severely infected pods are misshapen, curled and do not attain normal size and are without seeds. Affected seeds also bear brownish lesions. The disease is favoured by rainy weather and moderate temperature.

Control: The pathogen perpetuates from one season to the next on the plant debris and on seed. Use of disease free seeds and destruc-

tion of diseased debris after crop harvest are recommended. Rotation for two to three years with non-host crops should be followed. Protective sprayings with Difolatan (0.3 per cent 3 gm/l) or Benomyl (0.2 per cent) or Dithane M-45 (0.2 per cent) at fortnightly intervals may be given. Seeds showing spots or lesions should be rejected for sowing.

WILT (*Fusarium oxysporum* var. *tracheiphilum*): The disease is quite serious in northern India. It is characterised by the formation of reddish brown lesions on the tap root and subterranean stem. These later turn dark brown and black. Gradual reduction in the formation of lateral roots and progressive stunting of the plants is also noticed. Vascular bundles turn brown. The plants ultimately wilt. The disease is favoured by warm soil and dry weather.

Control: Disease free seeds should be used. Seed should be treated with Thiride (0.3 per cent) or Captan (0.2 per cent) or Benomyl (0.2 per cent) before sowing as it would eliminate superficial infection, if any. Long rotation should be adopted as the pathogen remains viable in soil. Plant debris may be destroyed after harvesting. Resistant varieties may be cultivated.

LEAF SPOT (*Septoria vignicola*): It is a serious disease of the rainy season (July to October). The disease is characterised by the formation of numerous, circular to irregular water soaked spots on both the leaf surfaces. These later turn light brown with dark brown margins. The centre of the spots

ultimately turns slightly grey producing numerous black dot-like pycnidia.

The disease is favoured by high humidity in the atmosphere and results into complete defoliation during rainy weather. It hardly takes two to three days for complete defoliation in a favourable weather. Under such conditions, profuse pycnidial production is noticed on all parts of the plant irrespective of the spots and the pycnidia are erumpent. The entire foliage turns yellowish and gives a sickly appearance when the infection is severe.

Control: Spraying with Difolatan (0.3 per cent—3 gm/l), or Benomyl (0.2 per cent) or Bavistin (0.2 per cent) or Dithane M-45 (0.2 per cent) at 15-day intervals gives effective control. The first spraying should be given with the appearance of the disease. Use of resistant varieties like Iron and Cream-40 is recommended.

POWDERY MILDEW (*Erysiphe polygoni*): The disease is quite serious during the dry months (February to May) in Bangalore region. It is characterised by the formation of white fluffy, light greyish powdery to mealy growth on leaves, petioles, branches, stems, young shoots and pods. The affected plants are dwarfed. Leaves turn yellow, curl, wither and die premature. In severe attacks cracking of the stem is also noticed. The disease is favoured by cool nights followed by comparatively high dry temperature. It is more serious in crowded and shaded crops.

Control: Spraying with Sulfex (0.3 per cent—3 gm/l) or Afugan (0.1 per cent) or Benomyl (0.2 per cent) or Cosan (0.2 per cent) at fortnightly intervals is very effective for control. First spray should be given at or before the appearance of the disease. Varieties like Iron and Cream-40 are comparatively more resistant.

COLLAR ROT, BLIGHT OR TWIG BLIGHT (*Macrophoma subconica*): The disease attack starts at the collar region of the fully grown plants producing collar rot symptoms. In certain cases some of the branches show blight symptoms which initiate at the tips and proceed downwards resulting into their death. Numerous dark coloured pycnidia are produced on the diseased tissues including stems,



Brown-seeded selection gives excellent Poc yields in summer and rainy season.

branches, pods and seeds. The infection is carried through seeds. The disease was found to be serious at Hessarghatta during the rainy season of 1973. It attacked almost all the commercial varieties but was more serious on Pusa Dofasli and Pusa Barsati.

Control: The use of disease-free seeds is recommended. Destroy plant debris after harvest. Spraying with Benomyl (0.2 per cent, 2 gm/l) or Bavistin (0.2 per cent) was found effective for its control.

MINOR DISEASES

CERCOSPORA LEAF SPOT (*Cercospora cruenta*): The disease is confined largely to the foliage of the plant and is characterised by the formation of nearly circular to angular spots, which are grey in the centre and are often surrounded by reddish borders. Pods may be affected. In general, older senile leaves are affected more than the young, vigorously growing ones. The disease is favoured by humid weather and results into defoliation, if severe. It is serious under north Indian conditions.

Control: Spraying with Dithane M-45 (0.2 per cent, 2 gm/l) or Dithane Z-78 (0.2 per cent) at fortnightly intervals during rainy weather gives appreciable control. Destruction of diseased debris is essential to avoid perpetuation of the pathogen.

ASCOCHYTA LEAF SPOT (*Ascochyta* spp.): The disease appears during the rainy weather and is favoured by high humidity. It forms dark zonate lesions on

leaves and pods. These are surrounded by dark brown margins. In the centre of the spots numerous dark coloured pycnidia are observed. Disease spread is very fast during favourable weather and the spots cover most of the leaf area.

Control: Spray the crop with Difolatan (0.3 per cent, 3 gm/l) or Benomyl (0.2 per cent) at 15 day intervals.

PHYLLOSTICTA LEAF SPOT (*Phyllosticta phaseoli*): Restricted largely to mature leaves and spots are large brownish and cover large areas of the leaf. The whole leaf gives a water soaked appearance in humid weather. The disease is favoured by rainy weather.

Control: Same as given under Ascochyta leaf spot.

ALTERNARIA LEAF SPOT (*Alternaria atrans*): The disease usually appears in humid weather and attacks the leaves producing irregular spots of light grey to brown colour starting from the margins of the leaves and proceed towards the midrib and are zonate. The spots are surrounded by yellowish halos. The leaves ultimately wither and die. On stem and twigs zonate brown spots are formed. The disease was serious and widespread in Tamil Nadu during 1970—71.

Control: Spraying the crops with Dithane M-45 (0.2 per cent, 2 gm/l) or Dithane Z-78 (0.2 per cent) or Dithane C-90 (0.2 per cent) at fortnightly intervals is recommended. Destroy the diseased debris.

ENERGY

and thoughts

of conservation

The term "Energy" is commonly understood as the "source of power." Power is utilised in numerous ways for development of man's comfort and raising his standard of living.

Existence of human race is centred around "energy". With the advent of civilisation, man has discovered methods of producing energy for food and other comforts. Firewood, coal and later electricity were the chief energy sources in India. From the end of 19th Century "Crude Oil"—a mineral oil tapped from the earth's crust—gradually developed into a major source of energy for use in home, transport and industrial establishments. Some countries like USA, in Western Europe and Japan are very much advanced in the development and use of petroleum fractions. India has established the use of oil for industries and is making steady progress in this field since 1954.

Unprecedented Oil Crisis

The availability of energy is one of the most important requirements for the economic growth of any country, and for the entire world. Oil, as we know, is not found everywhere. Some nations like Saudi Arabia, Iran, Kuwait and other Middle East countries are endowed with huge reserves of this "liquid gold."

India for its share imported 12 million metric tons of crude in 1972 from Middle East to meet part of its energy requirements. The cost per barrel of crude oil was £2.8 on October 16, 1973 and it shot up to £11.3 after January 1, 1974. Naturally, the cost of imports of this energy from a mere Rs. 200 crores shot up to Rs. 1,100 crores. Therefore a "crisis" has developed affecting the nation's economy.

The energy crisis has become a world-wide phenomenon. It has affected all the countries on the earth alike, and has become a subject of heated discussion and concern at all levels. In order to save oil fuels, the Tamil Nadu Government has taken many a step to encourage constructive thinking to reduce oil consumption by means of lighter body design and alteration of engine mechanism. By way of incentive large prizes have been offered and much expenditure has been incurred in advertising these awards through a regular campaign. In fact the importance attached to the subject can be inferred from the fact that it has been referred to by the Chief Minister in his budget speech.

Fuel conservation and economy in use of all forms of energy can be adopted in many large undertakings. The Madras Refineries Limited has already set out on schemes to conserve oil at the refinery stage. Its efforts have already yielded results and is expected to show spectacular results in the conservation of oil in the times ahead. This article highlights the points for the need and necessity of the conservation of oil as well as the proposals the MRL has undertaken on its own volition to usher in the desired results in that direction. This article about the efforts of MRL is published in Tamil Arasu to give a boost to such efforts by other large undertakings and "Tamil Arasu" will be glad to publish such efforts.

—Ed.

by
A. V. SUBRAMANIAM of M.R.L.

What Next?

No developing nation can afford such a high cost of energy. But, there is nothing a nation can do immediately to do away with the import of energy. To resolve the crisis, a nation has to find alternative sources of energy within itself and also adopt technology to use the new source for all its home and industrial uses. Since this is going to be a long-term development programme, there is one solution that any nation affected by high energy cost can adopt immediately to overcome the crisis.

Conservation

The solution suggested is very simple. "Conservation of Energy." What do we mean by this? This means clearly that the use of energy in various forms should be economical and efficient. To achieve this we have to devise ways and means of reducing wastes, increase the efficiency of our equipment, and improve the technology.

Pioneering role of MRL

The Madras Refineries Limited imports 2.7 million tonnes of crude. The crude is processed and is transferred into various energy sources with minimum waste using the latest technology. The energy consumed in refining is about 530,000 BTU/barrel of crude. MRL have initiated energy conservation programmes which will reduce its own energy needs to an optimum level. The target is a reduction of 25% of our total energy needs over a period of 5 years.

A separate Energy Conservation Division has been formed to coordinate the various activities in the Refinery towards the conservation of energy and minimising oil loss.

One of their Chemical Engineers, R. Nagarajan, was deputed to Iran to study the techniques used by NIOC in minimising oil loss.

The New Steps

MRL has successfully implemented several measures to achieve reduction in the consumption of energy to the extent of 25,000 tonnes/year of fuel, some of which are detailed below.

Replacement of old burners by minimum air, high intensity burners in crude unit reduced the excess air requirements of the heater to 15%. This results in a saving of 4,200 tonnes/year of fuel besides increasing the furnace capacity by about 5%.

Additional 23 nos. of Diamond Soot Blowers were installed in Crude Furnace which will help prevent fouling of convection bank studded tubes and give better heat recovery.

The height of the Crude Furnace twin stacks has been increased by 3 metres each to improve the draft in the Furnace. This will improve the furnace performance.

It is inevitable that the convection tubes will foul up over a period and it is necessary to clean them up physically. In order to have a proper accessibility for effective cleaning of the convection bank when required, specially designed pre-cast panels have been installed in the convection section of the Crude Furnace during this turnaround.

The product routing in the crude preheat exchanger train has been modified to gain preheat of about 2.5 MMK. Cal./hour or equivalent to 2,050 tonnes of fuel/year.

Use of low pressure steam in place of medium pressure steam in atmospheric section of the Crude Unit, in Lube Dewaxing Unit strippers and in condensate stripper in



The height of the twin stacks atop the Crude furnace was extended by 3 meters each to achieve improved draft. This will facilitate efficient and clean firing at maximum crude. This height of the stack after extension is 38.9 meters from the ground level. Picture shows the progress in the erection of the stack extension piece, during September 1974. It is a huge task for conserving fuel oil in the operation of the Plant.

Hydrogen Plant resulted in a saving of about 7,500 tonnes/year of fuel oil.

Scheme for improved trapping and condensate recovery system which, when implemented fully, is expected to recover an additional 40 tonnes/hour of valuable condensate.

Waste not, Want not

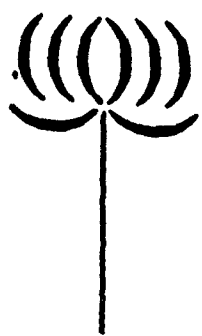
The above are only a few of the many more measures towards energy conservation that need to be developed and implemented. We

are sure that everyone in large undertakings will keep this in mind and dedicate themselves to the following : 1. Cut waste ; 2. Give suggestions for energy saving in any form ; 3. Suggest long-term technological/process changes for improved efficiency.

Since the present sources of energy are not unlimited or perennial every energy user (everybody) has a moral duty to avoid waste and to extract the maximum benefit from every bit of energy employed.

—♦♦—

Project For Studying Pattern Of Consumption Of Fertilizers And Its Determinants



Thanks to the introduction of high yielding fertilizer responsive crop varieties coupled with extra institutional, financial facilities and the overall general awareness on the part of the tillers of the soil on the effectiveness of the use of fertilizers pushed up the cost of cultivation by 40 to 48 per cent with the corresponding increase in income from paddy only by 11 to 25 per cent as compared to 1972-73. The same piquant trend prevails in the case of cultivation of almost all crops. Thus there is a need to rationalise the use of fertilizer for the modern varieties in the context of increased cost of fertilizers—Ed.

Tamil Nadu ranks third in the whole of India in average rate of fertilizer consumption. The use of fertilizer has increased to 3.47 lakh tonnes in 1971-72, from 12,800 tonnes in 1952-52. Thanks to the introduction of high yielding fertilizer responsive crop varieties supplemented by credit expansion programmes through institutional agencies and agricultural extension activities by way of specific crop package schemes, the awareness and off-take of fertilizer has increased resulting in transforming the fertilizer trade from a stagnant buyers' market to sellers' market in 1972-73. However, there are inter-regional imbalances and the use of fertilizer at farm level is influenced by several factors.

The Department of Agricultural Economics, Tamil Nadu Agricultural University took up a survey of consumption pattern of fertilizers in typical wetland region viz., Kodiveri Anicut system in Gobichettipalayam taluk and gardenland farms of Coimbatore taluk covering the crop year 1972-73. In each of the two taluks 45 farms distributed in randomly selected five villages were visited for the study. Nanjaipulampatti, Pattakarai, Perumugai, Kondayampalayam and Puthukkarai were the villages representing wetland region and Thondamuthur, Pannimadai, Perur Chettipalayam, Thenkarai and Gudalur villages representing gardenland farms were selected. The prices of farm inputs and farm produce have risen sharply since the completion of the investigation and the results have been computed at current prices for the same level of inputs.

Farmers' Preferences

In the wetland farms of Gobichettipalayam taluk paddy and sugarcane were the main crops occupying

92.52 per cent and 7.48 per cent of area respectively. High yielding varieties of paddy like IR. 20, IR. 8 were grown in 49 per cent of the paddy acreage while traditional varieties like TKM. 6, Co. 25, ADT. 27 Co. 19, Co. 24, Gundu, Uthiri, Valkar, Rajabogam and Samba still occupied 51 per cent of the area. The farmers applied almost the recommended dose of nutrients per acre to high yielding paddy varieties. However, for the traditional varieties, the farmers applied, on an average, 40 Kg. N per acre as against 28 Kg. of recommended level. It was also observed that even as high a dose of 100 Kg. N per acre was applied by a few farmers under special circumstances. The farmers preferred complex fertilizer for paddy.

The average cost of cultivation at current prices per acre of IR. 20 and IR. 8 were Rs. 1,160.80 and Rs. 1,269.50 respectively while for that of traditional varieties was Rs. 877.00. Of the total cost, the fertilizers accounted for 30 to 31 per cent in the case of high yielding varieties, and 29 per cent in the case of traditional varieties. In addition, the high yielding varieties received organic manures to the extent of 9 to 12 per cent of the total cost whereas it was only two per cent for traditional varieties. Thus the cost of manures and fertilizers alone accounted for 39 to 44 per cent in the case of high yielding varieties, and 31 per cent in the case of traditional varieties of paddy. The benefit cost ratio was 2.19 for IR. 20, 1.66 for IR. 8 and 2.25 for traditional varieties implying that the return per rupee of investment was relatively higher in the case of traditional varieties though the absolute value of return was higher in the case of high yielding varieties. It was observed that the cost of

cultivation had increased by 40 to 48 per cent and the income from paddy by 11 to 25 per cent as compared to 1972-73. The value of fertilizer alone increased by 72 per cent for IR. 8 and 58 per cent for IR. 20 while to 56 per cent for traditional varieties as compared to 1972-73 level. Thus, there is a need to rationalize the use of fertilizer for the modern varieties in the context of increased cost of fertilizers.

Wetland Sugarcane

In respect of sugarcane grown in the wetlands, the farmers applied less of Nitrogen but more of Phosphorus as compared to the recommended dose. On an average 61 Kg. of N, 34 Kg. of P₂O₅ and 24 Kg. of K₂O were applied per acre of sugarcane in the form of mixed fertilizer supplied by M/s. Sakthi Sugars Ltd. However, the range varied from 34 Kg. to 82 Kg. N per acre. The total cost of cultivation at current price per acre of sugarcane was Rs. 2,854.00 and of this the manures and fertilizers accounted for 19.7 per cent. The cost of organic manures constituted four per cent while that of fertilizers was 15.7 per cent. The benefit cost ratio was 2.19. The total cost of cultivation has increased by 85 per cent because of increase in fertilizer costs and, to some extent wages. The value of fertilizer had increased by 51 per cent.

In the gardenland farms of Coimbatore taluk, cotton and sugarcane were the principal cash crops occupying 25 and 28.6 per cent respectively. Maize and irrigated groundnut came next in order. Cholan, Ragi, Cumbu, Tapioca, Tomato, Sunflower and flowers were also grown to a limited extent depending upon the water level in the wells.

The farmers applied, on an average, 37.6 Kg. of Nitrogen per acre of cotton as against the recommended level of 28 Kg. The inter-farm variation in the quantity of fertilizer applied to cotton varied from 10 Kg. N to 50 Kg. per acre. Calcium ammonium nitrate was preferred for cotton. The total cost of cultivation at current price was estimated at Rs. 1,420 per acre and

this constituted 56.5 per cent increase over 1972-73 level. Of the total cost, 37 per cent was spent on manures and fertilizers. The value of fertilizers alone accounted for 20 per cent while the value of organic manure constituted another 17 per cent. As compared to 1972-73 prices, the value of fertilizer increased by 55 per cent. The benefit cost ratio was 1.70 for cotton.

The sugarcane crop in gardenland region received, on an average, 62 Kg. Nitrogen as against the recommended dose of 90 Kg. per acre. The inter-farm variation was of the order of 27 Kg. to 148 Kg. Nitrogen per acre. The farmers preferred ammonium sulphate and ammonium phosphate for sugarcane. The average total cost of cultivation at current prices was Rs. 2,242 per acre. Of this, the value of manures and fertilizers constituted 28 per cent and the fertilizers alone accounted for 17 per cent while the rest was spent on organic manure. The benefit-cost ratio worked out to 1.99. The present cost of cultivation showed an increase of 24 per cent over 1972-73 level. The cost of fertilizer had increased to 48 per cent.

Maize Cultivation

In the case of maize, the farmers applied, on an average, 23 Kg. Nitrogen per acre as against 54 Kg. recommended. The average cost of cultivation for maize was Rs. 760 per acre recording an increase of 55 per cent over 1972-73 level. Of the total cost, manures and fertilizers accounted for 45.5 per cent and the fertilizers alone constituted 19.9 per cent. The benefit-cost ratio was 1.53. The cost increased by 54 per cent due to increased fertilizer bill. The value of fertilizer showed an increase of 67 per cent as compared to 1972-73 level.

Groundnut crop received on an average 7 Kg. of Nitrogen per acre mostly in the form of mixed fertilizer. The total cost of cultivation per acre was Rs. 890. Of this, manures and fertilizers accounted for 36.70 per cent and fertilizers alone 18.70 per cent. The current cost of cultivation has been 45 per cent over the 1972-73 level. The

value of fertilizer was increased to 45 per cent. The benefit cost ratio was 1.21 for groundnut.

In general, the proportion of fertilizer cost to the total cost varied from 17 to 20 per cent for the gardenland crops, while it ranged from 16 to 31 per cent in the wetland region. The traditional varieties of paddy and the cotton crop received higher doses of fertilizer than the recommended dose. Farm yard manure was used liberally for the first crop of paddy and almost all gardenland crops. The cost of fertilizer has shown an increase ranging from 45 to 72 per cent. The study reveals the need for farmer education in rational use of fertilizer. Credit sale has encouraged higher use of fertilizer. The farmers paid higher than the approved prices for the fertilizers and this phenomenon was significantly observed in the wetland region. **Distribution of fertilizers through the Co-operatives and Panchayat Union Offices was preferred by gardenland farmers while in the wetland region the private dealers were preferred in view of timely and adequate supply through at a premium price.**

Source : Tamil Nadu Agricultural University, Coimbatore.

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PLANT QUARANTINE,

Its Importance And Functioning In India

The existence of regulations in relation to the movement of plants and plant materials is not so widely known in our country. With the improvements in the speed and modes of transport and communication that have taken place all over the world, the volume of international travel and trade has increased enormously. Every country is thus becoming more and more exposed to the danger of infiltration of known and unknown, potentially or actually dangerous pests and diseases affecting not only human beings and animals but also the different kinds of plants and plant materials which provide food, fibre and other valuable commodities or articles of economic importance which contribute to progress and prosperity. There are several well-authenticated examples of major pests having invaded new areas and become established in them. The lantana and water hyacinth weeds from South America are hampering agricultural production in India.

The bunchy top disease of banana caused by a virus which is transmitted by an insect was introduced into India from Ceylon in 1940 and by 1943 it had spread to a few hundred acres in Kottayam in Kerala. Now it occurs practically all over Kerala and has also been reported from localised areas in Tamil Nadu, Orissa, West Bengal and Assam. The wart disease of

Potato was first noticed in Darjeeling District of West Bengal in 1952, having been introduced with seed potatoes imported from Holland. By 1962 the disease spread over nearly 2,500 acres and has recently been reported from Nepal as well. The Golden Nematode attacking potato was first recorded in the Nilgiris in 1961 and a recent survey reports its presence from over 2,000 acres in and around Ootacamund.

Three other introduced insect pests have been with us for some decades now and have spread to much larger areas; San Jose scale of apple occurs in Jammu and Kashmir, Punjab Hills, Himachal Pradesh, Uttar Pradesh, West Bengal, Assam, Orissa and Tamil Nadu. It has a host plant ranging over 200 varieties of fruit trees, shrubs and ornamental plants. The woolly aphid, another serious apple pest, is present in Jammu and Kashmir, Punjab, Himachal Pradesh, Uttar Pradesh and Tamil Nadu. With a view to covering large area with exotic varieties of crops with high yielding potential in a short time, large quantities of seeds are being imported. The enthusiasm for bringing in new varieties should, however, be coupled with the precautions that need to be taken to ensure that such dreaded insect pests and plant diseases are not introduced along with. It may be mentioned that wheat seeds are capable of

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Thiruvallur Dr. S. N. Banerjee, Plant Protection Adviser to Government of India, R. Balasubramanian, Chairman, Madras Port Trust (then) & G. Sankaran, Collector of Customs, Madras at the inaugural functions of Refresher Course on Plant Quarantine on 6-9-74.

carrying any of the 55 different bacterial and fungal diseases, some of which may not even be confined to wheat. Potato seed from Europe may carry virus X and virus Y in latent form and the two viruses do not affect the potato plant but are capable of multiplying virulently on tobacco and wipe out the same. No progressive country can afford to allow the unrestricted importation of all plants and plant materials or their unrestricted movement from one area to another within its own territory. Plant pests and diseases may be brought in and propagated through nursery stocks, cuttings, bulbs, tubers, roots, seeds, etc., or through various commodities like fruits, vegetables, nuts, grains, leaves, straw, etc.

The Plant Protection Agreement for South East Asia and Pacific Region was sponsored by F.A.O. in 1956 and India became a party to this agreement in the same year along with Australia, Ceylon, U.K., Laos, Netherlands, Indonesia, Portugal and Vietnam. Our Government agreed to adopt legislative measures specified in the Convention for the purpose of securing common and effective action to prevent the introduction and spread of pests and diseases of plants and plant products and to promote measures for their control and also agreed to assume all responsibilities for the fulfilment within its territories of all requirements under the Convention. It was agreed that the Government shall make provision as soon as possible and to the best of its ability, for an official Plant Protection organisation with the aim of preventing the introduction of diseases and pests of plants into the country. It was also agreed that our Government shall have full authority to regulate the entry of plants and plant products and to this end, the Government may,

- prescribe restrictions or requirements concerning the importation of plants or plant products;
- prohibit the importation of particular plants or plant products, or particular consignments of plants or plant products, or particular consignments of plants or plant products;
- inspect or detain particular consignments of plants or plant products;

The world has shrunk in distance. With the improvements in the speed and modes of transport and communication the volume of international travel and trade has increased. Thus every country has become more vulnerable to the danger of infiltration of known and unknown dangerous pests and diseases affecting not only human beings and animals, but also the different kinds of plants and plant materials which provide food, fibre and other valuable commodities. In this context Plant Quarantine has assumed added and additional importance and significance in the modern world.

- treat, destroy or refuse entry to particular consignments of plants or plant products, or require such consignments to be treated or destroyed.

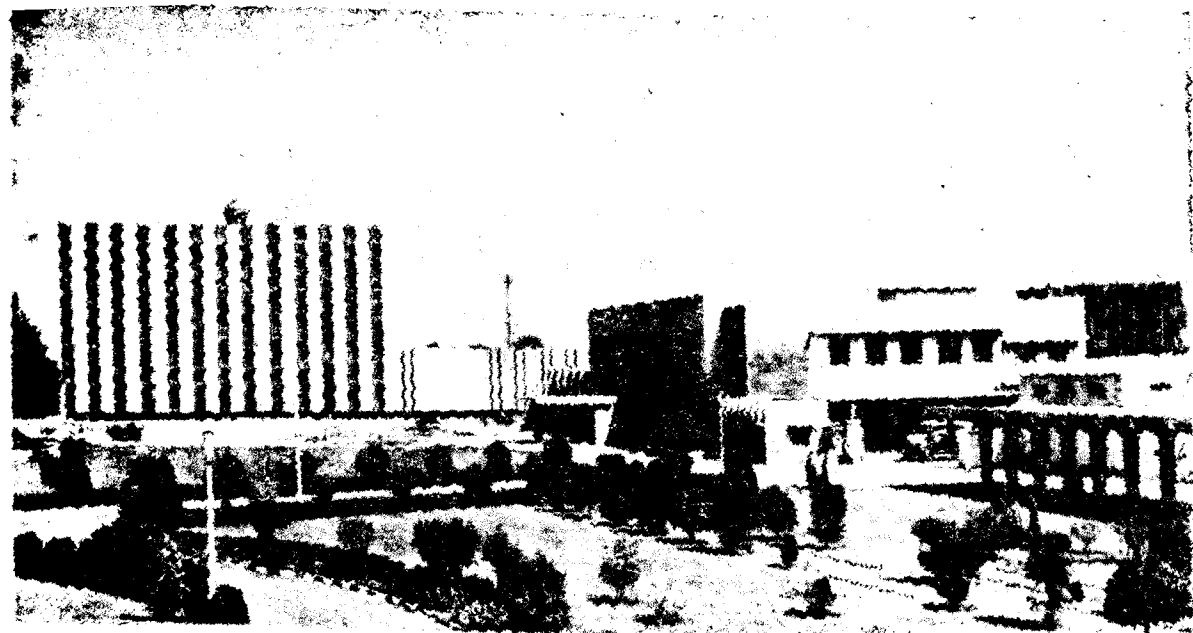
at Indo-Nepal border Plant Quarantine Station at Sukhiapokhri.

All Plant Quarantine laws aim at the prevention of the introduction and/or spread of pests and diseases to new areas and therefore measures adopted to achieve this object have a direct relation to the type of insect or disease involved.

The Government of India has taken legislative steps as far back as 1914 for preventing the introduction of pests and diseases into India. Plant Quarantine work at the major seaports and at airports, through which the international trade and traffic passes, is being conducted by the Central Government. Facilities exist for inspection and treatment of plants and plant materials at Plant Quarantine Stations at the seaports of Bombay, Bhavnagar, Calcutta, Cochin, Madras, Rameshwaram, Tuticorin and Visakhapatnam and at the airports of Amritsar, Bombay, Tiruchirappalli, Calcutta, Madras and New Delhi and land frontiers of Hussainiwala (Ferozepur) Sukhiapokhri (Darjeeling) & Attari (Amritsar Dt.).

The fruits imported from Afghanistan are to be inspected and fumigated at Plant Quarantine and Fumigation Station at Indo-Pakistan land frontiers at Hussainiwala (Ferozepur) and the potatoes imported from Nepal are to be inspected

In general, all plants and plant materials have to be imported only through the prescribed ports of entry, namely, Bombay, Calcutta, Cochin, Bhavnagar, Rameshwaram, Madras, Nagapatnam, Tuticorin and Visakhapatnam and must undergo inspection and, if necessary treatment. They must also be accompanied by a phytosanitary certificate. Further, the import of plants by air is possible only through a permit issued by the Plant Protection Adviser to the Government of India. Along with this permit a green and orange tag is issued. The permit and the tag are to be forwarded to the consignor. The phytosanitary certificate, the permit and the tag have to be sent with the consignments. The consignments are quickly identified by means of the tag, inspected and treated, if necessary, by the Plant Quarantine staff at various Plant Quarantine and Fumigation Stations and passed for release if they are in a satisfactory condition.



AMUL Dairy was started in 1948, and at that time the co-operative societies existed only in two villages. Now 783 villages have joined the co-operative societies. In every village, there is one co-operative milk producers' society. The farmers are members of the co-operative societies of their villages, and there are about 2 lakh members. The total number may be 10 lakhs, if their family members are taken into account. Each village co-operative society is managed by an elected member; and the secretary will look after the day-to-day affairs of the society and is paid monthly. There are clerks to maintain the account and to undertake the fat test. In every society, three persons will work; but in big society, even 10 persons may be employed. About 4,000 workers were employed in village co-operatives, whereas Kaira District Co-operative Union, Anand, had employed only, 2000 persons.

Within few minutes after milking, the farmers bring their milk every morning and evening to the milk collection centres located at their villages. The fat test is performed every day. The payment is done for the milk supplied on the previous day. Nearly 1.5 lakhs fat tests were carried out daily. The cash payment is made both in the morning and evening. The milk collected in 783 villages is transported to the Dairy factory at Anand by 82 trucks. The transport contractors, appointed each year by tender, arrange to collect the milk from the village societies and deliver it to

SUCCESS STORY OF A CO-OP. MILK UNION

.....Amul

By
Dr. R. PANJARATHINAM,
M.V.Sc., Ph. D.
**A CO-OPERATION
WEEK FEATURE**

Picture above is of Amul Dairy Plant
which handles over 5,00,000 litres
of milk daily.

the dairy factory at Anand. Six lakh litres of milk received every day by the dairy factory at Anand, and about 2 lakh litres are transported daily to Bombay in refrigerated wagons. Two and half lakh litres of milk are sold at Anand and its surrounding areas. The remaining quantity is utilised for the manufacture of milk products. These products are sold throughout the country under the name "AMUL". Kaira District Co-operative Milk Producers' Union Limited, Anand, earns nearly Rs. 40 crores by the sale of milk and its products.

Kaira District Co-operative Union had started to help the farmers for more production of milk by appointing dairy manager, sales managers and Animal Husbandry managers. Three hundred persons are under the control of Manager for Animal Husbandry and are fully responsible to help the dairy farmers.

1. A cattle feed factory was started at a distance of 8 kilometres from Anand. It manufactures 300 tonnes of cattle feed per day. The trucks, returning from the dairy factory at Anand after delivery of milk, will carry the cattle feed from the feed factory to the village society. The village co-operative milk producers' society distributes this feed to the members of the society. The member is benefitted by Rs. 20 per tonne of feed, as the feed is available at a subsidised rate. Hence, the cattle feed factory is of great necessity.



Producers delivering milk in clean, bright vessels at a Collection Centre.

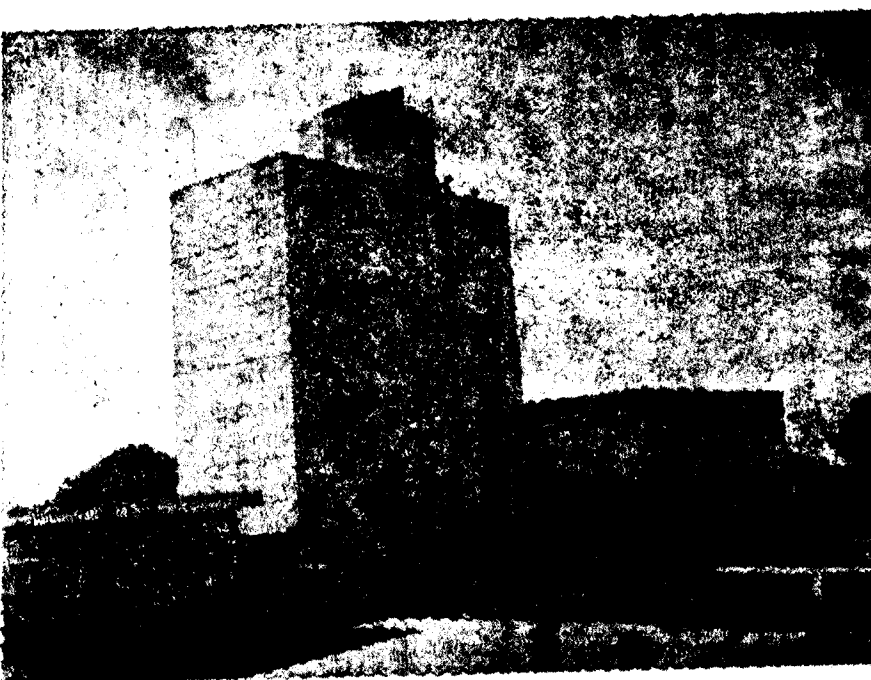
2. Agricultural section distributes lucerne seeds to the members at reduced rate. Animal Husbandry section educates the farmers of the fodder cultivation methods. Sixty thousand members have utilised within six years 25,000 acres of land for lucerne cultivation and are also making efforts to cultivate Hybrid Napier. Chaff cutters have also been distributed to the members.

3. Veterinary section is also in full swing. Free treatment is given to the cattle of the members of the Kaira District Co-operative Milk Producers' Union. There are, at present, 42 veterinary officers and 75 assistants. The secretary of each village co-operative society has been trained in veterinary first aid technique and renders first aid service. He is paid Rs. 25 extra per month by the village society. In each village, there is provision for the first aid box. Veterinary officers visit weekly every village and the free treatment is given to ailing animals. Costly medicines are also used and the veterinary service is available round the clock to the members of the society. Sometimes, the members of the village society may call suddenly the veterinary officers for the treatment of their animals and the veterinary officers will reach the spot within 4 hours of the call. Members should pay Rs. 10 as fee for each call, otherwise they may call unnecessarily in an irresponsible manner. Two lakh cattle have been treated free of cost during 1972-73. Members have

started to have more faith and honesty in the co-operative union, because of this type of service.

4. Artificial insemination is also undertaken. Sixty breeding bulls of high pedigree are maintained. Semen collected from these bulls is despatched by trucks to the artificial insemination sub-centres. One or two members of the staff employed by each village co-operative milk producers' society are trained to perform artificial insemination and are paid Rs. 25 per month at an extra cost. Moreover, their work is supervised by the Veterinary officer.

OXFAM and FAO assisted cattle-feed factory is co-op. owned.



5. The Union carries out :
tattooing of the ear of the animal ;
construction of water trough ; cattle
shed ; conduct of milk yield competi-
tion.

If the cost of one litre of milk be increased by 2.5 paise, such aids can easily be given to the members, and there is no need to approach the Government for the fund. Some incentive should be given to the farmers for the success of dairy factory or dairy scheme. The incentive should constitute a part of the dairy scheme and should be given by the cattle development department. The dairy development does not mean the bottling of milk or getting butter out of milk, but it should step up the milk production. Only the co-operative societies can help the farmers. In the beginning, the co-operative societies were started at villages and supplied milk. Some societies had to compete with the middlemen. Sometimes the societies were closed down in the villages, because of the inability to recover the loan given for the purchase of milch cows. But in Gujarat State, the plans were drawn up in a different way. Primary village societies had set up District Co-operative Milk Producers' Union. This Union could run efficiently the dairy factory and sell milk or milk products. The "AMUL" pattern is followed by seven other big co-operative unions of Gujarat State. Farmers do really enjoy the benefits because of this pattern.



Six yearly progress of Mehsana District Co-operative Milk Producers' Union

Year	Village Co-op tive societies	Supply of milk by co-operatives	Co-operative Capital (Rupees)	Daily purchase of milk (Kg.)	Price of a Kg. fat (Rupees)
1963—64	15	1,885	1,70,800	3,806	7.91
1964—65	41	4,575	2,34,400	9,797	8.90
1965—66	239	21,007	2,73,000	49,643	9.56
1966—67	253	25,000	7,38,400	59,069	10.52
1967—68	275	28,000	9,58,700	76,943	13.27
1968—69	276	39,815	24,07,100	1,14,753	13.31
1969—70	235	43,000	35,95,500	1,13,577	13.44



MEHSANA DISTRICT CO-OPERATIVE MILK PRODUCERS' UNION

Dudhsagar Dairy (Mehsana) had made a net profit of Rs. 10.24 lakhs for 1972—73, according to its Chairman, Mr. Motibhai Chaudhry. The Dairy sold products worth Rs. 10.13 crores during the year. The Dudhsagar Research Association had assisted 24 milk co-operative societies.

Mehsana Milk Union had decided to organise 100 more primary milk societies in the villages to increase the milk procurement. The Union had already started to expand the dairy factory.

EARLY CROSS-BREEDING PROGRAMMES IN INDIA

Only at the end of last century, did dairying as such, came to be known in India. Military dairy farms were set up to supply milk to British Military Hospitals. These farms had made use of our indigenous cows for cross-breeding with exotic bulls. Mostly, Red Sindhi cows were adopted for the improvement. In 1947, i.e., before the Independence of our country, there were six farms with 1,000 cross-bred cattle, and the Britishers were managers and supervisors of these farms.

Before 1900, Edward Kaventers, a Swedish established dairy farms for the first time at Calcutta and Darjeeling, then at Delhi and Simla to cater to the needs of the urban rich.

At Aligarh (Uttar Pradesh), Kaventers had started for the first time a butter factory. Maharajas (Kings) had also set up dairy farms for their own need. In these farms, there were buffaloes and indigenous cows. In some farms (at Srinagar) there were exotic cows. Imperial Agricultural Institute, Pusa (Bihar), had a dairy farm consisting mainly of Sahiwal cows.

Besides, the tea planters of Assam, Nilgiris and West Bihar had crossed our indigenous cows with bulls brought along with them from England. These cross-bred cows are still available at Bangalore, Mysore, Ooty, Shillong, Darjeeling and Patna.

Picture Top: Amul Veterinary vans ensure veterinary cover to all producers.

Picture alongside: High pedigree Surti Buffalo.

The restrictions imposed on power consumption in the State with effect from 1—12—1974 are to be as follows :

A cut of 40% (forty per cent) for all the H.T. Industrial and Commercial services in the State of Tamil Nadu except the essential services specified in Annexure-II.

(ii) A cut of 15% (fifteen per cent) for the services specified in Annexure-II and all newspapers including weeklies, fortnightlies and monthlies.

(iii) A cut of 50% (fifty per cent) for street lighting which may be implemented by reduction of the number of lights or by curtailing the duration of lighting.

(iv) There shall be no supply of power for illuminations and display lighting including advertisements after 7-30 p.m.

There will be no restriction on power supply

- (1) for agricultural purposes ;
- (2) for domestic consumption up to 250 (two hundred and fifty) units and
- (3) for L.T. power services and mixed loads upto 200 (two hundred) units per month.

In respect of H.T. services the maximum permitted demand shall be subject to a cut of 30% (thirty per cent).

The demand and consumption to be permitted will be determined in the manner specified in Annexure I.

For Industrial and Commercial services connected after the 1st September, 1974, the quota shall be as specified below :—

H.T. Industrial Services	Per Week
Continuous process industries	200 Units/KVA
Others	100 Units/KVA
H.T. Commercial	100 Units/KVA
L.T. Industrial	50 Units/H.P.
L.T. Commercial	40 Units/H.P.

The Power Cut in Tamil Nadu



DETAILS AND MODE OF OPERATION.

The above quotas will be applicable to additional loads sanctioned after the 1st September, 1974, to existing industrial and commercial services.

For H.T. services the sanctioned demand and for L.T. consumers, the sanctioned H.P. will be taken into account.

If consumption exceeds the quota fixed for any period the service will be disconnected, till further quotas are equal to the excess ;

These limits are not applicable to

- (i) domestic consumption ;
- (ii) essential services specified in Annexure-II;

(iii) L.T. industrial commercial and mixed loads not exceeding 25 (twentyfive) H.P.;

(iv) hotels, hostels, offices, educational and medical institutions and

(v) newspapers, including weeklies, fortnightlies and monthlies.

If the demand exceeds that permitted at any time, the service shall be disconnected for the balance of the quota period.

If consumption exceeds the quota permitted for any period, penalty shall be levied as in Table I in addition to the charges according to the tariff applicable, apart from disconnection of service.

If demand exceeds that permitted, penal charges shall be collected in addition to tariff charges as in Table II.

No New Connections

New connections shall not be allowed after the 1st December 1974, except in the following categories :—

- (i) domestic consumption ;
- (ii) agricultural services ;
- (iii) essential services specified in Annexure-II and
- (iv) L.T. Power and mixed loads not exceeding 25 (twenty-five) H.P.

ANNEXURE I

The cuts specified will be applied to the average consumption of any three consecutive months advantageous to the consumer during any period from 1st September 1971 to the 30th November 1974. For seasonal consumers consumption in the corresponding months in any 12 month period since 1st September 1971, may be taken into account for this purpose. Consumers may at their option have their quotas fixed.

For existing consumers, who have been permitted additional demand on or after the 1st September 1974, the quota for the additional permitted demand will be added to the quota worked out as above.

Existing as well as new consumers may at their option forego supply for a period of not less than 30 days during March, April or May 1975 and have their quotas for the rest of the period increased to the extent of energy quotas foregone.

H.T. Consumers may have their quotas fixed on a weekly or monthly basis at their option. Quota for any period cannot be carried over to any subsequent period. Those on weekly quotas may also opt to work on 4 days in a week and those on monthly quotas may opt to work for 18 days continuously during which period they may draw the entire quota for the week/month without the demand being subject to the cut specified. The working days shall be fixed in consultation with the local officers of the Electricity Board specified by the Electricity Board for the purpose.

The cut specified in Clauses 7 (b.) will be applicable to the maximum demand actually registered by the consumer during the period from the 1st September 1971 to the 30th November 1974, and to the sanctioned demand in case of additional demand sanctioned or new services connected after the 1st September 1974. Those who apt to work between 9 p.m. and 6 a.m. only will not be subject to the cut on demand.

Group of industries under one management will be permitted to bulk the quotas given to them provided the services are in the same system.

The quotas will take effect from the date of meter reading from or after commencement of operation of this Order. The quotas fixed on weekly or monthly basis will be applicable for the period between any two successive meter readings.

ANNEXURE II

(i) Aerodromes

(ii) Communication facilities (Post and Telegraph, All India Radio, Government Wireless Units, etc.);

(iii) Dairies and Chilling Centres of the State Government or of any co-operative Societies. ;

(iv) Defence Service Establishments including factories. ;

(v) Government Press and Branch Presses. ;

(vi) Harbour and Port installations. ;

(vii) Hospitals ;

(viii) Irrigation and Power Projects in the State. ;

(ix) Observatories ;

(x) Railways ;

(xi) Rural Broadcasting Service;

(xii) Telephone Exchanges ;

(xiii) Water Supply, sanitation and Drainage works ;

(xiv) Government Laboratories and Research Institutions inclusive of B.C.G. vaccine centre, Guindy, King Institute, Guindy, Pasteur Institute, Coonoor ;

(xv) Quinine Factory of Government of Tamil Nadu ;

(xvi) Government offices and

(xvii) Public Works, Highways and Transport Workshops of Government or Government owned/Corporations.

ANNEXURE III

1. Aluminium
2. Cast iron spun pipes
3. Cement
4. Caustic Soda
Synthetic fibres and other chemical industries specified by Government
5. Distillation of sandalwood oil
6. Fertilizers
7. Flue solid lime
8. Galvanizing
9. Induction melting
10. Hydrogenation of vegetable oil
11. Malt extract
12. Magnesite including calcined magnesite
13. Carbide
14. Glass
15. Manufacture of ice, freezing plants and cold storages
16. Paper
17. Oxygen
18. Tanning Industry, including extraction of tannin
19. Sugar
20. Hindustan Photo Films, Ooty
21. Ceramic Units operating funnel kilns

Table I

Category	Permitted/Consumption Month	Penalty for excess consumption/Unit
Domestic consumption	250 Units	1.5 times tariff applicable for domestic supply under LT 1 (a)
Low Tension loads	Quota as specified in Clause (8)	1.5 time tariff rate applicable.
H.T. Industrial including special tariffs		1.5 times maximum tariff rate under H.T. I (A)
H.T. Commercial		1.5 times maximum tariff rate under I (B)

Surcharge, other levies, if any, and taxes as applicable will also be leviable on the penal charges specified in this clause.

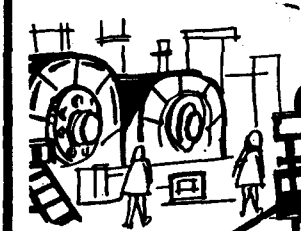
Table II

Category	Penal Charges per KVA
H.T. Industrial	.. Twice Tariff charge for Demand
H.T. Commercial	.. Twice Tariff charge for Demand
Special Loads	.. Twice Tariff charge for Demand as fixed

NEED-BASED FINANCIAL ASSISTANCE FROM.....

TIIC
THE FINANCIAL INSTITUTION WITH A HEART

We grant term loan assistance up to Rs. 30 lakhs to industries engaged in manufacture, processing, preserving etc. as also to shipping, transport, hotel industries. Amount in excess thereof would be arranged in collaboration with State institutions like SIPCOT and TIDCO and/or with All-India institutions like IFCI, ICICI etc. Also assistance by way of issue of guarantees for deferred payments and underwriting of shares.



Our new scheme finances import of machinery under IDA Credit - an affiliate of the World Bank, from any country of the World Bank Group and Switzerland.



For technically qualified people with no means to start their own small scale industry and willing to go into rural areas we grant loans from Rs. 10,000/- to Rs. 2 lakhs. Interest 7.5% p.a.



For all qualified and registered physicians, surgeons, dentists or veterinary practitioners, willing to work in rural Tamil Nadu - loans from Rs. 10,000 to Rs. 1 lakh. Interest 7.5% p.a.



THE TAMILNADU INDUSTRIAL INVESTMENT CORPN. LTD.
"Arul Manai", 26, Whites Road, Madras-600014.
Branches : Thanjavur, Madurai, Coimbatore and Salem.

Managing Director : S.N. Pai.

TIIC Celebrates its silver jubilee (1949-74)



Thiru C. Subramaniam, Union Finance Minister, inaugurates the Tamil Nadu Social Security Scheme on 15th November, 1974 while Thiru Dr. M. Karunanidhi, Chief Minister and Thiru K. K. Shah Governor are looking on.

TAMIL NADU SOCIAL SECURITY SCHEME

It is well known that sustained economic growth is based on savings. Savings in the household and corporate sectors are mobilised by Governments for public investments and public consumption. Private or household savings contribute as much as 80 per cent to overall savings in our country.

Taking care of the Poor

During more than two decades of planning, investments in agriculture, industry and infrastructure have resulted in increases to production, employment and incomes throughout Tamil Nadu. Increased private consumption, which has thus been made possible, has to be supplemented by the provision of basic minimum needs, or in other words, "social or public consumption," on education, health, family planning and nutrition, drinking water supply, roads, house-sites and housing, electrification of villages and the like. There has been steady and significant progress on all these fronts in Tamil Nadu with particular emphasis on taking care of the poorest sections of the people.

LET
US
MAKE
IT
A
PEOPLE'S
MOVEMENT

S. GUHAN, I.A.S.

Secretary, Finance Department,
Government of Tamil Nadu

Furthermore, the special schemes launched in the last few years on beggar rehabilitation, eye camps, provision of cycle rickshaws, and rehabilitation of the physically handicapped have drawn attention to the human suffering amidst which we live and have resulted in concrete measures to alleviate these problems. John Ruskin, who was rediscovered by Gandhi, spoke of "Unto the last." The social programmes in Tamil Nadu are being progressively extended and enlarged to reach unto the last.

Social Security is yet another direction in which innovative programmes have to be taken up. Old age pensions for destitutes were introduced in Tamil Nadu in 1962. The Family Benefit Fund Scheme has been in operation since January 1, 1974. It now covers nearly 7 lakh employees of the Government, local bodies and teachers in aided institutions. In case of death while in service, the family is given a lump-sum of Rs. 10,000. This scheme has benefited 462 families in the first 9 months of this year. Over 90 per cent of them are families of

low-paid employees such as peons, constables, drivers, maistries and primary school teachers.

Social Security Scheme— Suitable for Wage-earners and weaker sections :

Social Security Scheme 1974 extends the principle of security in old age in return for a small and regular payment during the working life to the public at large. Wage earners and the self employed, men, women and minor children, the young and the old can participate in the scheme.

There are seven types of subscription plans which are available Rs. 10/- per month for 25 years or Rs. 20 per month for 20 years or Rs. 20 per month for 15 years or Rs. 60 per month for 10 years will in each case earn a monthly pension of Rs. 100/- to the subscriber. Even if death occurs soon after the subscription period is over, the monthly pension will be paid for 30 years. Those, who desire to have a monthly pension of Rs. 100/-, can join any one of these four Plans depending upon how much they can subscribe per month and for how long they can make regular subscriptions.

In the lower income groups, a monthly saving of more than Rs. 10/- may not be possible. There are four Plans in each of which the monthly subscription is only Rs. 10

but the period of subscription is different ; Rs. 10 per month for 10 years will result in a monthly pension of Rs. 20/- ; for 15 years in a monthly pension of Rs. 35/- ; for 20 years in a monthly pension of Rs. 60 ; and for 25 years in a monthly pension of Rs. 100.

When the pension payments come to an end at the end of 30 years a lumpsum amount depending upon the Plan chosen will also be

given as detailed in the table I. If so desired, half the lumpsum can be collected at the beginning of the pension period in which case half the monthly pension will be paid.

It will be obvious that in each Plan the subscriber gets many times the amount he has paid. This is rendered possible by the Government undertaking the responsibility to invest the amounts and to multiply the subscriptions over a period of time on a no-profit basis. The Government also bears the cost of administering the Scheme from its budget.

A flexible Scheme

The Scheme is flexible enough to cater to many situations. Subscribers who initially join smaller duration Plans with a monthly subscription of Rs. 10 can extend their subscriptions later to longer duration Plans. You can join the 10 year Plan and move on to the 15, 20 or 25 year Plans ; or join the 15 year Plan and extend it to 20 or 25 years ; or join the 20 year Plan and stay on for 25 years.

In case a subscriber dies before his subscription period is over, his nominee can continue the subscription for the full period and derive the benefit of a monthly pension for 30 years. Alternatively, the nomi-



A small boy along with an old man receiving the Pass Book on the inaugural day.



A middle-aged woman becoming a member in the Social Security Scheme and getting her pass book from the Chief Minister on the inaugural day of the Scheme.

nee can collect the subscription amounts paid in with interest at 7 per cent per annum.

Subscriptions can be paid in cash or by money order or by demand drafts or through standing instructions in any one of the 1,650 branches in Tamil Nadu of the 32 Banks which are participating in the Scheme.

List of Banks participating in the Scheme

1. Bank of India
2. Bank of Madura Ltd
3. Bank of Maharashtra
4. Bharat Overseas Bank Ltd
5. Canara Bank
6. Central Bank of India
7. Corporation Bank Ltd
8. Dena Bank
9. Indian Bank
10. Indian Overseas Bank
11. Karnataka Bank Ltd
12. Punjab National Bank
13. State Bank of India
14. State Bank of Hyderabad
15. State Bank of Patiala
16. State Bank of Saurashtra
17. Syndicate Bank



A youth enrolling his name in the Social Security Scheme and getting his Pass Book from the Chief Minister.

18. Tamil Nadu Mercantile Bank Ltd
19. The Andhra Bank Ltd
20. The Catholic Syrian Bank Ltd
21. The Karur Vysya Bank Ltd
22. The Kumbakonam City Union Bank Ltd
23. The Lakshmi Vilas Bank Ltd
24. The Nedungadi Bank Ltd
25. The New Bank of India Ltd
26. The Tamil Nadu State Co-operative Bank Ltd
27. The Tanjore Permanent Bank Ltd
28. United Commercial Bank
29. Vijaya Bank Ltd
30. State Bank of Mysore
31. The Vysya Bank Ltd
32. Union Bank of India
33. Allahabad Bank
34. The Federal Bank Ltd

Table I

PLAN	A	B	C	D	E	F	G
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Amount of monthly subscription	10	10	10	10	20	30	60
Period of subscription years	10	15	20	25	20	15	10
Monthly Pension (for 30 years or death whichever later)	20	35	60	100	100	100	100
Lumpsum Payment	1,500	2,500	4,000	5,500	8,000	8,000	9,500

The scheme is ideally suited to wage earners who can authorise the monthly payments to be made from salary deductions. Employers can also use the scheme as a contributory pension fund for instance, Rs. 10 per month each from an employee and his employer in a working span of 20 years will provide the employee with a monthly pension of Rs. 100 for 30 years.

Every good scheme serves more than one purpose. This scheme is a piece of financial engineering designed to promote thrift, provide social security and increase investible funds. It is like a dam which uses water to generate power and, thereafter, leaves it free for irrigation. Join the Scheme early and help to make it a People's Movement in Tamil Nadu.

TAMILNADU SOCIAL SECURITY SCHEME RULES FOR OPERATION

The Scheme is a social security measure for providing a monthly pension to persons who subscribe to this Scheme.

Subscription Plans :

Seven types of subscription plans will be offered on the basis of Table 1 below :

The subscription shall be on a monthly basis and the period of the account shall be counted from the month of the first subscription.

Table 1

Plan No.	Monthly Subscription Amount Rs.	Period of Subscription Years
A	10	10
B	10	15
C	10	20
D	10	25
E	20	20
F	30	15
G	60	10

Participating Banks :

Subscriptions will be accepted through the branches of participating Banks who have signed the memorandum of agreement with the State Government.

Procedure for application :

Applications for entering the Scheme should be made in the prescribed form and submitted to the Manager of the branch of participating Bank in which a subscriber wishes to make his monthly deposits. The application should be submitted along with the subscription for the first month. No entrance fees will be charged.

Minor's Account :

A minor on whose behalf an account has been opened may on his attaining majority after signing a declaration, continue the account till its maturity.

Manner of deposit :

The deposits shall be made once in every calendar month on any working day on or before the 15th day of the month. If the subscriber so chooses he may also remit the subscriptions in advance. Subscriptions may be made in cash, bank drafts, money order or through transfer instructions to the Bank. Cheques will not be accepted. All deposits should be made in favour of the subscriber's account No. in the "Tamil Nadu Social Security Scheme Deposit Account."

Penalty for late payment :

Any deposit due in a month, but made subsequent to the 15th day of the month, will be deemed to be a late payment. All such late payments will be accompanied by a late fee of Re. 1/- per subscription amount of Rs. 10/-.

Lapsed accounts :

If defaults in monthly instalments occur in six consecutive months, the account will be treated as a lapsed account. Such accounts will under no circumstances be revived. The amounts in such accounts shall be payable to the subscriber only at the end of the subscription period. Interest on such accounts will be calculated at the rate of 5% per annum simple interest.

Death of the subscriber :

In the event of death of a subscriber during the period of subscription the amounts contributed by him together with interest at 7% per annum simple interest will be paid to his nominee. In the absence of a nomination or in the event of the nominee not being alive, the payment will be made to the legal heirs of the deceased. The nominee may, if he so chooses, continue the operation of the account till its maturity. If the nominee chooses to withdraw the amount in the account, he should apply to the Manager of the Bank concerned along with—

- (a) Death certificate of the deceased and
- (b) Identification certificate of the nominee.

Pension payable :

The pension payable per month to the subscriber by the Government under the various plans is as given below :

Table 2

Plan	A	B	C	D	E	F	G
Pension Rs. ..	20	35	60	100	100	100	100

This pension will be payable on a monthly basis for a period of 30 years from the end of the subscription period or until the death of the subscriber whichever is later.

Lumpsum payable :

In addition to the monthly pension, the nominee of the subscriber will be entitled to a lumpsum payment. The lumpsum will be paid to the nominee at the end of the pension period (i.e., 30 years from the end of the subscription period or the death of the subscriber whichever is later). The nominee will also be free to collect the lumpsum on the death of the subscriber if it occurs within 30 years from the end of the subscription period. In such a case, the pension amount will be terminated as soon as the lumpsum payment is made. The lumpsum amounts payable under the various plans are as follows :—

Table 3

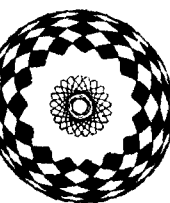
Plan	A	B	C	D	E	F	G
Lump-Rs.	1,500	2,500	4,000	5,500	8,000	8,000	9,500
sum							

Advance payment of lumpsum :

The subscriber may, if he chooses, take payment of 50 per cent of the lumpsum amount as given in Table 3 above at the beginning of the pension period. In such cases, the subscriber will be entitled to only 50 per cent of the monthly pension mentioned in Table 2.

Maturity of the Account :

At the end of the subscription period and after payment of all instalments due, the subscriber will be entitled for the monthly pension. For this, he should apply in the prescribed form and submit it to the Manager of the Bank concerned along with his Pass Book.



Transfer of Accounts :

A subscriber may have his account transferred on application at any time free of charge to any other branch of the participating bank operating his Social Security Account.

Conversion :

Conversion from one Plan to another in any of the Plans A to D will be permitted, but such conversion will be only to a Plan with a longer subscription period. e.g., Plan may be converted to Plans B, C or D, Plan B to Plans C or D and Plan C to Plan D.

Instructions to Subscribers :

(a) Every subscriber will at the time of entry be issued with a Pass Book.

(b) The Pass Book is an important document and should be kept in the personal custody of the subscriber.

(c) The Government will not be responsible for any loss caused to the subscriber as a result of negligence or fraud of any kind.

(d) Pass Books should be presented at the time of each deposit and on the maturity or closure of the account.

(e) At the time of every monthly subscription, the subscriber should satisfy himself that the appropriate stamp has been affixed and defaced in the box corresponding to the month of subscription. The Government will not be responsible for any subscriptions which have not been duly remitted or receipted for in this manner.

(f) The subscriber should keep the Bank informed of any change in his address.

(g) In cases where subscriptions are made by money order or demand draft or transfer instructions to the Bank, the Pass Book should be deposited by the subscriber at the Bank at which he is subscribing.

(h) Any loss of the Pass Book should be reported immediately to the Bank concerned from where a duplicate Pass Book will be issued on payment of the prescribed fee. Subscribers can also apply for the replacement of pass books which are mutilated or damaged on payment of the prescribed fee.

(i) In case of any complaints, the subscriber should address the Director of Social Security quoting his account number and the branch of the Bank at which he is currently subscribing.

Social Welfare Schemes Of Yesteryears

Beggars' Rehabilitation Programme :

The Beggars' Rehabilitation Programme was introduced on 3rd June, 1971 and the Government of Tamil Nadu is implementing it with all its best to see that the beggars affected by leprosy be given proper treatment and then it paved the way for other schemes to follow. Among the Welfare Schemes launched by the Government of Tamil Nadu, the Beggar Rehabilitation programme has been an eye-opener to other States since they too follow the foot steps of Tamil Nadu. This programme was mainly introduced and implemented for uplifting the weaker sections of the Society. So far there are 10 Beggar Rehabilitation Homes opened by public contribution and these are functioning effectively. These Homes are mainly meant for the beggars suffering from leprosy. Each home is accommodating about 400 adult inmates and 25

children. The main purpose is to rehabilitate them and thus make them live with dignity and self-respect in the community. Sufficient staff have been posted to these Homes to look after these inmates. Treatment and Rehabilitation of the Leprosy Beggars are the two significant functions of these homes. Ultimately the primary object of the programme is to enable the individual Beggar regain his self-image for a self-reliant social recognition. Special attention is paid to train the inmates in various crafts like mat weaving, tailoring, shoe making and poultry keeping, etc.

This scheme costs the Government Rs. 45 lakhs per year, besides voluntary donations.

Beggars' Rehabilitation as on 7th November, 1974

Number of Beggar Homes—10

Inmates—3,396



The Beggars' Rehabilitation Home at Paratur.



Chief Minister issuing spectacles to an aged woman after treatment in an eye camp.

Free Eye-camp Scheme :

This is another scheme of the Government and in the year 1972, this programme was started with 100 eye camps in the State. Consequently more and more eye camps were conducted to treat the eye-patients in the early stages of their ailment. The Public Health Department are conducting these eye camps successfully. The eye camp is an eye hospital set up near the patients home for his convenience. Expert eye care is given through these camps for a short period. Nearly all the requisite services are available here, and people need not go to an eye hospital to start with. Detection of and treatment for glaucoma, examination of eyes and prescription of glasses, operations for cataract are some of the various services provided for the people. Qualified doctors are posted to treat the patients. Patients are examined and treated well if they can be treated in these camps. The purpose of restoring the eye sight for the poor blind people in old age is to lessen the burden of the society, so that these people can earn for their livelihood and live for many more years.

The total number of eye camps conducted so far is 179 and the out-patient cases treated are 5,83,165. As many as 80,579 Cataract operations have been performed and 80,579 persons have been given glasses, free of cost.

The cost of the entire project is Rs. 30 lakhs, entirely met from voluntary donations except the cost of the maintenance of the staff.

Free-Eye Camps (As on 31-10-1974)

Number of camps conducted—179	
O.P. Cases	5,83,165
Cataract Operations	80,579
Refractions	73,733
Glasses given	80,579

Issue of Cycle-Rickshaw to Hand-Rickshaw Pullers :

Gone is the age of hand pulled rickshaws in Tamil Nadu. The Hand Rickshaw Pullers Rehabilitation Programme is another humanitarian programme of the Government to elevate the common man economically and socially and enable him to regain his self respect and social status. All the hand-pulled rickshaws in the State were replaced by cycle rickshaws in stages. So far 2,058 hand rickshaws have been surrendered by owners and pullers of hand rickshaws and a compensation of Rs. 200 per vehicle was given to each of them. The cost on account of this is estimated at Rs. 2.86 lakhs. 1,181 cycle rickshaws were distributed to rickshaw pullers as a gift.

A scheme for distribution of cycle rickshaws to 1,500 jobless persons in the State on payment of Re. 1 per day for 1,000 days is under way.

The inhuman profession of man pulling a man as a beast of burden was put to an end and really the selfrespect of the rickshaw puller is regained. With this scheme, the

living conditions of their families are improved and bettered. This scheme is yet another mile-stone to mark the journey for ushering in a egalitarian social order.

Recently the Tamil Nadu Hackney Carriage Act, 1911 has been amended so as to prohibit altogether the plying of hand rickshaws in Tamil Nadu.

Free Cycle Rickshaws issued as on 7th November, 1974

Number of free Cycle rickshaws given in place of handpulled rickshaws	769
Under distribution to Corporation Staff Scheme	414
Under Jobless persons Scheme (approximate)	875

Welfare Scheme for the Physically Handicapped:

This year 1974, Chief Minister Dr. M. Karunanidhi announced a 12 point programme for rehabilitation of the physically handicapped. This is initially costing Rs. 1 crore and will require more money for effective implementation. It has been estimated that 25,000 people would be benefited in the first year. The deaf, dumb, blind and handicapped persons would really be benefited with this unique social welfare measure.

There are about 2.35 lakhs of physically handicapped persons.

Over 1,000 will be given vocational training and absorbed in transport corporations, civil supplies, cottage, and village industries departments, etc.

A Rs. 10-lakh engineering workshop will be established on the Mahabalipuram road for training 150 at a time in various skills.

3,000 are to be trained in match manufacture, beadrolling, hosiery making, etc. in 50 training centres around production points.

20 centres will train S.S.L.C. holding deaf and dumb in type-writing and shorthand. About 400 will be trained in the first stage. 25 training centres will teach tailoring to 500.

100 S.S.L.C. holders will be trained in computer operation and card punching in Madras City. All the training schemes provide for stipend to the trainees.

Legislation will soon be introduced providing for preference for the handicapped in appointment as lift operators.

Special Employment Exchange for the handicapped, like the one functioning in Madras City, will be established in all the districts.

10 more special schools—five for the blind and five for the deaf—will be started in the current financial year. There are already 15 schools for deaf and 13 for blind in the State and a training institute is being started.

15 schools will be started in district headquarters hospital compounds to impart education to polio-afflicted children.

An additional 30,000 persons will be given old age pension, and half of these will be handicapped. Currently about 45,000 people get this pension amounting to about Rs. 1 crore annually. The age of eligibility will be relaxed from 65 to 55 years in the case of the handicapped.

1,000 hearing aids, each costing Rs. 300, will be distributed to poor deaf children.

Wheelchairs, each costing Rs. 750, will be given to 2,000 poor handicapped persons.

So far upto November 17 wheel chairs, 98 tricycles, 113 hearing aids to children and 94 aluminium crutches were distributed to the physically handicapped persons in Tamil Nadu.

Monthly Pension Scheme for the aged : A major portion of the public do not have any pensionary benefits. The Government, which has always been concerned with the welfare of the public, especially the lower salaried classes, is now intro-

ducing a new pension scheme for them. Under this scheme a 30 year old person contributes a monthly amount of Rs. 10 and is entitled to a monthly pension of Rs. 100 from the age of 55 till death. Provision has been made for the refund of principal and interest to dependents in case of death.

Special Family Benefit Scheme for Government Employees :—A Special scheme has been introduced in order to supplement the benefits available under the pension-cum-gratuity scheme. If an employee contributes Rs. 10/- every month, in the event of death while in service, a sum of Rs. 10,000 will be paid to his family. In the case of an employee retiring on superannuation or demitting office for any reason, he will be paid back the amount contributed along with interest. This scheme is applicable to all Government servants including temporary and non-pensionable post holders.

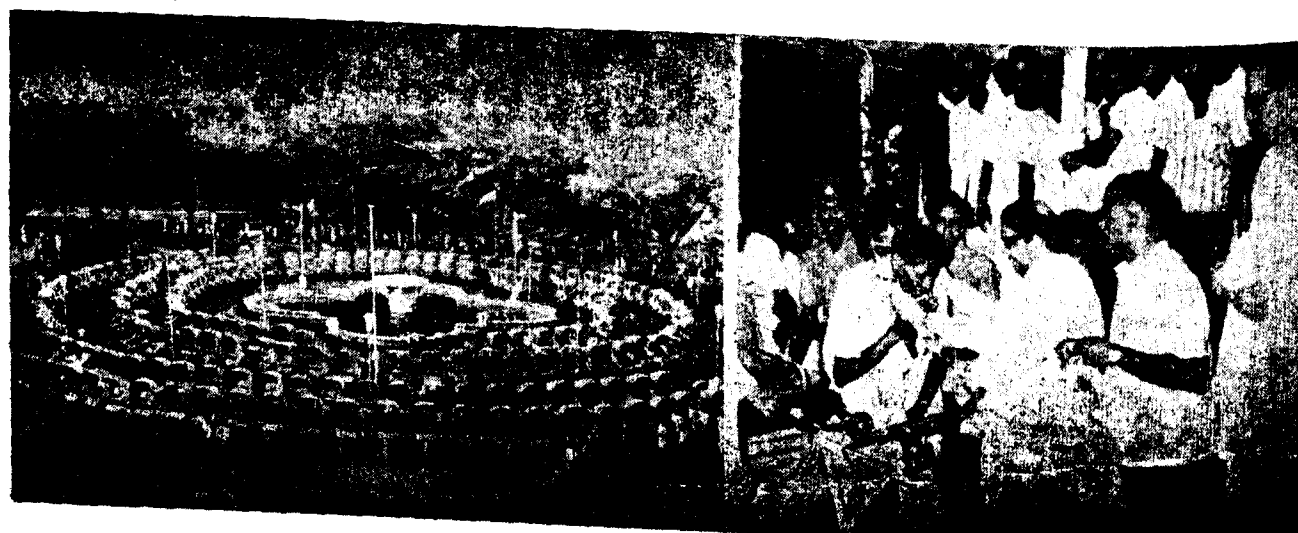
Rs. 11 crores special programme for rural employment :—Rs. 11 crores will be spent this financial year in a cash programme of rural development. Rs. 3 crores is allotted for desilting irrigation tanks, forming new irrigation channels and raising the banks of existing

channels. Rs. 3 crores will be spent to provide link roads to 6,000 villages. The scheme envisages provision of water supply to 2,230 villages with contaminated water sources. Rs. 2 crores will be spent this year out of the total sum of Rs. 4.5 crores. Rs. 2 crores will be spent for providing drinking water to villages and Rs. 1 crore for augmenting water supply to 1,000 villages.

This programme will provide employment for 50,000 all over Tamil Nadu.

Employees' participation in public sector projects :—Nowhere in India, a scheme has been introduced for employees' participation in ownership and management in the public sector. The Government of Tamil Nadu has taken the initiative in pioneering this. To start with, the Government has introduced the programme of employees' participation in the equity capital or State owned Transport Corporations.

The unique scheme of providing incentives in the form of bonus has also been introduced in the Tamil Nadu State Transport Department. Bonus is distributed for collection, punctuality, attendance, performance, etc.



The lot of Cycle-rickshaws assembled before Rajaji Hall for the distribution of the same to the Hand-rickshaw pullers.



Picture above : Chief Minister offering light weight aluminium crutches and a wheel chair to the handicapped children.

THE TAMIL NADU STATE CO-OPERATIVE BANK LIMITED

19/20, Linghi Chetty Street, MADRAS-600001.

Telegrams : URBANK

Telephone : 20367

Telex : MS. 7225

RATES OF INTEREST OF DEPOSITS

Effective from 23rd, July 1974

1. Current Deposits — No Interest.
2. Savings Bank Accounts — Interest will be allowed at 5.50 per cent per annum on monthly minimum balances.
3. Season Deposits for sums of Rs. 1000/- and over :
 Deposits for 15 days to 45 days : 3.00% per annum
 Deposits for 46 days to 90 days : 3.50% per annum
4. Fixed Deposits for sums of Rs. 100/- and over :

Period of Deposits	Interest Rate % per annum
91 days and above but less than 6 months	5.50
6 months and above but less than 9 months	6.00
9 months and above but less than 1 year	7.00
1 year and above but less than 3 years	8.00
3 years and above but upto and inclusive of 5 years	9.00
Above 5 years	10.00

THE BENEFIT OF HIGHER RATE OF INTEREST WILL BE AVAILABLE TO THE EXISTING TERM DEPOSIT FOR THE UNEXPIRED PORTION OF THEIR CONTRACTED PERIODS.

INTEREST PAID MONTHLY ON FIXED DEPOSITS for Rs. 1,000/- and over and for periods of one year and over.

N. L. Heblikar,
Managing Director.

Kodavasal C. Krishnamurthy,
Vice-Chairman

R. Kanakasabai,
Chairman.

WITH THE SOCIAL SECURITY SCHEME

TAMIL NADU PROVIDES A GOOD LEAD TO THE REST OF THE COUNTRY

Speech of Thiru K. K. Shah, Governor of Tamil Nadu on the occasion of the inaugural function of the Tamil Nadu Social Security Scheme at Kalaivanar Arangam on 14th November, 1974.

The flower of democracy blossoms only if the social security is assured to vulnerable section of the nation. India is a vast country which is easily plagued by some shortages in some parts if not throughout its length and breadth and unless the majority of the people feel secured, they cannot contribute their mite for common good and cannot raise their responsibility to normal heights. That is why democratic socialism is equated with Ramrajya or a Welfare State where attempt is continuously made to carry the minimum comfort to the masses.

Socialistic Measures interwoven with fails in democracy.

The concept of Socialism is not new to India. The basis of every religion is the service of the poor. That is why Dharidranarayan has become our passport to spiritualism. Gandhiji's concept of trusteeship is eloquent proof of an attempt to spread Socialism without recourse to violence. Equality of opportunity with emphasis on absence of concentration of economic power is intended to broaden the foundation of prosperity and eliminate exploitation of the poor by the rich. If democratic institutions are to reflect the real voice of the people and if Government is to be the real representative of the vast masses of the people free adult franchise cannot ensure it unless people are informed and are not political, economic and social.

I always quote the example of Winston Churchill to illustrate my point. Mr. Churchill was not the Prime Minister then. He was to speak on B.B.C. He was a little late. He hailed a cab and asked the cabie to take him to B.B.C. The cabie (taximan) did not know

that Churchill was sitting in the Taxi. He said, "no Sir, not today? Churchill asked "Why?" He said "Sir," Mr. Churchill is speaking at 8 P.M. I want therefore to go home early and hear Mr. Churchill. He was mightily pleased that even a taximan wanted to hear him. He took out a pound and gave him as a baxiz. The taximan thought that the gentleman was giving him a pound before being taken to B.B.C. If he took him to B.B.C. he may give more. He therefore said "Come along Gentleman, I will take you to B.B.C. To hell with Mr. Churchill." Does this mean that the taximan lost respect for Churchill in five minutes? Certainly not. What happened was that the temporary compulsion of making quick money played havoc. We have to learn a lesson.

Everyday in a developing country like ours, temporary—economic, social and political—compulsions erode the foundations of a nascent democracy. The only safeguard that can be provided is to create a sense of security. Any Government which attempts to do so nourishes the psychology of making democracy a mode of living. Modern world has introduced several security measures. In Britain and in America old age pension homes for the aged unemployment insurance etc. have ensured social security and economic independence. Our respected Chief Minister Dr. Kalamnagar Karunanidhi, whose socialistic measures are interwoven with his absolute faith in democracy has launched several measures more important of all being his master plan for the benefit of the public as a whole, particularly the wage-earners and the self-employed in lower income groups.

Security coverage for the Less-fortunate.

Most of our benefit schemes cover the welfare of Government employees and workers in various institutions. The small wage-earners and self-employed in the lower strata of society were not covered by these schemes. For such people, this social security scheme comes

as a boon to relieve them of their anxiety to face the future with confidence. By subscribing a meagre monthly sum during the working life of an individual the scheme will provide him with a substantial monthly pension. The pension will be paid for a period of 30 years. The Scheme also provides for the payment of a lumpsum at the end of the pension period. Just as the ants gather slowly and steadily small particles of food for the rainy days man is made to save for the waning days of his life.

I have no doubt that a vast mass of people will come forward to take full advantage of this Scheme and a day will not be far off when no one will be worried about insecurity for the future. Those who cannot afford are also being taken care of. The several welfare measures like the Beggar Rehabilitation Scheme, Rehabilitation of the Physically Handicapped and others cover the categories of the less-fortunate.

Gandhiji once said, "unless all the discoveries that you make have the welfare of the poor as the end in view, all your workshops will be really no better than Satan's workshop." Dr. Kalamnagar Karunanidhi deserves congratulations for dedicating himself and his Government to humanitarian service. Just as it is recognised that the only way to fight poverty is to plan from village level, it is universally accepted that a welfare State can be ushered in only by looking after the most backward and the most unfortunate.

This is a novel but very intelligent scheme. It will create resources from the small savings. These resources will be so employed as to multiply the avenues of employment and build up basis of prosperity. It is a co-operative venture. People will be willing partners of a massive effort for accelerating prosperity the benefit of which will go to the common man. The success of the scheme opens up vistas of unexpected peace and prosperity. May the Almighty make it possible for Tamil Nadu to give a lead to the rest of the country. I wish the Scheme every success.

SOCIAL WELFARE THROUGH SAVINGS

The Tamil Nadu Social Security Scheme inaugurated on Nehru Jayanti Day is an enterprising venture of the State Government to mobilise savings for public investment by promoting the habit of thrift among the people. It is sought to be made attractive by the offer of a monthly pension in old age (in addition to other benefits) in return for a regular monthly payment over one's productive earning years. Contributory social security benefits are available in many advanced countries. Some of those schemes have an element of compulsion too. The Government also makes a contribution. The Government's contribution in the Tamil Nadu Scheme is the financing of the administration of the scheme from the Exchequer. Subscribers can expect to get a reasonable return for their investment with the security of it guaranteed by the Government. In the event of the death of the subscriber before completing the subscriptions for the stipulated period the sum already paid with interest added can be received by the nominee. The entire scheme aims at helping the citizens help them-

selves and in the process the Government too by such long-term lending to it.

Some variations of the main scheme have been offered to suit individual preferences. None of them, of course, seeks to give something for nothing nor can be expected to. It is in the nature of a recurring deposit account at a fairly attractive rate of interest, with the cumulative sum available at the end, converted partly into an annuity and partly into a deferred lump sum payment. If it can be successfully popularised, the savings generated can provide the State Government with the funds needed to promote further economic development. Saving for investment is among the best moderators of inflation too. The success of the venture will depend on aggressive and skilful salesmanship. The idea that one's old age can be suitably taken care of by small sacrifices now has to be persistently popularised through canvassing, as in securing life insurance business.

The Tamil Nadu Government has certainly been thinking hard all the time to evolve new welfare

schemes and implementing them, year after year, beginning with the Beggar Rehabilitation Programme started in 1971, to mark the Chief Minister, Mr. Karunanidhi's birthday. It was followed by the programme of eye camps the next year, the rickshaw pullers' aid scheme the year after and the rehabilitation programme for the physically handicapped earlier this year. Each one of them no doubt sought to minister to a crying social need, but one cannot but feel that taking up a new welfare scheme before the first was fully implemented leads to the earlier one languishing or at any rate only partly implemented. If beggary were totally eliminated in Tamil Nadu and every beggar found anywhere compulsorily rehabilitated in beggar homes, it would be indeed a feather in the cap of the State Government. One would hope that even as the newer schemes are taken up. More attention would also be given at least to the Beggar Rehabilitation Programme to make it a total success before long.

—EDITORIAL, *The Hindu*, 16-11-74

THE GREAT IMMORTALISER PAPER

From Homer to Hemingway,
Kalidasa to Kafka,
Shankara to Shakespeare,
Thiruvalluvar to Thoreau



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A Housing Scheme For Narikuravars In Trichi District

The Gipsies were a type of people whose lives were highly dynamic in nature. The animals too had and still have their permanent place for settlement, but this race among the mankind, never had any room for a stable a happy living. They were "Nomads" wandering from place to place, who could be seen anywhere and everywhere—just coming in the morning and pitching a tent, by the time the sun sets they would have disappeared, leaving the onlookers puzzled and enchanted as if they had seen a colourful dream. Their living seemed to be an 'Imaginative fantasy'.

Honesty, dignity, courage, confidence, integrity can be some of the qualities that may be used as their epithets. Such a well qualified race—except for their not being educated should not be neglected.

It's really a proud privilege for Trichi to be one of the districts to provide this race, who have been living here continuously for the past 15 years, some decent and a well established living. These gipsies depend on agriculture done on a piece of land allotted to them by



the Government for which they will be getting their 'Pattas'. Besides cultivation they earn their living by selling pins, hairpins, colourful beads and other mini articles. Its colourful sight to watch these gipsies near Devarayanery situated on the Trichi-Tanjore Main Road, wandering here and there. Indeed a very pathetic sight too, to see them still at the 'dawn of civilisation'—not much influenced by the modern trends.

Their housing problem has been a long standing one. The inception of the Harijan Housing Development Corporation was one of the most popular and well known projects, inaugurated and carried out successfully with its full glamour and glory by our revered, respected and beloved Chief Minister Dr. Kalam Karunanidhi, who always took joy in wiping the tears of thousands and thousands of people, be-

lieving 'Service to humanity is service to God'.

Mr. Vaithyalingam our District Collector must be given due praise and appreciation for having taken the initiative to solve this housing problem of these roaming gipsies. Houses are being constructed throughout Tamil Nadu each at the cost of Rs. 3000/-. Tiruchi is at the height of its glory to implement this scheme with the help of Harijan Housing Development Corporation. Indeed a novel and original scheme in the State for the gipsies !.

Men may come and men may go but we go on for ever—Because of this unstable character of the gipsies, their habit to move from place to place without any sense of responsibility, the Collector has decided to collect as a standing security of Rs. 500/- from the beneficiaries and houses at the cost of Rs. 3,500/- is being provided to them.

A collection of Rs. 20,000/- done some-time back has been deposited in the bank for this housing scheme. They are not to lag behind in Education, already a school is functioning with a strength of 55 students all gipsies. The Collector has issued orders to the Panchayat Union Authority to construct a Primary School for the children.

On 23-8-74 the Chief Minister Dr. Kalam Karunanidhi had kindly consented to lay the foundation stone for this Gipsy housing scheme, with his auspicious hands to provide the homeless and houseless gipsies a better and settled living.

THE MONKEY KAVADI

The Narikuravars through a nomadic tribe have a great aptitude for domesticating animals. Here a trained monkey goes on a pilgrimage to Palni with all the regalia of a devotee.



PUBLIC & GOVERNMENT HOLIDAYS DURING THE YEAR 1975

The Government of Tamil Nadu have passed the following orders in regard to the observance of holidays in the State of Tamil Nadu, during the year 1975 :—

(i) PUBLIC HOLIDAYS

In addition to 'Sundays' expressly defined as Public Holidays in the "Explanations", to section 25 of the Negotiable Instruments Act 1881 (Central Act XXVI of 1881) the following days should be public Holidays during the year 1975 :—

Wednesday, the 1st January 1975	.. New Year's day.
Monday, the 13th January 1975	.. Bhogi
Tuesday, the 14th January 1975	.. Pongal
Wednesday, the 15th January 1975	.. Thiruvalluvar Day
Friday, the 24th January 1975	.. Muharram
Wednesday, the 26th March, 1975	.. Meelad-un-Nabi
Friday, the 28th March, 1975	.. Good Friday
Monday, the 14th April, 1975	.. Tamil New Year's Day.
Thursday, the 1st May, 1975	.. May Day
Monday, the 30th June 1975	.. Half Yearly Closing of Bank Accounts.
Friday, the 15th August, 1975	.. Independence Day
Tuesday, the 9th September, 1975	.. Vinayaka Chaturthi.
Thursday, the 2nd October, 1975	.. Mahatma Gandhi's Birthday.
Wednesday, the 8th October, 1975	.. Ramzan
Monday the 13th October 1975	.. Ayudha Pooja-2 days
Tuesday, the 14th October 1975	
Monday, the 15th December, 1975	.. Bakrid
Thursday, the 25th December, 1975	.. Christmas
Wednesday, the 31st December, 1975	.. Annual Closing of Bank Accounts.

NOTE:—As Republic Day, Telugu New Year's Day and Deepavali fall on Sunday the 27th January 1975, Second Saturday the 12th April 1975 and Sunday the 2nd November 1975, respectively, they have not been shown in the above list of holidays.

(ii) GOVERNMENT HOLIDAYS

The Government have directed that all the Offices under the control of the Government of Tamil Nadu should be closed on—

- the days mentioned above, except Monday, the 30th June 1975 and Wednesday, the 31st December 1975 and
- all Second Saturdays in the year 1975.



Thiru P. Kumaraswamy

NEHRU FELLOWSHIP FOR TAMIL NADU ENGINEER

Thiru P. Kumaraswamy, the Tamil Nadu Engineer who has been awarded the Nehru Fellowship this year had made Poondi Research Station a by-word for hydrology the world over. After a brilliant academic record including coveted prizes in Mathematics, his first appointment in 1951 was at Poondi; and he returned to Poondi in 1965 as Research Engineer and continues there. In between, he had to his credit, among other things, some pioneering work on the Tuticorin Harbour Project including the Harbour Breakwaters in the 60s.

Since 1965, on resumption of his favourite work of Hydraulic Research as Research Engineer in the Poondi Irrigation Research Station he had conducted research in (1) Vibration in hydraulic structures, (2) Cavitation, (3) Turbulence, (4) Development of Electronics laboratory for the Research Station, (5) Continuous Resistance Electronic Analog Computer for the Coleroon and Kusaithalayar ground water basins, and (6) Sea-water inlet for the Kalpakkam Atomic Reactors.

In October 1967 he was awarded the Homi Bhabha Fellowship for developing the new approach conceived by him for designing Electronic Analog Computers for simulating Ground Water aquifers. The Nehru Fellowship which he has now received is tenable for 3 years and carries grants for extensive travels and other facilities.



VISIT Poompuhar

FOR A REAL
INSIGHT INTO

Tamil Culture

Kaveripoompattinam, known as Poompuhar in its more fortunate days was a well laid out port town which boasted of a separate settlement for the foreigners. Much of the archaeological remains still are there for us to see.

In addition, the recently constructed art gallery is the first attempt, after many centuries, at group-sculpture for which Tamil Nadu is justly famous. In the form of group-sculpture and also in individual figures a remarkable edifice to recreate the life and times of the Tamil classic "Silappathikaram" Story of of the Anklet has come up at Kaveripoompattinam in its art gallery.

FOR FURTHER DETAILS

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